THREE SPRINGS SHIRE COUNCIL

Heart of North Midlands

ATTACHMENT BOOK

ORDINARY COUNCIL MEETING
TO BE HELD ON
WEDNESDAY
26 APRIL 2023

WILDFLOWER COUNTRY

THREE SPRINGS SHIRE COUNCIL

Heart of North Midlands

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ORDINARY COUNCIL MEETING
26 APRIL 2023

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WILDFLOWER COUNTRY

GOVERNMENT OF WESTERN AUSTRALIA

Application form

Regional Development Assistance Program

Supporting Regional Communities



Shaping our State's future

DevelopmentWA

Application form

Name: eith ood ard

Organisation: hire o Three prin s

Address: 132 ail a oad Three prin s

Contact number: 08 9954 1001

E-mail address: ceo@threesprin s. a. ov.au

Organisation overview: ocal overnment

Requirements of applicant to the project (please confirm)

1. Any freehold land supplied to the project from the Local Authority shall be ceded to DevelopmentWA at no cost, prior to the commencement of construction.	☑ YES	☐ NO
2. If requested, the Local Authority will assist DevelopmentWA by sponsoring a funding application for the extension of services to the project, if requested by DevelopmentWA.	☑ YES	☐ NO
3. The Local Authority agrees to maintain firebreaks on the future lots for the duration of the period until the lots are sold to a third party.	☑ YES	☐ NO
4. The Local Authority agrees to regularly inspect, maintain and replace any sales signage placed on the proposed lots by DevelopmentWA (with materials supplied by DevelopmentWA) for the period until the lots are sold to a third party by DevelopmentWA.	☑ YES	☐ NO
5. The Local Authority agrees to waive all bonds, fees and charges relating to the development / holding of the proposed lots by DevelopmentWA for the period until the lots are sold to a third party by DevelopmentWA.	☑ YES	☐ NO
6. The Local Authority acknowledges that, should the subdivision conditions require a 10% POS contribution and the Local Authority does not wish that contribution to be provided as land from within the project, the Local Authority will actively support a reconsideration / review of that condition as an alternative to DevelopmentWA having to provide a cash in lieu payment.	☑ YES	☐ NO
7. The Local Authority agrees to promote the sale of the proposed lots within the project through the Shire's website, Shire newsletters, by displaying brochures, etc, where practical.	☑ YES	☐ NO

Potential contribution by applicant to the project (land, works, in-kind support, cash contribution, etc):

Fill out the next section as applicable. Remember, the more information you can provide, the easier it is to assess and prioritise.

Regional Development Assistance Program Application

(REMEMBER TO ATTACH ADDITIONAL INFORMATION IF INSUFFICIENT SPACE)

Overview of proposal	
Proposal overview - describe project, number of lots, intended land use and desired outcome	esidential subdivision.
Site overview	
Land Area	1.6H
Location Plan (attach)	ot 10 on ia ram 64274
Current tenure and physical description of land	hire o Three prin s Freehold
Local Government support	
Delivery options (Local Government Authority joint venture or partnership, DevelopmentWA project management, development of business case)	evelopment pro ect - PC evelopment pproval evelopment - hire Partnership T C
Local Authority Council Resolution (in support of application)	e er to the attached documents and previous approvals.
Supporting works (possible grants or LGA involvement in delivering project)	To be ne otiated. ite development as oint venture partnership i re uired.
Community expectations	
Community development plan	Community Strategic Plan 2018-2028, 1.1.2, 1.6.2, 4.2
Local Authority's expectations/views	to obtain PC approval.
Local community views	hire o Three prin s Communit trate ic Plan
Lobby/interest groups	Nil
Local market conditions (sales evidence) and likely demand (from Regional Development Commission and local real estate/marketing advice)	e er to the attached documents and previous approvals.
Surrounding land uses and environment (built & natural)	esidental and Farmin

Regional Development Assistance Program Application

(REMEMBER TO ATTACH ADDITIONAL INFORMATION IF INSUFFICIENT SPACE)

Legal	
Title Details/Actions to reconcile titles to create project area	Previous oint pro ect andcorp- hire o Three prin s 2014-2018 PC ubdivision pproval 2014
Form of tenure/title (interest) Ownership (number of land owners, Crown lots, tenure - leased or freehold) copy of title	Refer to the attached documents and previous ap
Encumbrances, easements etc. (2nd schedule of C/T)	e er to the attached documents and previous approvals.
Native Title status of project site	e er to the attached documents and previous approvals.
Search for other interests in & claims of rights over land	Not pplicable
Mining tenements eg. Prospecting Licences/ Mining Leases affecting land (Department of Mines, Industry Regulation and Safety)	No encumbrances on the land
Approval under s.16(3) of the Mining Act 1978 required?	Not pplicable
Planning	
Zoning (current and proposed)	e er to the attached documents and previous approvals.
Environmental Protection Act 1986 (WA) assessment advice received under s.38 & s.48A of Act during scheme amendments	Not pplicable
Previous/existing planning proposals and work (indicative subdivision plans, concept plans, structure plans etc.)	e er to the attached documents and previous approvals.
Current/likely subdivision condition requirements from servicing authorities	The previous PC subdivision approval is attached.
Planning status for surrounding land/locality in Local Planning Strategy	e er to the attached documents and previous approvals.
Buffer Zones (industry, rail, aircraft, agricultural uses/animal production, radio/ telephone towers)	Not pplicable
Noise, light, dust, odour impact etc. of adjoining land uses	Not pplicable
Bush fire requirements	To be supplied i re uired.

Regional Development Assistance Program Application

(REMEMBER TO ATTACH ADDITIONAL INFORMATION IF INSUFFICIENT SPACE)

Engineering/Servicing	
Services to land & capacity (upgrading requirements) – services constraints	e er to the attached documents and previous approvals.
Location of services (including location of redundant services) & impact on development	
Flood plain/storm surge constraints	
Development restrictions (moratoriums) - noise, dust, access, traffic	
Geotechnical/soil types	
Archaeological/Ethnographic Aboriginal heritage	
Ethnographic - (DIA) Is site culturally significant or require Section 18 clearance?	e er to the attached documents and previous approvals.
Archaeological - known Aboriginal artefacts or Aboriginal Site register (WA Museum)	e er to the attached documents and previous approvals.
Heritage	
European historical/cultural significance (Heritage Council of WA or Local Government Authority registers)	Not applicable

Regional Development Assistance Program Application

(REMEMBER TO ATTACH ADDITIONAL INFORMATION IF INSUFFICIENT SPACE)

Environmental	
Environment Protection & Biodiversity Conservation Act 1999 (Commonwealth) – Environment Australia Flora (DEC – priority list); (Regionally significant vegetation)	e er to the attached documents and previous approvals.
Fauna (DEC – priority list; Endangered Species/International Treaties)	e er to the attached documents and previous approvals.
System 6 Wetlands/Environmental Protection (Swan Coastal Plain Wetlands) Policy 2000WRC's Wetland Atlas	e er to the attached documents and previous approvals.
Groundwater priority areas (water supply protection zones)	e er to the attached documents and previous approvals.
Contamination (Contaminated Sites Act, hazardous materials, UXO register, prior site use)	e er to the attached documents and previous approvals.
Other comments/observations	

SUBMIT FORM

REGIONAL DEVELOPMENT ASSISTANCE PROGRAM APPLICATION

LOT 10 GLYDE STREET, THREE SPRINGS

18 April 2023

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APPENDIX	9	LETTER FROM LAND CORP 05.01.18- PROJECT LAPSED COUNCIL

1.0 Introduction

This report has been prepared in support of an application to Development WA for funding under the Regional Development Assistance Program ('RDAP') and is designed to accompany the RDAP Application Form.

The Shire of Three Springs ('Shire') is the current owner of Lot 10 Glyde Street, Three Springs and wishes to cede this land to Development WA in order to undertake a residential subdivision through the RDAP program. The Shire's objective is to provide additional residential allotments to cater for future demand arising from new projects and the expansion of businesses and government agencies.

This report includes a description of the following matters:

- Location of the subject site;
- Description of the subject site;
- Detailed explanation of the proposed development;
- Overview of relevant statutory planning considerations;
- Overview of relevant strategic planning considerations and community expectations;
- Current sales analysis; and
- Justification for the proposed development.

2.0 Description of Site

2.1 Regional Location

The subject site is located in the Municipality of the Shire of Three Springs, approximately 316 kilometres north east of the Perth Central Area via the Midlands Road.

Refer Figure 1 – Regional Location.

2.2 Local Location

The subject site is situated in the Three Springs townsite and bound by Gooch Street, Glyde Street and Millard Drive. All of the aforementioned roads are sealed, gazetted roads.

Refer Figure 2 – Local Location.

2.3 Cadastral Information

The subject site comprises one land parcel, being:

» Lot 10 on Diagram 64274, which is held in Certificate of Title Volume 1671 Folio 633.

The subject site has a total land area of 4.3050 hectares. The site is dissected by Millard Drive which results in a large irregular shaped portion of 4.1102 hectares and a smaller triangular shaped portion of 1,995m². The larger portion of the subject site has a frontage of 296 meters to Gooch Street. The smaller segregated portion has a frontage of 51.52 meters to Glyde Street and a frontage of 64.01metres to Millard Drive.

Refer Figure 3 – Site Plan and Appendix 1 – Certificates of Title.

2.4 Existing Improvements

The subject site is currently cleared and vacant with no buildings erected on the site.

2.5 Services

A Dial Before You Dig ('DBYD') investigation was undertaken which advised that water, sewer, and power connections are available within proximity to the subject site. We are not aware if these services require upgrades in order to service the proposed development and therefore anticipate that a servicing investigation will be required to be undertaken by a suitably qualified engineer as part of the subdivision process.

Refer Appendix 2 − Dial Before You Dig.

2.6 Aboriginal Heritage

A search of the Aboriginal Heritage Inquiry System ('AHIS') database has indicated that the subject site, as well as the majority of the Three Springs townsite, is included within a registered site of Aboriginal Heritage significance. The site is 24382 and is a mythological site known as the Yarra Yarra Lakes.

Given this, it is likely that Ethnographic and Archaeological surveys may be required as a condition of subdivision.

Refer Appendix 3 – Aboriginal Heritage Inquiry System listing

FIGURE 1 – REGIONAL LOCATION

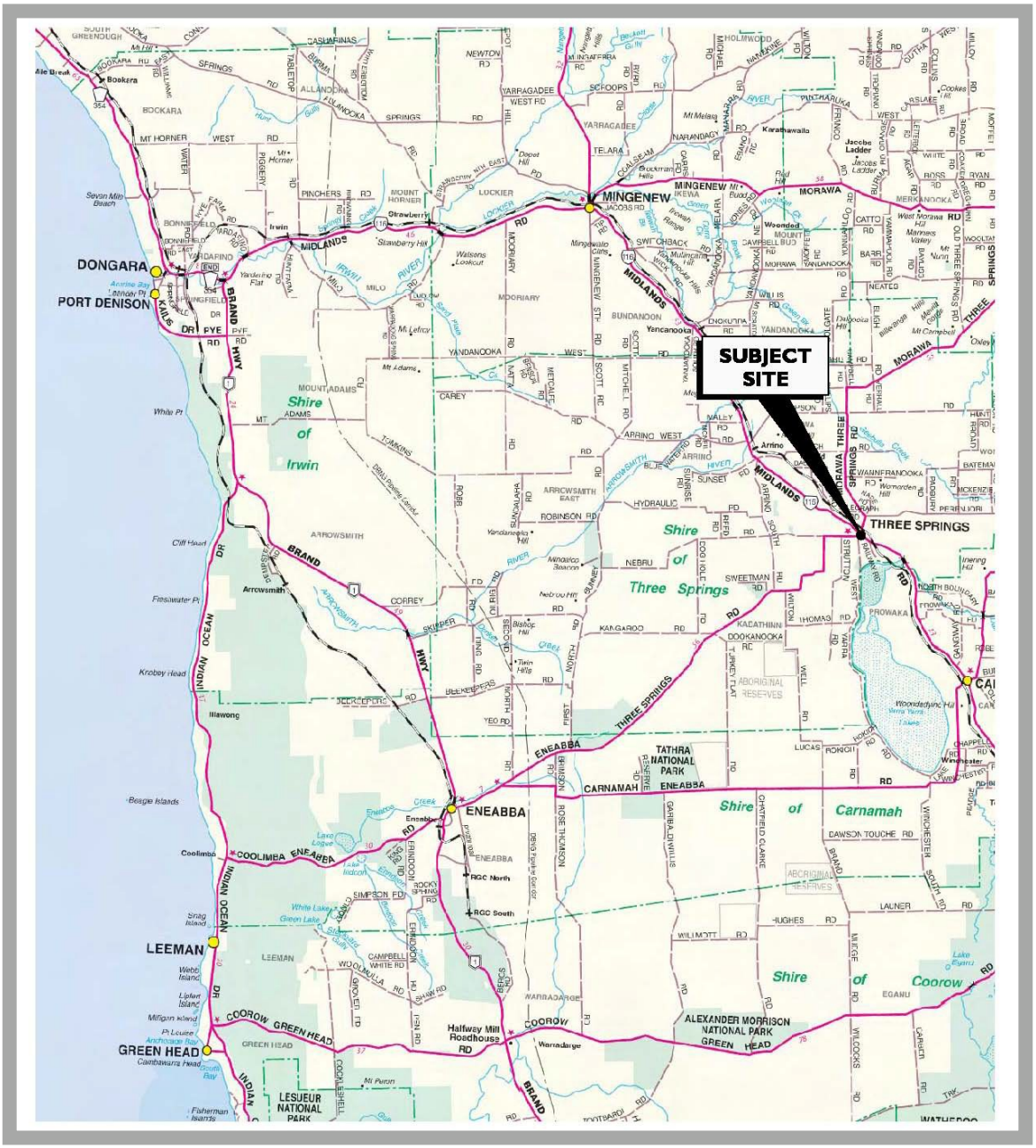


FIGURE 2 – LOCAL LOCATION



FIGURE 3 – SITE PLAN



3.0 Description of Proposal

The Shire wishes to secure RDAP funding to undertake a small residential subdivision over the subject site, in order to ensure that an adequate supply of serviced residential land is available to meet the housing needs associated with planned infrastructure projects in the area. It is considered that providing an opportunity for operational workforce associated with major projects to reside in the Three Springs townsite will enhance both the economic and social sustainability of the Shire. As a small Shire with a total staff of 26, the Shire of Three Springs does not have the expertise, finance or personnel in order to undertake this development in-house and therefore Development WA assistance is sought.

The proposal is for a residential subdivision with an estimated yield of 22 lots, 20 of which will be developed for residential use. For the residential lots, a minimum size of 807m^2 and an average size of 855m^2 is proposed. In addition to the 20 residential lots the subject of this Application, the indicative subdivision plan shows two superlots of 1.6596 hectares and 1995m^2, respectively.

Ten of the proposed lots will have frontage to Gooch Street which is an existing sealed, gazetted road. In order to provide the remaining lots with road frontage, an extension of Millard Drive is proposed. An extension of Walster Street is also proposed, to form a loop road and increase accessibility to the new lots. The indicative subdivision plan shows that the extensions of Millard Drive and Walster Street will have a road reserve width of 20 metres, in keeping with the existing road network.

Refer Appendix 4 – Indicative Subdivision Plan.

4.0 Town Planning Considerations

4.1 Zoning

4.1.1 Shire of Three Springs Town Planning Scheme No.2

Under the provisions of TPS2, the subject is zoned "Residential" with a density coding of "R12.5."

Refer Figure 4 – Zoning Plan.

4.2 Land Use Permissibility

The proposed use of the site for residential single dwelling purposes is permitted under the current zoning.

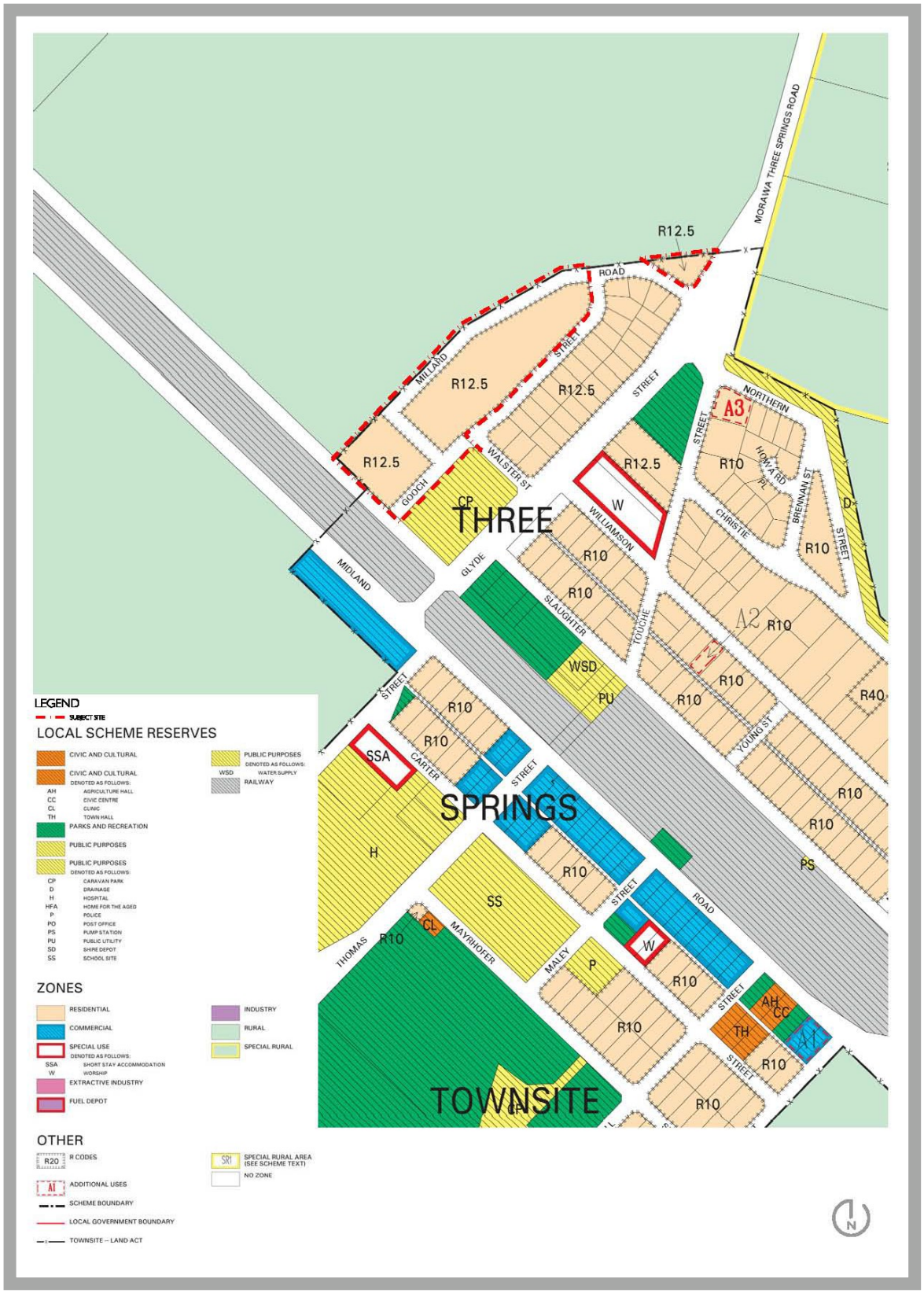
4.3 Development Standards

4.3.1 State Planning Policy 3.1: Residential Design Codes

The purpose of the Residential Design Codes ('R-Codes') is to provide a comprehensive basis for the control, through local government, of residential development throughout Western Australia.

The R-Codes set out general site requirements, as well as design elements. The requirements of the R-Codes will need to be met when subdividing and developing the subject site.

The 'Residential R12.5' density coding allows a minimum lot size of 700m² and an average of 800m².
The indicative subdivision plan is considered to meet the minimum and average lot size requirements under the R-Codes.


MORAWA THREE SPRINGS ROAD
R12.5
ROAD
MILLAND
STREET
R12.5
R12.5
R12.5
STREET
NORTHERN
A3
R12.5
R10
HOWARD PL
BRENNAN ST
STREET
D
CP
THREE
W
WILLIAMSON
CHRISTIE
R10
R10
R10
SLAUGHTER
TOUCHE
A2
R10
MIDLAND
GLYDE
WSD
PU
R10
R10
R10
R40
STREET
SSA
R10
R10
CARTER
STREET
SPRINGS
YOUNG ST
R10
R10
H
PS
SS
R10
STREET
ROAD
CL
MAYRHOFER
THOMAS
R10
MALEY
P
W
R10
STREET
AH
CC
TH
A1
R10
STREET
TOWNSITE
R10
LEGEND
SUBJECT SITE
LOCAL SCHEME RESERVES
CIVIC AND CULTURAL
CIVIC AND CULTURAL
DENOTED AS FOLLOWS:
AH AGRICULTURE HALL
CC CIVIC CENTRE
CL CLINIC
TH TOWN HALL
PARKS AND RECREATION
PUBLIC PURPOSES
PUBLIC PURPOSES
DENOTED AS FOLLOWS:
CP CARAVAN PARK
D DRAINAGE
H HOSPITAL
HFA HOME FOR THE AGED
P POLICE
PO POST OFFICE
PS PUMP STATION
PU PUBLIC UTILITY
SD SHIRE DEPOT
SS SCHOOL SITE
PUBLIC PURPOSES
DENOTED AS FOLLOWS:
WSD WATER SUPPLY
RAILWAY
ZONES
RESIDENTIAL
COMMERCIAL
SPECIAL USE
DENOTED AS FOLLOWS:
SSA SHORT STAY ACCOMMODATION
W WORSHIP
EXTRACTIVE INDUSTRY
FUEL DEPOT
INDUSTRY
RURAL
SPECIAL RURAL
OTHER
R20 R CODES
A1 ADDITIONAL USES
SCHEME BOUNDARY
LOCAL GOVERNMENT BOUNDARY
TOWNSITE – LAND ACT
SR1 SPECIAL RURAL AREA (SEE SCHEME TEXT)
NO ZONE
N

5.0 Community Expectations

5.1 Council Resolution

Council resolved at its Ordinary Council meeting in April 2023 to endorse the proposal "to hand Lot 10 Gooch Street, Three Springs over to Development WA for the purpose of providing the infrastructure for residential development." Council considered that the proposal will facilitate an increased supply of residential land, primarily to cater for workers associated with planned infrastructure projects in the area. The projects are:

- Strike Energy
- Beach Energy
- Mines Energy
- Tronox
- Midwest Geo Thermal Power
- Inpex
- Perpetual Resources Limited

Please see Appendix 5 – Council Minutes

5.2 Shire of Three Springs Strategic Community Plan 2018-2028

The Strategic Community Plan was created through an extensive community consultation process which included surveys and workshops to fulfil the requirement of Local Government legislation. The Strategic Community Plan states that an objective of the community is to have a prosperous, thriving and innovative local economy. The community also wants the Shire to promote growth by ensuring Three Springs continues to be recognised as an attractive place to live, work and invest. The community identified key issues facing Three Springs which included a declining population and high cost of housing. This development is considered to ensure that workers for planned and future projects have the option to reside within the townsite of Three Springs by providing serviced residential allotments.

5.3 Infrastructure Australia and the Midwest Development Commission

Infrastructure Australia:

Regional Strengths and Infrastructure Gaps Regional Analysis Western Australia-Midwest

The availability of long-term housing for existing and new residents has become a pressing challenge for the region. This issue has been exacerbated by increased internal migration, the rise of domestic tourism brought about by the COVID-19 pandemic as well as the increasing number of unoccupied dwellings being used to provide temporary visitor accommodation. As a result, housing supply is well below demand in the region, leading to an increasing lack of affordability. The implications of a housing sector increasingly driven by temporary accommodation demand threatens the ability of the region to sustain growth of a productive working population, attract investment in diverse housing typologies, and allocate adequate stock to supply of social and affordable housing. Lack of diverse and affordable housing for lower income households has increased the demand for social housing, an increase related to rental increases. High levels of rental stress and lengthy wait times reflect the strain on the region's housing assistance services. As part of its regional COVID-19 recovery plans for Gascoyne and the Mid West,

the State Government has committed funding for the construction of new social housing, Aboriginal short stay accommodation, refurbished social housing and targeted maintenance for regional social, remote and government worker housing. During consultation, stakeholders prioritised a need to deliver improved access to affordable housing across the Mid West Gascoyne region. Feedback pointed to critical shortages across the region for government workers, key industry and seasonal workers as well as for parts of the local First Nations community. In particular, the development of key worker accommodation was viewed as a priority for supporting quality of life locally as well as for growing the local tourism and horticultural industries. Workshop attendees voiced concerns that the region is facing challenges in addressing this need as government infrastructure stimulus projects have revealed a shortage of residential building trades and construction workers. The impact of construction costs, housing feasibility, short stay markets and housing quality were also noted, as was competition for labour from the mining sector in the region's north and the impacts of supply chain pressures which have contributed to a shortage of construction materials. Stakeholders noted that natural disasters are expected to intensify this issue, through higher insurance costs and the need for more construction materials in cyclone affected areas. The age and quality of housing has deteriorated in some parts of the region, as noted by stakeholders who observed that the quality of housing stock coupled with declining land values and population can have a negative effect on values and future investment

Midwest Development Commission:

Annual Report 2021-22

As regional housing, particularly worker housing, continues to be a significant challenge across the Mid West, and beyond, the Commission continues working to address housing issues affecting Mid West communities and key sectors. It is well understood that there is a need for greater variety of housing product to attract and cater for the transient, contract and service workers (key workers) typically employed in the tourism, construction, and mining / resources sectors. Over the 2021-22 financial year, the housing market continued to tighten, with costs for both labour and materials rising significantly. Market conditions have resulted in projects across the region suffering from both cost escalations and delivery delays. The Commission has led a collaborative approach, working with key stakeholders across industry and both State and Local Government to identify and progress solutions. This approach has been applied to the regional capital of Geraldton, as well as the region's smaller towns – virtually all of which are finding housing shortages a key constraint to development.

5.4 Local Market Conditions

The Three Springs townsite, like many traditionally agricultural townships in the Mid West, is comprised of older housing stocks with limited new residential development occurring in the past 30-40 years. Unless assistance is successfully resourced, development often does not occur within these townships as the development costs are too high and the profit margin required by private developers does not exist. Currently in the Mid West region we are seeing an opportunity for these regional towns to have a growth in population as well as potentially new housing stocks as a result of new infrastructure projects to service the energy and mining industry operating in the region. In order to encourage a drive in drive out workforce there needs to be serviced residential allotments available to put pressure on companies to build and house employees locally.

GOVERNMENT OF WESTERN AUSTRALIA

Landgate

Suburb Sales Report

Search Criteria

Suburb	THREE SPRINGS	**Last Sale Per Property**	No
Sales Date Range	17/04/2020 to 17/04/2023 (Last 3 Years)	**Sale Price**	All
Strata	Include	**Land Area (m²)**	All
Property Use	All	**Records to be Included**	All

Note: This report displays sales information that was last provided to Landgate on 14/04/2023

Registered Sales

Records Found: 66

Sorted by: Address

Property Address	Land ID	Property Type	Property Use	Land Area (m²)	Bed/ Bath	Year Built	Document Number / Type	Sales Date	Sales Price
9 CARTER ST THREE SPRINGS	Lot 65 On Deposited Plan 223147	HOUSE	Residential	1012	3/1	1969	O683879 Transfer	27/01/2021	$85,000
27 CARTER ST THREE SPRINGS	Lot 73 On Deposited Plan 223147	HOUSE	Residential	1012	2/1	1950	O966515 Transfer	22/11/2021	$6,000
53 CARTER ST THREE SPRINGS	Lot 84 On Deposited Plan 223147	HOUSE	Residential	1012	2/1	1962	O603171 Transfer	24/08/2020	$140,000
60 CARTER ST THREE SPRINGS	Lot 183 On Deposited Plan 162035	VACANT LAND	Vacant Land	1105	-	-	P071898 Transfer	08/02/2022	$10,000
64 CARTER ST THREE SPRINGS	Lot 185 On Deposited Plan 162035	HOUSE	Residential	1105	3/1	1970	O869529 Transfer	14/08/2021	$155,000
80 CHRISTIE ST THREE SPRINGS	Lot 213 On Plan 12723	HOUSE	Residential	928	3/1	1987	O420968 Transfer	14/05/2020	$28,560
21 GLYDE ST THREE SPRINGS***	Lot 46 On Deposited Plan 55458	-	Residential	1615	-	-	O392298 Application to Change Name	N/A	N/A
13 GOOCH ST THREE SPRINGS	Lot 70 On Plan 14615	HOUSE	Residential	800	4/2	1995	P391691 Transfer	17/11/2022	$240,000
17 GOOCH ST THREE SPRINGS	Lot 68 On Plan 14615	HOUSE	Residential	800	4/2	1997	O905561 Transfer	25/07/2021	$150,000
6 HOWARD PL THREE SPRINGS***	Lot 28 On Plan 9592	-	Residential	1338	-	-	O837184 Transfer	N/A	N/A

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Property Address	Land ID	Property Type	Property Use	Land Area (m²)	Bed/ Bath	Year Built	Document Number / Type	Sales Date	Sales Price
6 HOWARD PL THREE SPRINGS***	Lot 28 On Plan 9592	-	Residential	1338	-	-	O837183 Transmission Application	N/A	N/A
21 MAYRHOFER ST THREE SPRINGS	Lot 166 On Deposited Plan 207297	HOUSE	Residential	1027	2/1	1963	O501233 Transfer	23/08/2020	$105,000
27 MAYRHOFER ST THREE SPRINGS	Lot 163 On Deposited Plan 207297	HOUSE	Residential	1060	3/1	1962	P111429 Transfer	11/03/2022	$91,000
29 MAYRHOFER ST THREE SPRINGS	Lot 181 On Deposited Plan 162213	HOUSE	Residential	1062	2/1	1961	O503724 Transfer	31/08/2020	$40,000
37 MAYRHOFER ST THREE SPRINGS	Lot 177 On Deposited Plan 162213	HOUSE	Residential	1045	2/1	1957	P034077 Transfer	10/01/2022	$105,000
44 MAYRHOFER ST THREE SPRINGS	Lot 216 On Deposited Plan 207297	HOUSE	Residential	1037	3/1	1960	O795381 Transfer	05/03/2021	$45,000
44 MAYRHOFER ST THREE SPRINGS***	Lot 216 On Deposited Plan 207297	-	Residential	1037	-	-	O450364 Transmission Application	N/A	N/A
44 MAYRHOFER ST THREE SPRINGS***	Lot 216 On Deposited Plan 207297	-	Residential	1037	-	-	O450365 Transfer	N/A	N/A
45 MAYRHOFER ST THREE SPRINGS	Lot 190 On Deposited Plan 162035	HOUSE	Residential	1105	2/1	1958	O840379 Transfer	28/06/2021	$87,000
46 MAYRHOFER ST THREE SPRINGS***	Lot 217 On Deposited Plan 207297	-	Residential	1037	-	-	O751308 Application by Survivor	N/A	N/A
48 MAYRHOFER ST THREE SPRINGS	Lot 218 On Deposited Plan 207297	HOUSE	Residential	1037	2/1	1962	P016854 Transfer	21/12/2021	$78,000
48 MAYRHOFER ST THREE SPRINGS***	Lot 218 On Deposited Plan 207297	-	Residential	1037	-	-	O693463 Application by Survivor	N/A	N/A
48 MAYRHOFER ST THREE SPRINGS***	Lot 218 On Deposited Plan 207297	-	Residential	1037	-	-	O693464 Transmission Application	N/A	N/A
49 MAYRHOFER ST THREE SPRINGS	Lot 188 On Deposited Plan 162035	HOUSE	Residential	1093	2/1	1950	O866885 Transfer	20/07/2021	$40,000
7 MILLARD DR THREE SPRINGS***	Lot 47 On Plan 14615	-	Residential	757	-	-	P266207 Transfer	N/A	N/A

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Property Address	Land ID	Property Type	Property Use	Land Area (m²)	Bed/ Bath	Year Built	Document Number / Type	Sales Date	Sales Price
7 MILLARD DR THREE SPRINGS***	Lot 47 On Plan 14615	-	Residential	757	-	-	P266205 Transmission Application	N/A	N/A
7 MILLARD DR THREE SPRINGS***	Lot 47 On Plan 14615	-	Residential	757	-	-	P266204 Application by Survivor	N/A	N/A
5249 MORAWA-THREE SPRINGS RD THREE SPRINGS	Lot 11 On Plan 13448	-	Farming	41000	-	-	O969987 Transfer	14/10/2021	$210,000
102 RAILWAY RD THREE SPRINGS	Lot 55 On Deposited Plan 223146	OFFICE - RES	Commercial	1012	-	-	P200168 Transfer	18/05/2022	$150,000
110 RAILWAY RD THREE SPRINGS	Lot 94 On Deposited Plan 223147	SUPERMARKET	Commercial	1012	-	1965	O929692 Transfer	30/09/2021	$209,000**
112 RAILWAY RD THREE SPRINGS	Lot 93 On Deposited Plan 223147	SUPERMARKET	Commercial	1012	-	1965	O929692 Transfer	30/09/2021	$209,000**
114 RAILWAY RD THREE SPRINGS	Lot 92 On Deposited Plan 223147	SUPERMARKET	Commercial	1012	-	1965	O929692 Transfer	30/09/2021	$209,000**
33 SLAUGHTER ST THREE SPRINGS***	Lot 6 On Plan 3087	-	Industrial	1012	-	-	O426117 Application by Survivor	N/A	N/A
35 SLAUGHTER ST THREE SPRINGS	Lot 7 On Plan 3087	HOUSE	Residential	1012	3/1	1968	P261580 Transfer	18/07/2022	$32,000
43 SLAUGHTER ST THREE SPRINGS	Lot 11 On Plan 3087	HOUSE	Residential	1012	2/1	1948	P380863 Transfer	19/10/2022	$175,000
43 SLAUGHTER ST THREE SPRINGS***	Lot 11 On Plan 3087	-	Residential	1012	-	-	P275935 Application by Survivor	N/A	N/A
67 SLAUGHTER ST THREE SPRINGS	Lot 38 On Plan 3087	HOUSE	Residential	1012	3/1	1976	O828551 Transfer	12/07/2020	$85,000
71 SLAUGHTER ST THREE SPRINGS	Lot 36 On Plan 3087	HOUSE	Residential	1012	3/1	1975	O906651 Transfer	14/09/2021	$44,000
75 SLAUGHTER ST THREE SPRINGS***	Lot 34 On Plan 3087	-	Residential	1012	-	-	O694954 Transfer	N/A	N/A
77 SLAUGHTER ST THREE SPRINGS***	Lot 33 On Plan 3087	-	Residential	1012	-	-	O426117 Application by Survivor	N/A	N/A
1 TOUCHE ST THREE SPRINGS	Lot 86 On Plan 3087	HOUSE	Residential	1328	3/1	2010	O795120 Transfer	17/05/2021	$220,000
2 TOUCHE ST THREE SPRINGS	Lot 2 On Plan 3087	HOUSE	Residential	1025	2/1	1955	P311306 Transfer	14/07/2022	$185,000**
2 TOUCHE ST THREE SPRINGS	Lot 1 On Plan 3087	HOUSE	Residential	688	2/1	1955	P311306 Transfer	14/07/2022	$185,000**
8 TOUCHE ST THREE SPRINGS	Lot 69 On Plan 3087	HOUSE	Residential	1230	2/1	1970	O466568	08/07/2020	$40,000

Generated: 17/04/2023 at 04:28 PM. Request number: 64972740

Property Address	Land ID	Property Type	Property Use	Land Area (m²)	Bed/ Bath	Year Built	Document Number / Type	Sales Date	Sales Price
							Transfer by mortgagee		
30 TOUCHE ST THREE SPRINGS	Lot 16 On Diagram 32533	SURGERY - RE	Commercial	2094	-	-	P357606 Transfer	20/10/2022	$88,000
1 WALSTER ST THREE SPRINGS***	Lot 63 On Plan 14615	-	Residential	1062	-	-	O667227 Transfer	N/A	N/A
8 WILLIAMSON ST THREE SPRINGS	Lot 75 On Plan 3087	HOUSE	Residential	1012	2/1	1963	P059732 Transfer	31/12/2021	$90,000
14 WILLIAMSON ST THREE SPRINGS	Lot 72 On Plan 3087	HOUSE	Residential	1012	2/1	1960	P081770 Transfer	21/02/2022	$90,000
17 WILLIAMSON ST THREE SPRINGS	Lot 11 On Diagram 29556	HOUSE	Residential	929	2/1	1966	O757182 Transfer	07/05/2021	$16,000
19 WILLIAMSON ST THREE SPRINGS	Lot 10 On Diagram 29556	HOUSE	Residential	951	2/1	1968	O444978 Transfer	04/06/2020	$47,500
21 WILLIAMSON ST THREE SPRINGS***	Lot 9 On Diagram 29556	-	Residential	951	-	-	O896682 Transmission Application	N/A	N/A
28 WILLIAMSON ST THREE SPRINGS	Lot 65 On Plan 3087	WORKSHOP	Industrial	1012	-	2005	P199305 Transfer	04/05/2022	$42,000
28 WILLIAMSON ST THREE SPRINGS	Lot 65 On Plan 3087	WORKSHOP	Industrial	1012	-	2005	O873147 Transfer	18/08/2021	$30,000
32 WILLIAMSON ST THREE SPRINGS	Lot 63 On Plan 3087	HOUSE	Residential	1012	3/1	1968	O431392 Transfer	28/05/2020	$39,950
32 WILLIAMSON ST THREE SPRINGS***	Lot 63 On Plan 3087	-	Residential	1012	-	-	O400831 Transmission Application	N/A	N/A
50 WILLIAMSON ST THREE SPRINGS	Lot 55 On Plan 3087	HOUSE	Residential	1012	2/1	1983	P036465 Transfer	08/01/2022	$91,500
50 WILLIAMSON ST THREE SPRINGS***	Lot 55 On Plan 3087	-	Residential	1012	-	-	O580676 Transmission Application	N/A	N/A
57 WILLIAMSON ST THREE SPRINGS***	Lot 110 On Plan 3087	-	Residential	4654	-	-	P285150 Application to Change Name	N/A	N/A
57 WILLIAMSON ST THREE SPRINGS***	Lot 110 On Plan 3087	-	Residential	4654	-	-	P285151 Application by Survivor	N/A	N/A
62 WILLIAMSON ST THREE SPRINGS	Lot 49 On Plan 3087	HOUSE	Residential	1012	2/1	1960	O575565 Transfer	12/10/2020	$45,000
69 WILLIAMSON ST THREE SPRINGS	Lot 19 On Diagram 49886	HOUSE	Residential	2329	3/1	1943	O550344 Transfer	07/09/2020	$12,000

Property Address	Land ID	Property Type	Property Use	Land Area (m²)	Bed/ Bath	Year Built	Document Number / Type	Sales Date	Sales Price
81 WILLIAMSON ST THREE SPRINGS	Lot 34 On Diagram 52646	HOUSE	Residential	1164	2/1	-	O978545 Transfer	09/11/2021	$91,000
82 WILLIAMSON ST THREE SPRINGS	Lot 40 On Plan 3087	HOUSE	Residential	1012	4/1	1971	O956067 Transfer	13/10/2021	$100,000
84 WILLIAMSON ST THREE SPRINGS	Lot 39 On Plan 3087	HOUSE	Residential	1004	2/1	1968	P388545 Transfer	17/11/2022	$25,000
86 WILLIAMSON ST THREE SPRINGS	Lot 20 On Plan 12723	HOUSE	Residential	931	4/1	1983	O586761 Transfer	20/08/2020	$95,000
87 WILLIAMSON ST THREE SPRINGS***	Lot 218 On Plan 12723	-	Residential	1158	-	-	P403624 Transfer	N/A	N/A

** Indicates sales price is a combination of multiple properties and or chattels purchased by the same transaction
*** Indicates that the record is a non-sales related record that changed ownership on a title, or Valuer Adjudicated record
Indicates a Lease Hold Strata Title
Indicates a Community Scheme Title

Pending Sales

Records Found: 2

Sorted by: Address

Property Address	Land ID	Property Type	Property Use	Land Area (m²)	Bed/ Bath	Year Built	Document Number / Type	Proposed Sales Date	Sales Price
11 GOOCH ST THREE SPRINGS	Lot 71 On Plan 14615	HOUSE	Residential	800	4/2	1995		24/11/2022	$215,000
21 WILLIAMSON ST THREE SPRINGS	Lot 9 On Diagram 29556	HOUSE	Residential	926	2/1	1968		23/02/2023	$90,000

** Indicates sales price is a combination of multiple properties and or chattels purchased by the same transaction
*** Indicates that the record is a non-sales related record that changed ownership on a title, or Valuer Adjudicated record
Indicates a Lease Hold Strata Title
Indicates a Community Scheme Title

END OF RESULTS

Disclaimer:
Certain results contained in this report may be based on minor updates to previous sales and as such form part of the price. Given that data is auto-collated from various sources, Landgate is unable to distinguish and separate out certain data to cater for individual preferences.

Generated: 17/04/2023 at 04:28 PM. Request number: 64972740

Important Information

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1 Midland Square, MIDLAND WA 6056
Telephone: +61 (0)8 9273 7341
Email: customerservice@landgate.wa.gov.au
landgate.wa.gov.au

6.0 Conclusion

The subject site being Lot 10 Glyde Street, Three Springs is currently in the private ownership of the Shire of Three Springs. The Shire of Three Springs is proposing to apply to Development WA for Regional Development Assistance in order to develop the site into serviced residential allotments as per the indicative subdivision plan provided. These proposed serviced residential allotments are to cater for future housing demand from new projects and existing businesses within the Three Springs townsite. This subdivision will give the Shire of Three Springs an opportunity to capture potential new employees from future projects and an increase and upgrade housing stocks within the Three Springs townsite, enhancing the economic and social sustainability of the town.

APPENDIX 1

CERTIFICATE OF TITLE

REGISTER NUMBER	
10/D64274	
DUPLICATE EDITION	DATE DUPLICATE ISSUED
N/A	**N/A**

WESTERN AUSTRALIA

RECORD OF CERTIFICATE OF TITLE

VOLUME **1671** FOLIO **633**

UNDER THE TRANSFER OF LAND ACT 1893

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

REGISTRAR OF TITLES

REGISTRAR OF TITLES WESTERN AUSTRALIA

LAND DESCRIPTION:

LOT 10 ON DIAGRAM 64274

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

SHIRE OF THREE SPRINGS OF THREE SPRINGS

(A C815934) REGISTERED 17 JULY 1984

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. EXCEPT AND RESERVING METALS, MINERALS, GEMS AND MINERAL OIL SPECIFIED IN TRANSFER 3721/1914.
2. THE LAND THE SUBJECT OF THIS CERTIFICATE OF TITLE EXCLUDES ALL PORTIONS OF THE LOT DESCRIBED ABOVE EXCEPT THAT PORTION SHOWN IN THE SKETCH OF THE SUPERSEDED PAPER VERSION OF THIS TITLE. VOL 1671 FOL 633.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

----------END OF CERTIFICATE OF TITLE----------

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND:	1671-633 (10/D64274).
PREVIOUS TITLE:	1645-679.
PROPERTY STREET ADDRESS:	LOT 10 GLYDE ST, THREE SPRINGS.
LOCAL GOVERNMENT AREA:	SHIRE OF THREE SPRINGS.

LANDGATE COPY OF ORIGINAL NOT TO SCALE Tue Mar 27 11:48:55 2012 JOB 38825093

LT. 37

ORIGINAL – NOT TO BE REMOVED FROM OFFICE OF

CT 1671 0633 F

1671 633

Application C815934

Volume 1645 Folio 679

WESTERN AUSTRALIA

CERTIFICATE OF TITLE

UNDER THE "TRANSFER OF LAND ACT, 1893" AS AMENDED

I certify that the person described in the First Schedule hereto is the registered proprietor of the undermentioned estate in the undermentioned land subject to the easements and encumbrances shown in the Second Schedule hereto.

REGISTRAR OF TITLES

Dated 17th July, 1984

ESTATE AND LAND REFERRED TO

Estate in fee simple in portion of Victoria Location 2022 and being part of Lot 10 on Diagram 64274, delineated and coloured green on the map in the Third Schedule hereto, except and reserving metals, minerals, gems and mineral oil specified in Transfer 3721/1914.

FIRST SCHEDULE (continued overleaf)

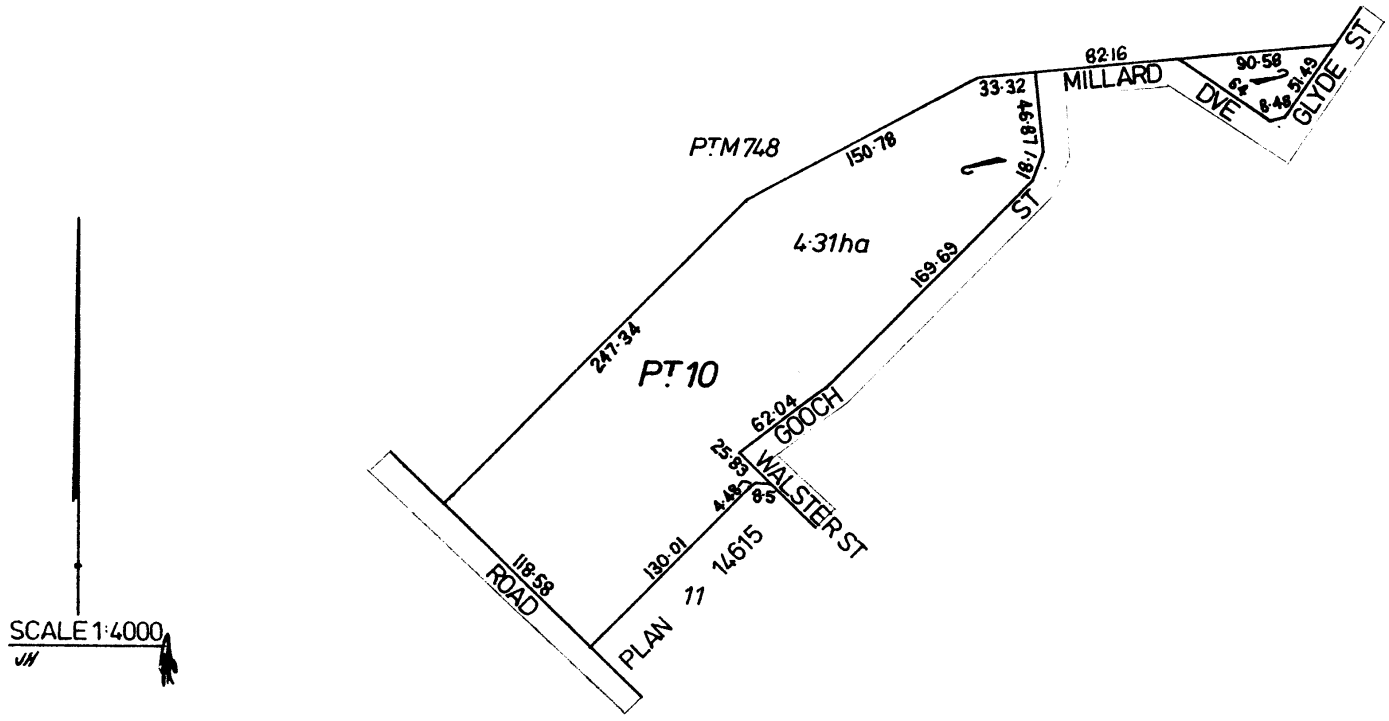
Shire of Three Springs of Three Springs.

SECOND SCHEDULE (continued overleaf)

NIL

REGISTRAR OF TITLES

THIRD SCHEDULE



NOTE: RULING THROUGH AND SEALING WITH THE OFFICE SEAL INDICATES THAT AN ENTRY NO LONGER HAS EFFECT. ENTRIES NOT RULED THROUGH MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.

72009/12/77–45M–S/2860

Superseded - Copy for Sketch Only

Page 1 of 2 pages) VOL. 1671 FOL. 633

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

LANDGATE COPY OF ORIGINAL NOT TO SCALE Tue Mar 27 11:48:55 2012 JOB 38825093

LANDGATE COPY OF ORIGINAL NOT TO SCALE Tue Mar 27 11:48:55 2012 JOB 38825093

LT. 37

Superseded - Copy for Sketch Only

FIRST SCHEDULE (continued)

NOTE: RULING THROUGH AND SEALING WITH THE OFFICE SEAL INDICATES THAT AN ENTRY NO LONGER HAS EFFECT.
ENTRIES NOT RULED THROUGH MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	REGISTERED	TIME	SEAL	INITIALS

SECOND SCHEDULE (continued)

NOTE: RULING THROUGH AND SEALING WITH THE OFFICE SEAL INDICATES THAT AN ENTRY NO LONGER HAS EFFECT.
ENTRIES NOT RULED THROUGH MAY BE AFFECTED BY SUBSEQUENT ENDORSEMENTS.

INSTRUMENT NATURE	INSTRUMENT NUMBER	PARTICULARS	REGISTERED	TIME	SEAL	INITIALS	CANCELLATION	NUMBER	REGISTERED OR LODGED	SEAL	INITIALS

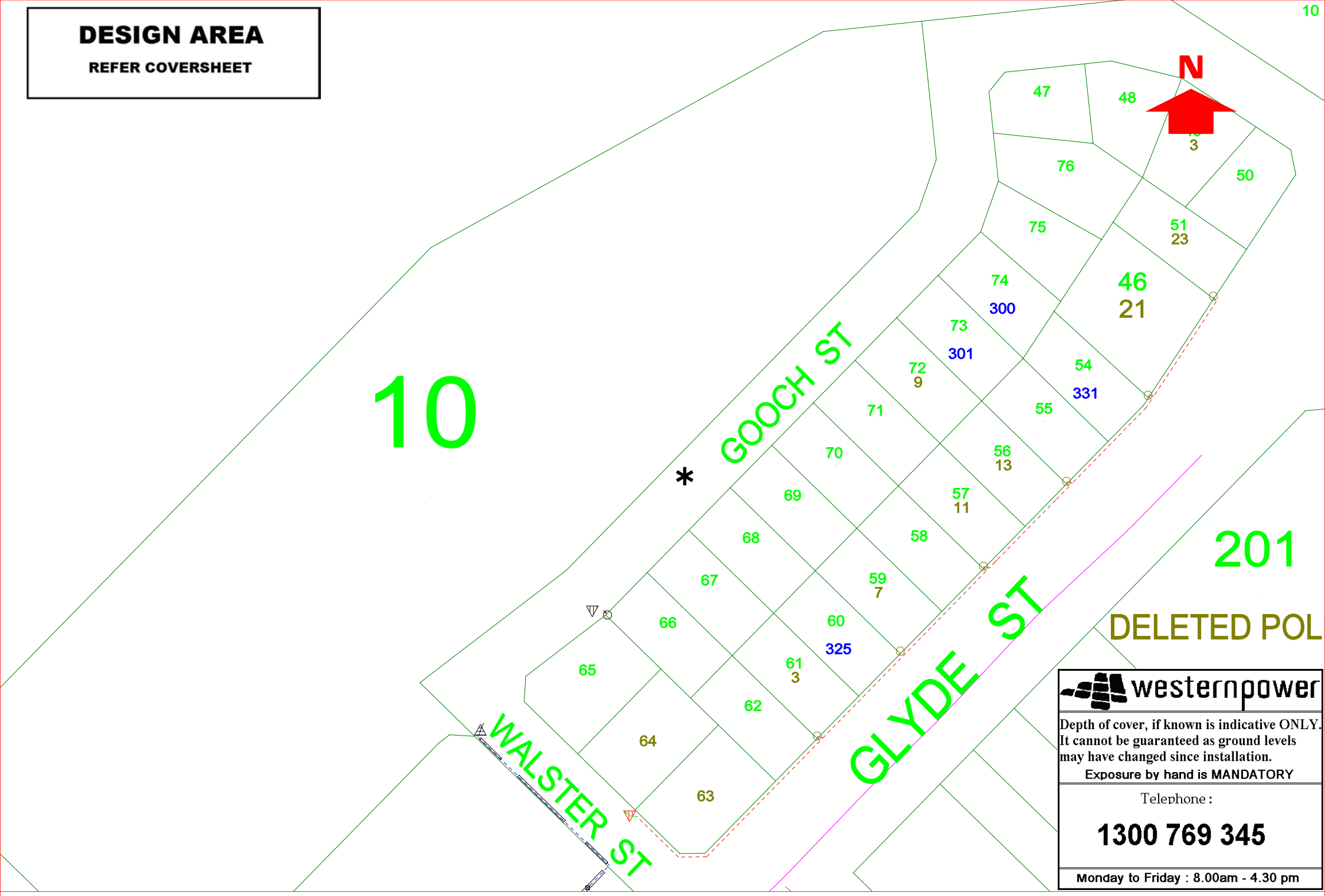
CERTIFICATE OF TITLE VOL. 1671 633

APPENDIX 2

DIAL BEFORE YOU DIG

DESIGN AREA

REFER COVERSHEET



westernpower

Depth of cover, if known is indicative ONLY. It cannot be guaranteed as ground levels may have changed since installation.

Exposure by hand is MANDATORY

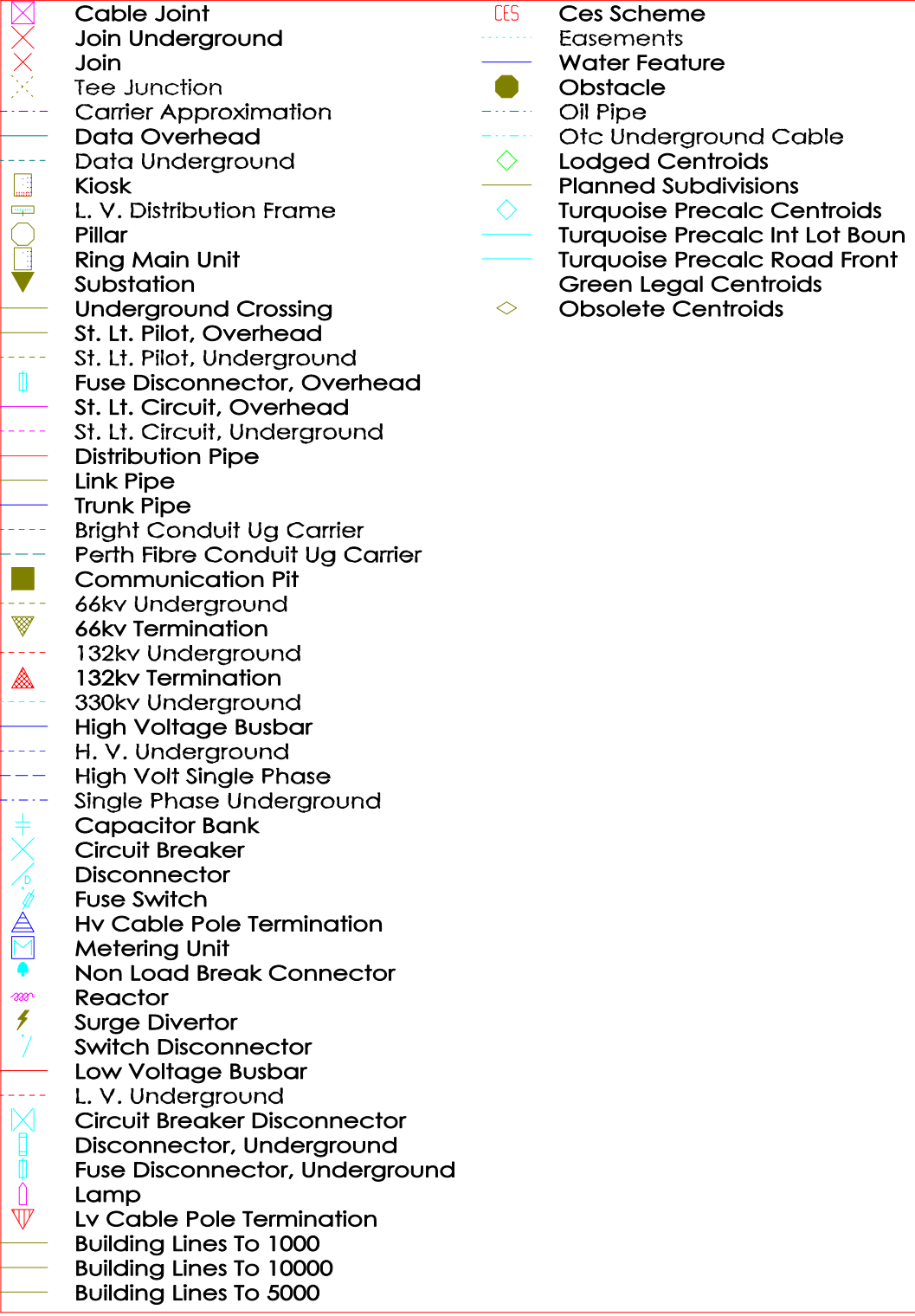
Telephone :

1300 769 345

Monday to Friday : 8.00am - 4.30 pm

24612074_ Printed: Mon Mar 26 15:32:14 2012 User: n047664

29ø31'43"S, 115ø45'41"E MGA (Zone 50): (37998048,673280302) Scale: 1:1500 Profile: DBYD


Cable Joint
Join Underground
Join
Tee Junction
Carrier Approximation
Data Overhead
Data Underground
Kiosk
L. V. Distribution Frame
Pillar
Ring Main Unit
Substation
Underground Crossing
St. Lt. Pilot, Overhead
St. Lt. Pilot, Underground
Fuse Disconnector, Overhead
St. Lt. Circuit, Overhead
St. Lt. Circuit, Underground
Distribution Pipe
Link Pipe
Trunk Pipe
Bright Conduit Ug Carrier
Perth Fibre Conduit Ug Carrier
Communication Pit
66kv Underground
66kv Termination
132kv Underground
132kv Termination
330kv Underground
High Voltage Busbar
H. V. Underground
High Volt Single Phase
Single Phase Underground
Capacitor Bank
Circuit Breaker
Disconnector
Fuse Switch
Hv Cable Pole Termination
Metering Unit
Non Load Break Connector
Reactor
Surge Divertor
Switch Disconnector
Low Voltage Busbar
L. V. Underground
Circuit Breaker Disconnector
Disconnector, Underground
Fuse Disconnector, Underground
Lamp
Lv Cable Pole Termination
Building Lines To 1000
Building Lines To 10000
Building Lines To 5000
CES
Ces Scheme
Easements
Water Feature
Obstacle
Oil Pipe
Otc Underground Cable
Lodged Centroids
Planned Subdivisions
Turquoise Precalc Centroids
Turquoise Precalc Int Lot Boun
Turquoise Precalc Road Front
Green Legal Centroids
Obsolete Centroids

WATER CORPORATION
UNDERGROUND ASSET DETAILS

629 Ne castle treet
eederville 6007
P ox 100
eederville 6902
. atercorporation.com.au
(08) 9424 8115

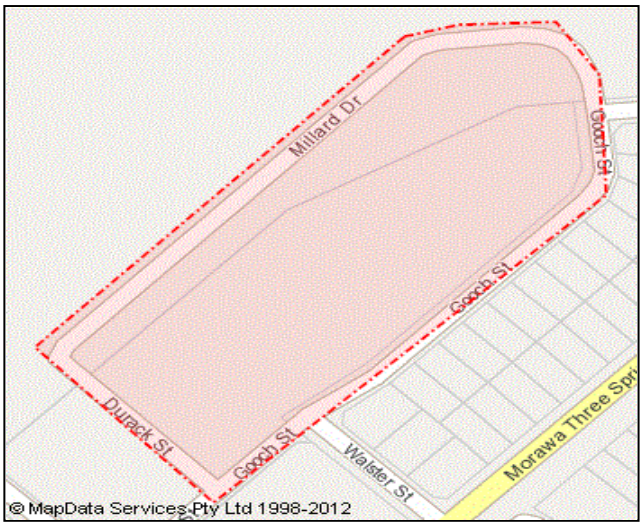
Requestor details

Miss Hayley Wass
Greg Rowe and Associates
291 Marine Tce
Geraldton WA 6530

Phone: 0899560633
Mobile: Not Supplied
Fax: 0899650633
mail: hayley.wass@greg-rowe.com

Sequence No: **24612440**
Job No: 5355410
n uir ate: 26/03/2012
ssue ate: 26/03/2012

Requested location details



Address Gooch St
Three Springs WA 6519
GPS X Coordinate
GPS Y Coordinate
Map Ref 110B1

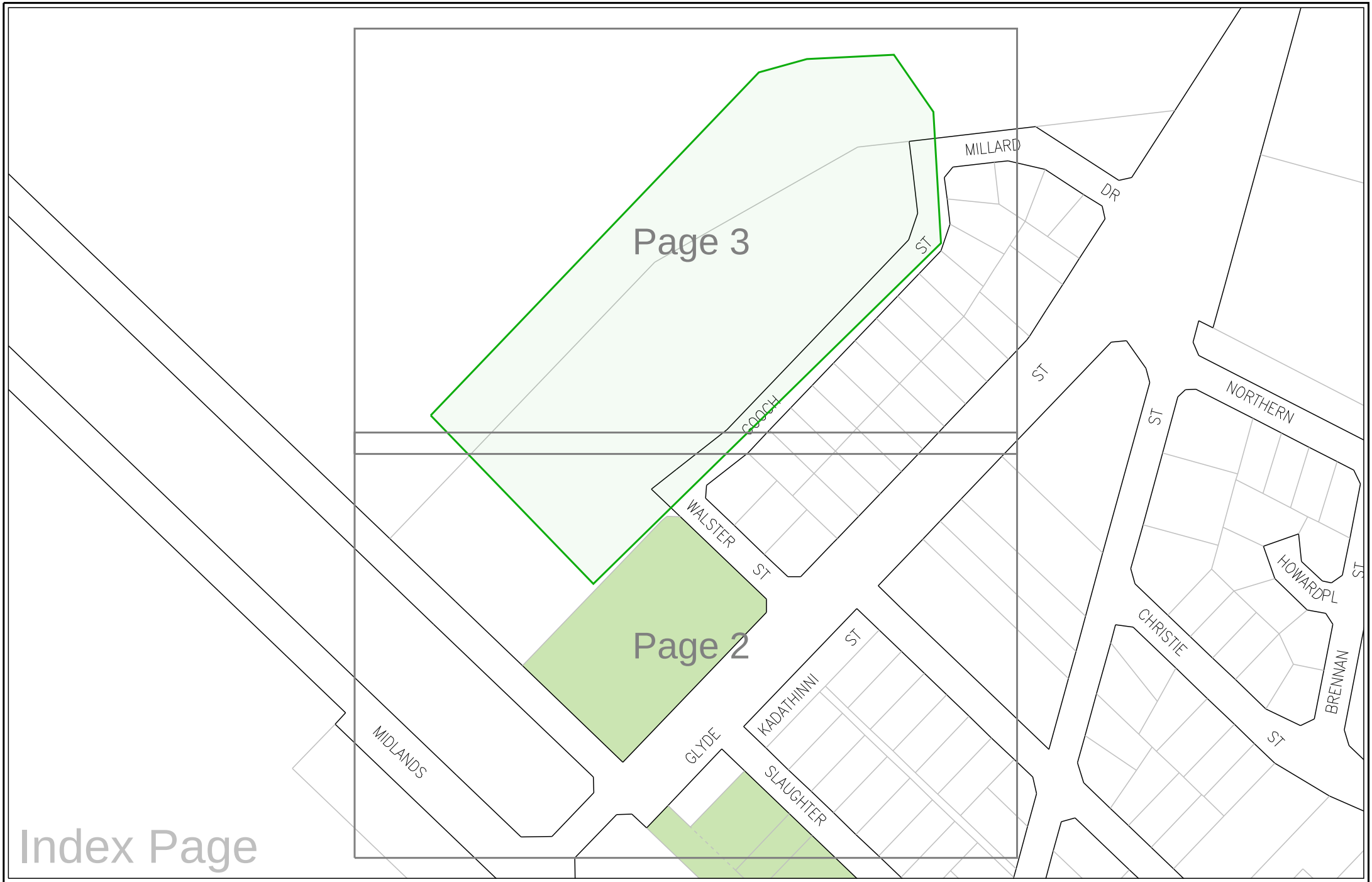
Note: The response or this en uir has been interpreted rom details in the picture location onl .

Water Corporation asset impact

WARNING - CRITICAL PIPELINE FOUND
The area ou re uested contains a critical pipeline. ou ma need to contact us ith re ard to this re uest prior to di in – see attached documents.

Important

1. Plans sho approximate location onl – veri location b potholin be ore usin po ered machiner .
2. Please read all in ormation and attachments.
3. ll documents must be kept to ether and retained on site b the ork team.
4. This in ormation is valid or 30 da s rom date o issue.



WATER CORPORATION

Scale: ***1:3071***

Sequence No: **24612440**

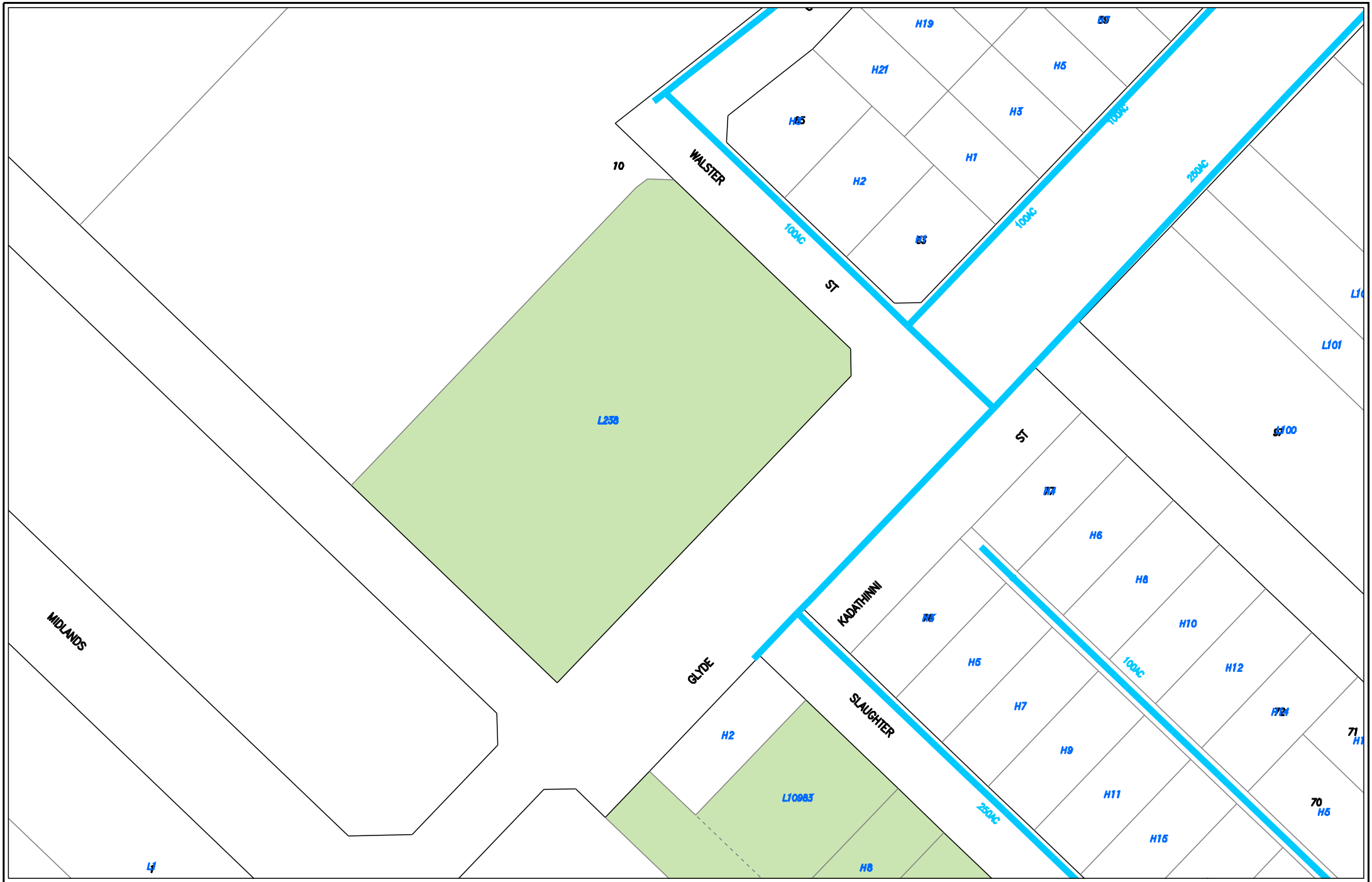
Print Date: 26/03/2012 Page: 1 of 3

N

Water

WARNING - CRITICAL PIPELINE
Refer to Information Brochure Damage **Prevention** and ***Legend for details***

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WATER CORPORATION

Scale: 1:1500 Centre Point: 115.761°, -29.530°

Sequence No: 24612440

Print Date: 26/03/2012 Page: 2 of 3

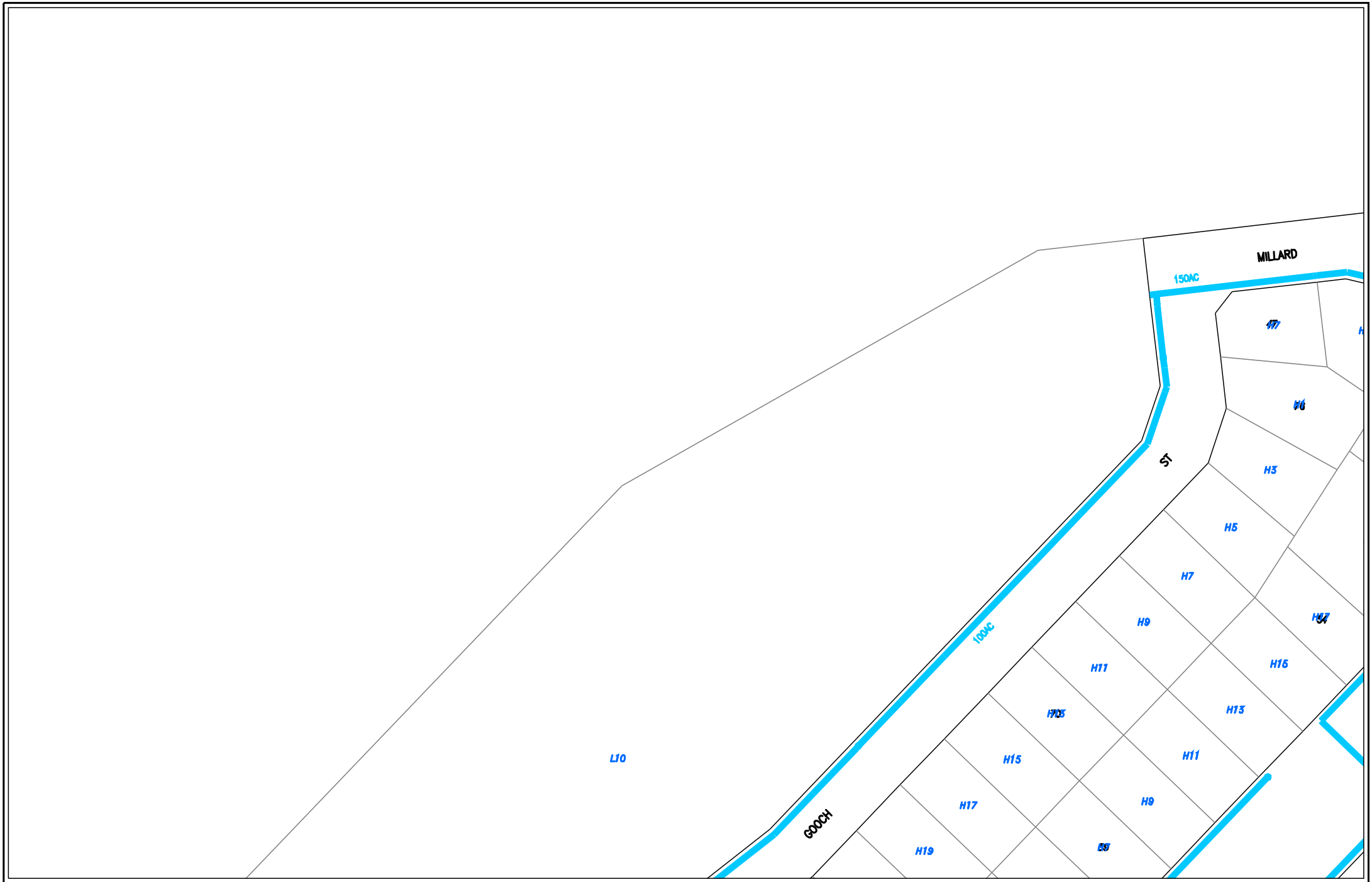
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Water

WARNING - CRITICAL PIPELINE

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Scale: 1:1500 Centre Point: 115.761°, -29.528°

Sequence No: 24612440

Print Date: 26/03/2012 Page: 3 of 3

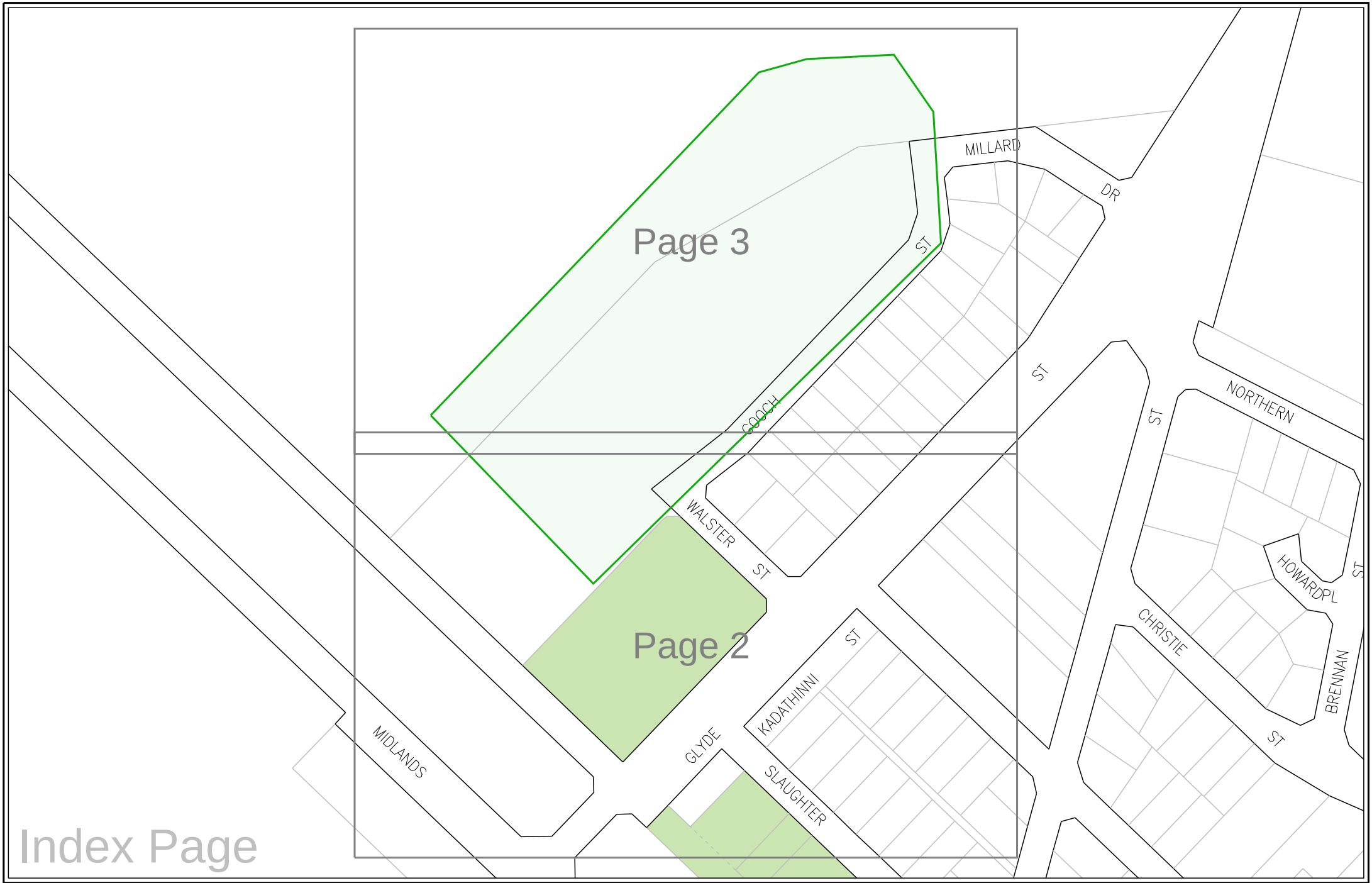
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Water

WARNING - CRITICAL PIPELINE

Refer to ***Information Brochure Damage Prevention*** and ***Legend*** for details

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WATER CORPORATION

Scale: 1:3071

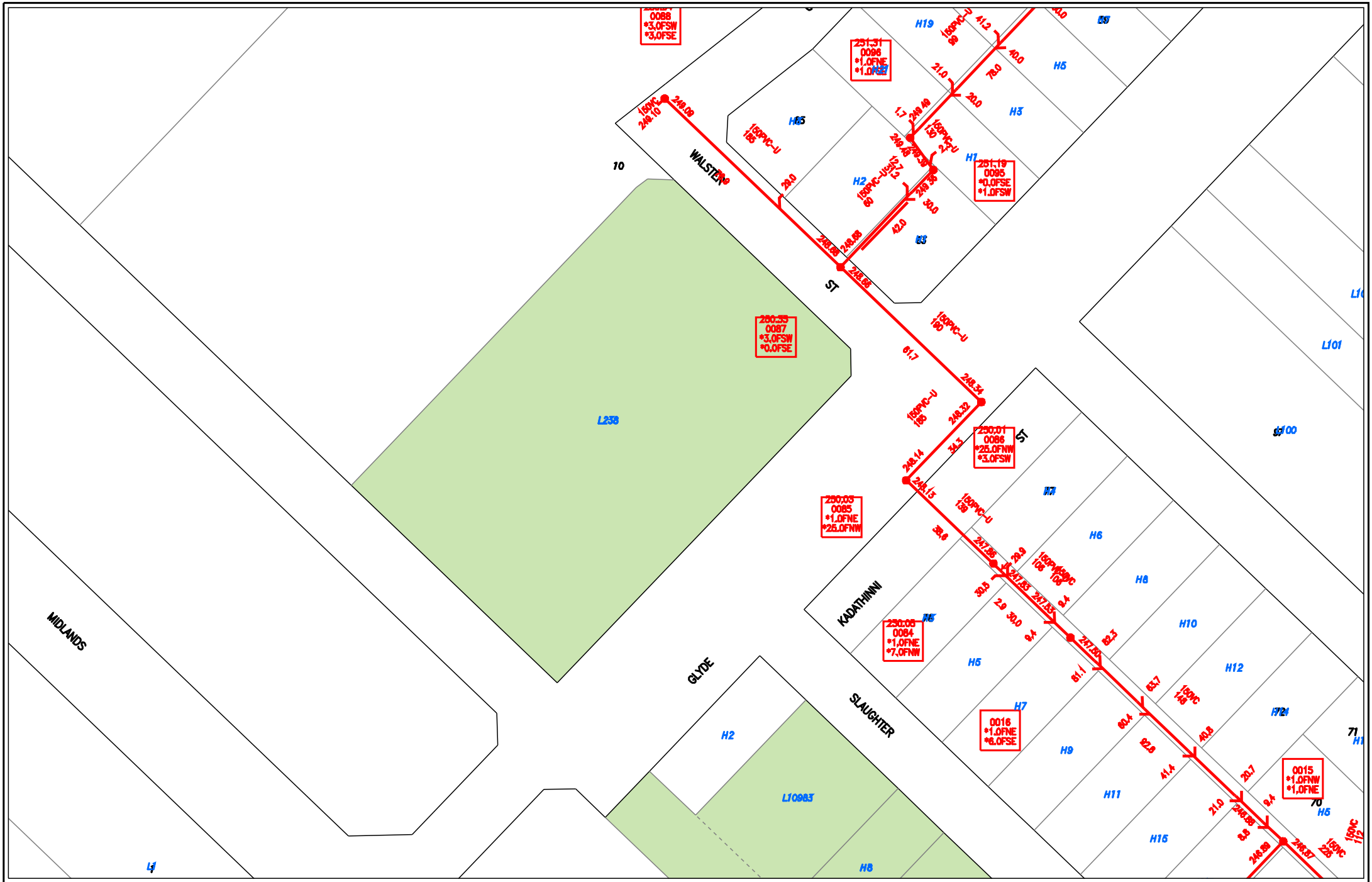
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Print Date: 26/03/2012 Page: 1 of 3

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Sewer

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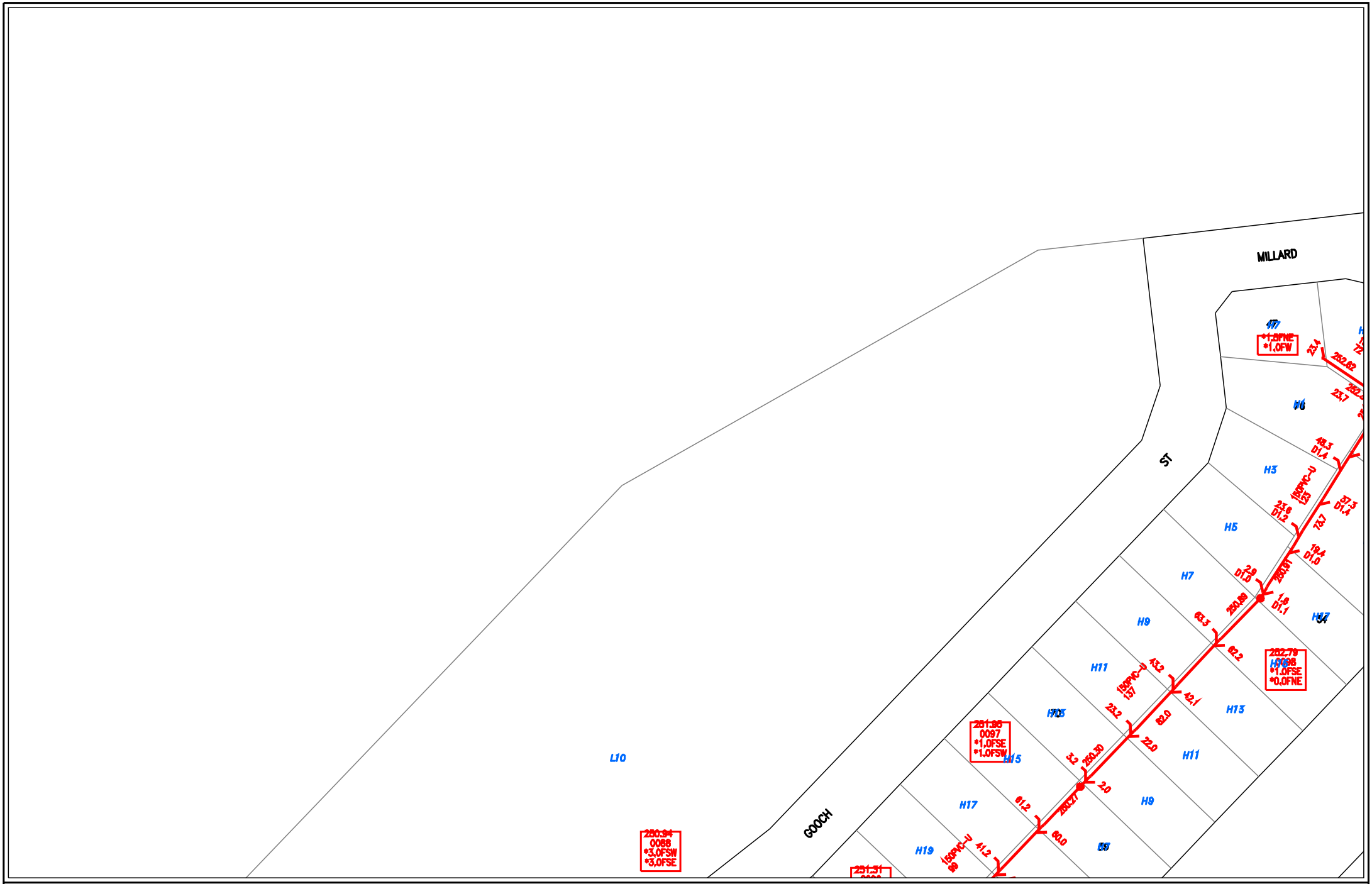
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Sequence No: 24612440

Print Date: 26/03/2012 Page: 2 of 3

Sewer

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Scale: 1:1500 Centre Point: 115.761°, -29.528°

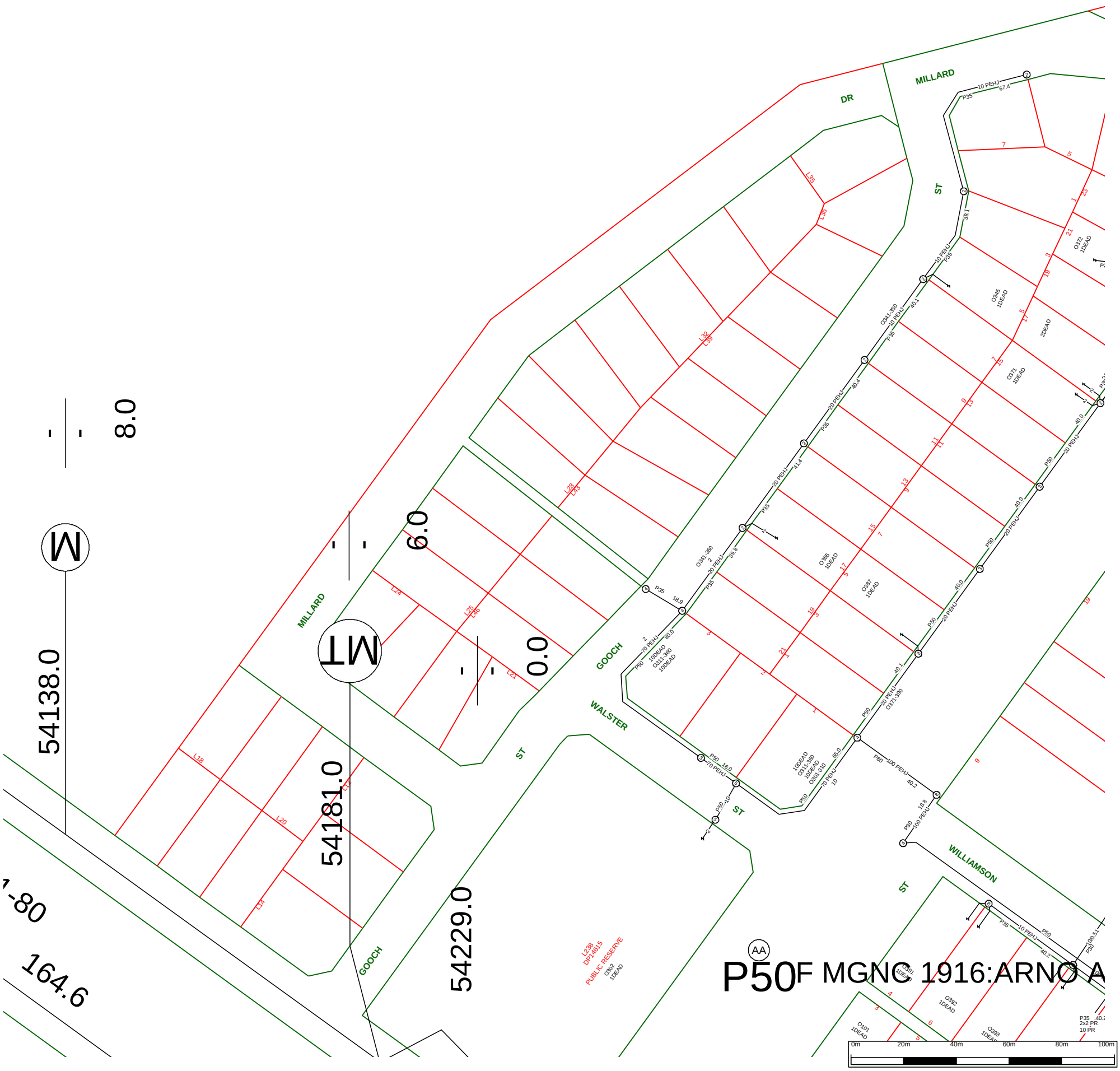
Sequence No: 24612440

Print Date: 26/03/2012 Page: 3 of 3

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Cable Plan



Telstra	For all Telstra DBYD plan enquiries - email - Telstra.Plans@team.telstra.com For urgent onsite contact only - ph 1800 653 935 (bus hrs)
TELSTRA CORPORATION LIMITED A.C.N. 051 775 556	
Generated On 26/03/2012 13:37:20	Sequence Number: 24612438
	CAUTION: Fibre optic and/ or major network present in plot area. Please read the Duty of Care and contact Telstra Plan Services should you require any assistance.

The above plan must be viewed in conjunction with the Mains Cable Plan on the following page

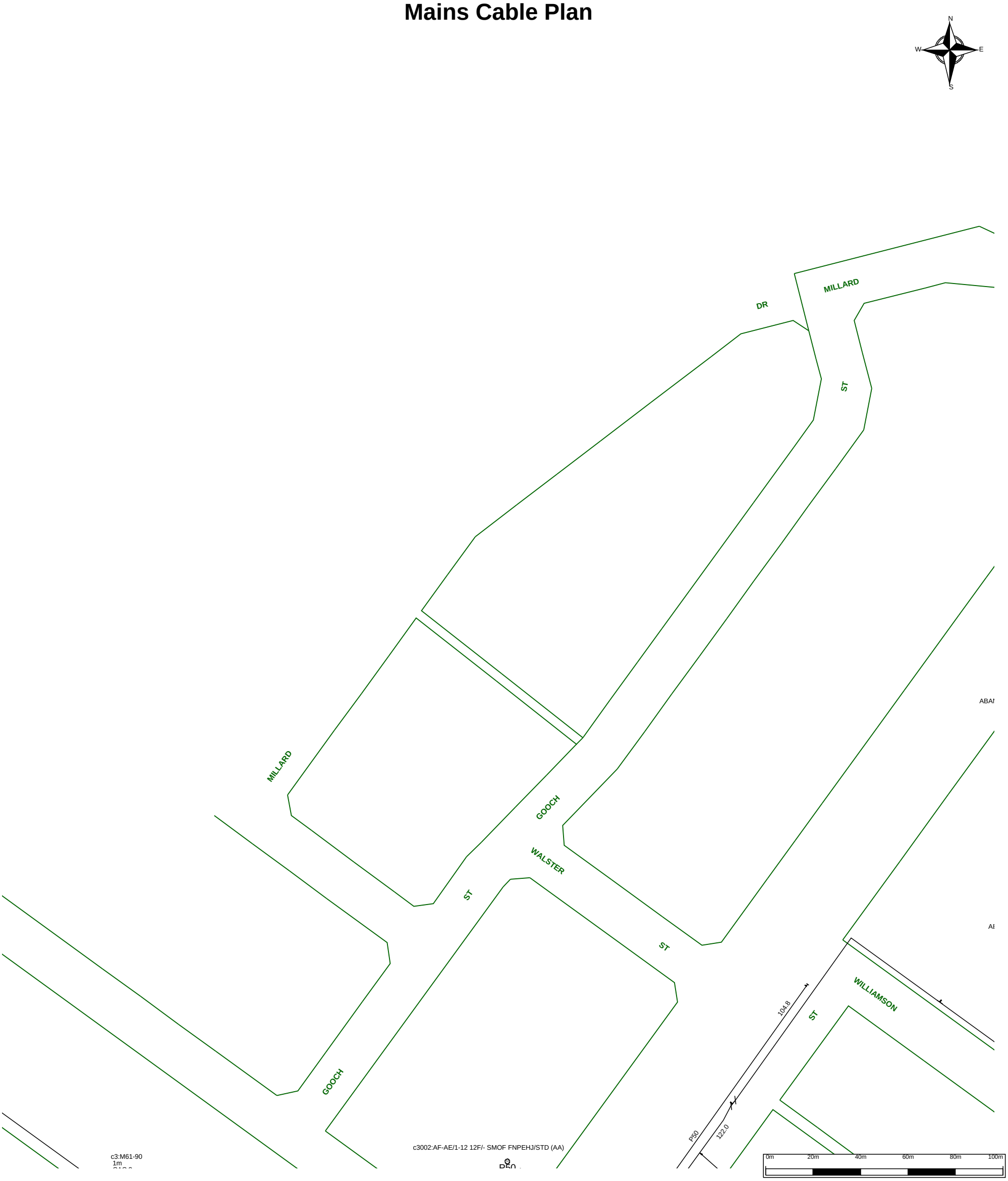
WARNING - Due to the nature of Telstra underground plant and the age of some cables and records, it is impossible to ascertain the precise location of all Telstra plant from Telstra's plans. The accuracy and/or completeness of the information supplied can not be guaranteed as property boundaries, depths and other natural landscape features may change over time, and accordingly the plans are indicative only. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy shown on the plans.

It is your responsibility to locate Telstra's underground plant by careful hand pot-holing prior to any excavation in the vicinity and to exercise due care during that excavation.

Please read and understand the information supplied in the duty of care statement attached with the Telstra plans. TELSTRA WILL SEEK COMPENSATION FOR LOSS CAUSED BY DAMAGE TO ITS PLANT.

Telstra plans and information supplied are valid for 60 days from the date of issue. If this timeframe has elapsed, please reapply for plans.

Mains Cable Plan



For all Telstra DBYD plan enquiries - email - Telstra.Plans@team.telstra.com For urgent onsite contact only - ph 1800 653 935 (bus hrs)	Sequence Number: 24612438
TELSTRA CORPORATION LIMITED A.C.N. 051 775 556	CAUTION: Fibre optic and/ or major network present in plot area. Please read the Duty of Care and contact Telstra Plan Services should you require any assistance.
Generated On 26/03/2012 13:37:22	

WARNING - Due to the nature of Telstra underground plant and the age of some cables and records, it is impossible to ascertain the precise location of all Telstra plant from Telstra's plans. The accuracy and/or completeness of the information supplied can not be guaranteed as property boundaries, depths and other natural landscape features may change over time, and accordingly the plans are indicative only. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy shown on the plans.

It is your responsibility to locate Telstra's underground plant by careful hand pot-holing prior to any excavation in the vicinity and to exercise due care during that excavation.

Please read and understand the information supplied in the duty of care statement attached with the Telstra plans. TELSTRA WILL SEEK COMPENSATION FOR LOSS CAUSED BY DAMAGE TO ITS PLANT.

Telstra plans and information supplied are valid for 60 days from the date of issue. If this timeframe has elapsed, please reapply for plans.

Telstra Accredited Plant Locators - Western Australia. (more than one page)

If a physical location is required please contact a Telstra accredited locator from the list below. (fees apply)

Name & areas covered	Contact details
A1 Stop Locating Shop *(trading as Cable Locates & Consulting) - Singleton, Perth metro and Southwest*	(08) 9537 3030 or 0409 115 517 Fax: (08) 9586 8775
A & E Contracting - Hazelmere	(08) 9274 5450 Fax: (08) 9274 5450
Abaxa / WH Location Services	(08) 9256 0100 Fax: (08) 9256 2922
Advance Scanning Services Pty Ltd - *Belmont* *All of Western Australia*	(08) 9277 7500 or 0427 755 260 Fax: (08) 9277 7166
Associate Contracting Electrical Pty Ltd *Karratha*	(08) 9144 4825 or 0417 932 683 Fax: (08) 9144 4845
Australian Underground Survey Solutions Pty Ltd - *Narre Warren* *All Areas*	(03) 9700 2311 or 0419 488 883 Fax: (03) 9314 1568
Award Contracting *Metro and Country Areas*	(08) 9242 2113 Mob 0411 878 895 Fax: (08) 9246 1818
Ballantyne Electrical Pty Ltd - *Dunsborough*	0439 998 062
Beaulieu Holdings *Narrogin, Within 200Km radius*	(08) 9881 4734 or 0429 101 810 Fax: 9881 5851
Big Rock Leak Detection, Dunsborough- *South West of WA*	(08) 9756 7237 or 0427 048 070 Fax: (08) 9756 7237
Brad Scott Electrics, Busselton - *South West*	0409 933 365 Fax: (08) 9751 4434
Bunbury Telecom Services *South West WA.*	(08) 9795 5222 Fax: (08) 9785 3954
Busselton Contracting *Southern WA District*	0427 913 201 Fax: (08) 9754 2369
Busselton Water - *Busselton*	(08) 9781 0513 Fax (08) 9754 1075
Concrete Radar Imaging Solutions - *Ellenbrook* *Perth and Surrounding Suburbs*	0457 002 747 Fax: (08) 6296 7968
Diversified Services Aust. P/L - *Bibra Lake*	(08) 9494 2000 or 0418 907 889 Fax: (08) 9494 1222
Ertech Pty Ltd - *Kalgoorlie* *Goldfields*	0419 190 531 Fax: (08) 9091 2617
Find Wise Location Services - Joondalup	(08) 9561 1865 Fax: 08 9561 1866
Fitzy's Mini Loads and Excavations - *Carnarvon* *Carnarvon, Gascoyne Districts, Coral Bay, Exmouth, Sharkbay Districts, Onslow*	0429 939 450 Fax: (08) 9941 2023
Gas It Pipe Contracting - *Davenport*	(08) 9726 0166 Fax: (08) 9726 0167
Graham Dunlop Trenching	(08) 9622 3596 Mob: 0429 994 180 Fax: (08) 9622 3596
Geographe Underground Services	0417 990 530
iFind PIPES 'N' CABLES PTY LTD - *Winellie* *All of WA*	0419 612 476 Fax: (08) 8941 2615 k.phelps1970@hotmail.com
Jacksons Utility Location Service - *Pakenham*	0417 511 114
J&S Castlehow Electrical Services	(08) 9841 4888 Fax: 9841 5252
JWA Locating Service - *Mt Helena*	0419 935 215 Fax (08) 9295 2003
Katanning Area Telephones *Great Southern WA*	(08) 9821 1197 or 0419 930 646 Fax (08) 9821 1306
Kellercom P/L Port Pirie *Eyre Peninsula, Yorke Peninsular, Far North, Flinders Ranges, Mid North*	(08) 8632 5123 or 0428 600 077 Fax: (08) 8633 4792
Leak Search *All of Western Australia*	(08) 9791 8329 or 0411 731 440 Fax (08) 9791 8306

LivePower- Construction & Plant	(08) 9248 6233 Fax (08) 9248 6277
Lloyds Earthmoving *Central Wheatbelt*	(08) 9622 7660 Fax (08) 9622 7662
Mid Coast Contracting *Cervantes, Jurien Bay, Greenhead Head, Leeman, Lancelin and Dandaragan*	(08) 9652 7777 or 0429 330 034 Fax (08) 9652 7777
MJB Nominees - *Hannans*	(08) 9091 8606 Fax (08) 9022 7504
Morris Electrical Services - *Margaret River* *South West of WA*	(08) 9758 7861 or 0429 311 323 Fax (08) 9758 7861
MP Electrolocation Pty Ltd - *Mosman Park*	0404 046 636
Patriot Tankers - *Ormeau* *Gold Coast, Brisbane, Ipswich, Sunshine Coast*	1800 Patriot or 0414 493 904 Fax: (07) 3287 5987
Pipeline Technology Services	(08) 8351 7000 or 0419 878 220 Fax:(08) 8159 7537
Power Down Under Pty Ltd - *Mandurah* *Mandurah, Perth Metro, Country*	0418 903 225 Fax (08) 9534 8226
R & L Transport - *Carnarvon* *Gascoyne Area*	0407 476 544
Riverina Horizontal Boring Pty Ltd- *Wodonga*	(02) 6059 1788 or 0419 149 153 Fax: (02) 6059 5090
SM Doyle - *Albany*	(08) 9842 2811 or 0417 928 179
Somerset Hill (WA) Pty Ltd *Denmark, 500Km radius of Denmark*	(08) 9840 9036 or 0428 409 036 Fax (08) 9840 9536
Spotters Asset Locations Pty Ltd- *Freemantle* *Perth Metro & Country*	0459 130 677 Fax (08) 9433 4400
Streamline Underground Services *South West Western Australia*	(08) 9752 3025
Subsufrace Detection Pty Ltd	(08) 9453 1989 or 0422 232 335 Fax (08) 9453 9957
Tru-Line Excavations & Plumbing Pty Ltd- *Geraldton*	1800 Truline or 0427 239 949 Fax: (08) 9923 9949
Underground Services Australia - *Bayswater*	(08) 9272 0126
WA Service Locators - *Iluka*	0409 105 397 Fax (08) 9304 0668

APPENDIX 3

ABORIGINAL HERITAGE ENQUIRY SYSTEM

Aboriginal Heritage Inquiry System

bori inal ites atabase

earch Criteria

ite 24382

isclaimer

bori inal sites exist that are not recorded on the e ister o bori inal ites and some re istered sites ma no lon er exist. Consultation ith bori inal communities is on- oin to identi additional sites. The H protects all bori inal sites in estern ustralia hether or not the are re istered.

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Cop ri ht in the in ormation contained herein is and shall remain the propert o the tate o estern ustralia. ll ri hts reserved. This includes but is not limited to in ormation rom the e ister o bori inal ites established and maintained under the bori inal Herita e ct 1972 (H).

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F	Female access

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C	Closed
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	ulnerable

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nreliable	The spatial in ormation recorded in the site ile is deemed to be unreliable due to errors o spatial data capture and or ualit o spatial in ormation reported.

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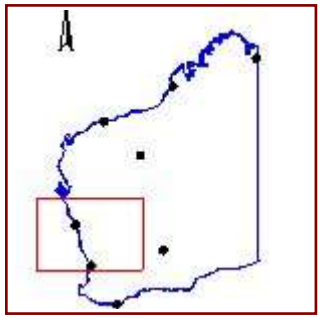
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Aboriginal Heritage Inquiry System

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For urther important in ormation on usin this in ormation please see the epartment o ndi enous airs Terms o se statement at http: .dia. a. ov. au Terms- - se

APPENDIX 4

INDICATIVE SUBDIVISION PLAN



LEGEND

SUBJECT SITE

date	28 March 2012	job no.	7116	scale	1: 1500 @ A3
designer	M Sullivan	prepared by	M Callaghan	e-ref	031203
client	Shire of Three Springs			projection	

perth
Level 3, 369 Newcastle Street, Northbridge, Western Australia, 6003
email gra@greg-rowe.com web greg-rowe.com tel +618 9221 1991 fax +618 9221 1919

title: subdivision plan

address: lot 10 gooch street three springs

PERTH • PEEL / SOUTH WEST • MID WEST • PILBARA

GREG ROWE & associates

FOCUSED ON ACHIEVEMENT

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N:\Town Planning\7000-7999\7116\DRAFTING
PROJECT MANAGEMENT
URBAN DESIGN
MASTER PLANNING
TOWN PLANNING

APPENDIX 4

INDICATIVE SUBDIVISION PLAN



LEGEND

SUBJECT SITE

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title: subdivision plan

address: lot 10 gooch street three springs

perth
Level 3, 369 Newcastle Street, Northbridge, Western Australia, 6003
email gra@greg-rowe.com web greg-rowe.com tel +618 9221 1991 fax +618 9221 1919

PERTH • PEEL / SOUTH WEST • MID WEST • PILBARA

GREG ROWE & associates

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N:\Town Planning\7000-7999\7116\DRAFTING
PROJECT MANAGEMENT
URBAN DESIGN
MASTER PLANNING
TOWN PLANNING

***Minutes to be attached after Council meeting of 26.04.23

APPENDIX 5

COUNCIL MINUTES

Appendix 6

LANDCORP

Enquiries 9482 7520

ICR143144

SHIRE OF THREE SPRINGS
FILE ADM0343
23 JUN 2014
CEO ☐ ADMIN ☐
DCEO ☐ W/S ☐
EHO ☐ MECH ☐
ACTION:.....

Shire of Three Springs
Attention: Sylvia Yandle
PO Box 117
THREE SPRINGS WA 6519

Dear Sylvia,

RDAP2012 – Three Springs Update

I refer to my previous letter dated the 24th January, 2014.

As you are aware, LandCorp is currently investigating the development potential of Lot 10, Gooch Street in Three Springs in line with the of the Shire's RDAP application.

The following is an update on recent activities in relation to the progression of the project.

Planning:

- WAPC conditional approval has been received (attached). These conditions are valid for four (4) years.

Next Steps

- LandCorp is currently arranging for the detailed costing of the project to enable progression towards a "shovel ready" state in line with LandCorp's Board approval for this project

I look forward to assisting you with the progression of land release in Three Springs.

Yours sincerely

Kylie Coman
REGIONAL MANAGER
Midwest/ Wheat Belt
18 June 2014

Western Australian Planning Commission

Your Ref :
Enquiries : Claire Krummenacher (Ph 9960 6954)

App Corporation
Po Box 3016
EAST PERTH WA 6004

RECEIVED
25 FEB 2014

Approval Subject To Condition(s)
Freehold (Green Title) Subdivision

Application No : 149149

Planning and Development Act 2005

Applicant	:	App Corporation Po Box 3016 EAST PERTH WA 6004
Owner	:	Shire Of Three Springs Po Box 117 THREE SPRINGS WA 6519
Application Receipt	:	2 December 2013

Lot Number	:	
Diagram / Plan	:	D064274/10
Location	:	
C/T Volume/Folio	:	1671/633
Street Address	:	Lot 10 Glyde Street, Three Springs
Local Government	:	Shire of Three Springs

The Western Australian Planning Commission has considered the application referred to and is prepared to endorse a deposited plan in accordance with the plan date-stamped **02 December 2013** once the condition(s) set out have been fulfilled.

This decision is valid for **four years** from the date of this advice, which includes the lodgement of the deposited plan within this period.

The deposited plan for this approval and all required written advice confirming that the requirement(s) outlined in the condition(s) have been fulfilled must be submitted by **24 February 2018** or this approval no longer will remain valid.

Central Regions, Regional Planning and Strategy
Office 10, 209 Foreshore Drive, Geraldton, Western Australia 6530
Tel: (08) 9960 6999; Fax: (08) 9964 2912; TTY: (08) 9264 7535; Infoline: 1800 626 477
e-mail: corporate@planning.wa.gov.au; web address: http://www.planning.wa.gov.au ABN 35 482 341 493

Western Australian Planning Commission

Reconsideration - 28 days

Under section 151(1) of the *Planning and Development Act 2005*, the applicant/owner may, within 28 days from the date of this decision, make a written request to the WAPC to reconsider any condition(s) imposed in its decision. One of the matters to which the WAPC will have regard in reconsideration of its decision is whether there is compelling evidence by way of additional information or justification from the applicant/owner to warrant a reconsideration of the decision. A request for reconsideration is to be submitted to the WAPC on a Form 3A with appropriate fees. An application for reconsideration may be submitted to the WAPC prior to submission of an application for review. Form 3A and a schedule of fees are available on the WAPC website: http://www.planning.wa.gov.au

Right to apply for a review - 28 days

Should the applicant/owner be aggrieved by this decision, there is a right to apply for a review under Part 14 of the *Planning and Development Act 2005*. The application for review must be submitted in accordance with part 2 of the *State Administrative Tribunal Rules 2004* and should be lodged within 28 days of the date of this decision to: the State Administrative Tribunal, 12 St Georges Terrace, Perth, WA 6000. It is recommended that you contact the tribunal for further details: telephone 9219 3111 or go to its website: http://www.sat.justice.wa.gov.au

Deposited plan

The deposited plan is to be submitted to the Western Australian Land Information Authority (Landgate) for certification. Once certified, Landgate will forward it to the WAPC. In addition, the applicant/owner is responsible for submission of a Form 1C with appropriate fees to the WAPC requesting endorsement of the deposited plan. A copy of the deposited plan with confirmation of submission to Landgate is to be submitted with all required written advice confirming compliance with any condition(s) from the nominated agency/authority or local government. Form 1C and a schedule of fees are available on the WAPC website: http://www.planning.wa.gov.au

Condition(s)

The WAPC is prepared to endorse a deposited plan in accordance with the plan submitted once the condition(s) set out have been fulfilled.

The condition(s) of this approval are to be fulfilled to the satisfaction of the WAPC.

The condition(s) must be fulfilled before submission of a copy of the deposited plan for endorsement.

Central Regions, Regional Planning and Strategy
Office 10, 209 Foreshore Drive, Geraldton, Western Australia 6530
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e-mail: corporate@planning.wa.gov.au; web address: http://www.planning.wa.gov.au ABN 35 482 341 493

Western Australian Planning Commission

The agency/authority or local government noted in brackets at the end of the condition(s) identify the body responsible for providing written advice confirming that the WAPC's requirement(s) outlined in the condition(s) have been fulfilled. The written advice of the agency/authority or local government is to be obtained by the applicant/owner. When the written advice of each identified agency/authority or local government has been obtained, it should be submitted to the WAPC with a Form 1C and appropriate fees and a copy of the deposited plan.

If there is no agency/authority or local government noted in brackets at the end of the condition(s), a written request for confirmation that the requirement(s) outlined in the condition(s) have been fulfilled should be submitted to the WAPC, prior to lodgement of the deposited plan for endorsement.

Prior to the commencement of any subdivision works or the implementation of any condition(s) in any other way, the applicant/owner is to liaise with the nominated agency/authority or local government on the requirement(s) it considers necessary to fulfil the condition(s).

The applicant/owner is to make reasonable enquiry to the nominated agency/authority or local government to obtain confirmation that the requirement(s) of the condition(s) have been fulfilled. This may include the provision of supplementary information. In the event that the nominated agency/authority or local government will not provide its written confirmation following reasonable enquiry, the applicant/owner then may approach the WAPC for confirmation that the condition(s) have been fulfilled.

In approaching the WAPC, the applicant/owner is to provide all necessary information, including proof of reasonable enquiry to the nominated agency/authority or local government.

The condition(s) of this approval, with accompanying advice, are:

CONDITION(S):

1. The land being filled, stabilised, drained and/or graded as required to ensure that
   a) lots can accommodate their intended development; and
   b) finished ground levels at the boundaries of the lot(s) the subject of this approval match or otherwise coordinate with the existing and/or proposed finished ground levels of the land abutting; and
   c) stormwater is contained on-site, or appropriately treated and connected to the local drainage system

   (Local Government)

Central Regions, Regional Planning and Strategy
Office 10, 209 Foreshore Drive, Geraldton, Western Australia 6530
Tel: (08) 9960 6999; Fax: (08) 9964 2912; TTY: (08) 9264 7535; Infoline: 1800 626 477
e-mail: corporate@planning.wa.gov.au; web address: http://www.planning.wa.gov.au ABN 35 482 341 493

Western Australian Planning Commission

2. Engineering drawings and specifications are to be submitted, approved, and subdivisional works undertaken in accordance with the approved plan of subdivision, engineering drawings and specifications, to ensure that those lots not fronting an existing road are provided with frontage to a constructed road(s) connected by a constructed road(s) to the local road system and such road(s) are constructed and drained at the landowner/applicant's cost.

   As an alternative, and subject to the agreement of the Local Government the Western Australian Planning Commission (WAPC) is prepared to accept the landowner/applicant paying to the local government the cost of such road works as estimated by the local government and the local government providing formal assurance to the WAPC confirming that the works will be completed within a reasonable period as agreed by the WAPC. (Local Government)

3. The proposed reserve(s) shown on the approved plan of subdivision being shown on the diagram or plan of survey (deposited plan) as reserve(s) for Recreation and vested in the Crown under Section 152 of the *Planning and Development Act 2005*, such land to be ceded free of cost and without any payment of compensation by the Crown. (Local Government)

4. Cash-in-lieu being provided for any shortfall in the 10% Public Open Space (as per Condition 3). (Local Government)

5. Arrangements being made with the Water Corporation so that provision of a suitable water supply service will be available to the lots shown on the approved plan of subdivision. (Water Corporation)

6. Arrangements being made with the Water Corporation so that provision of a sewerage service will be available to the lots shown on the approved plan of subdivision. (Water Corporation)

7. Arrangements being made to the satisfaction of the Western Australian Planning Commission and to the specification of Western Power for the provision of an underground electricity supply to the lot(s) shown on the approved plan of subdivision. (Western Power)

8. Arrangements being made to the satisfaction of the Western Australian Planning Commission and to the specifications of Western Power for the provision of necessary electricity easement(s) to the lot(s) shown on the approved plan of subdivision/plan. (Western Power)

9. The transfer of land as a Crown reserve free of cost to Western Power for the provision of electricity supply infrastructure. (Western Power)

Central Regions, Regional Planning and Strategy
Office 10, 209 Foreshore Drive, Geraldton, Western Australia 6530
Tel: (08) 9960 6999; Fax: (08) 9964 2912; TTY: (08) 9264 7535; Infoline: 1800 626 477
e-mail: corporate@planning.wa.gov.au; web address: http://www.planning.wa.gov.au ABN 35 482 341 493

Western Australian Planning Commission

10. The landowner/applicant is to prepare, have approved by the Department of Fire and Emergency Services, and implement a detailed plan demonstrating the location and capacity of fire emergency infrastructure and strategic fire breaks to the satisfaction of the Western Australian Planning Commission. (Fire and Emergency Services)

ADVICE:

1. In regard to Conditions 3 and 4 there is an Public Open Space shortfall of approximately 405m2 (POS requirement calculated excluding the 1.6ha balance lot and the extension of Walster Street). It is recommended cash-in-lieu be provided for this shortfall so that funds are allocated and appropriately spent on Public Open Space servicing the subdivisional area.

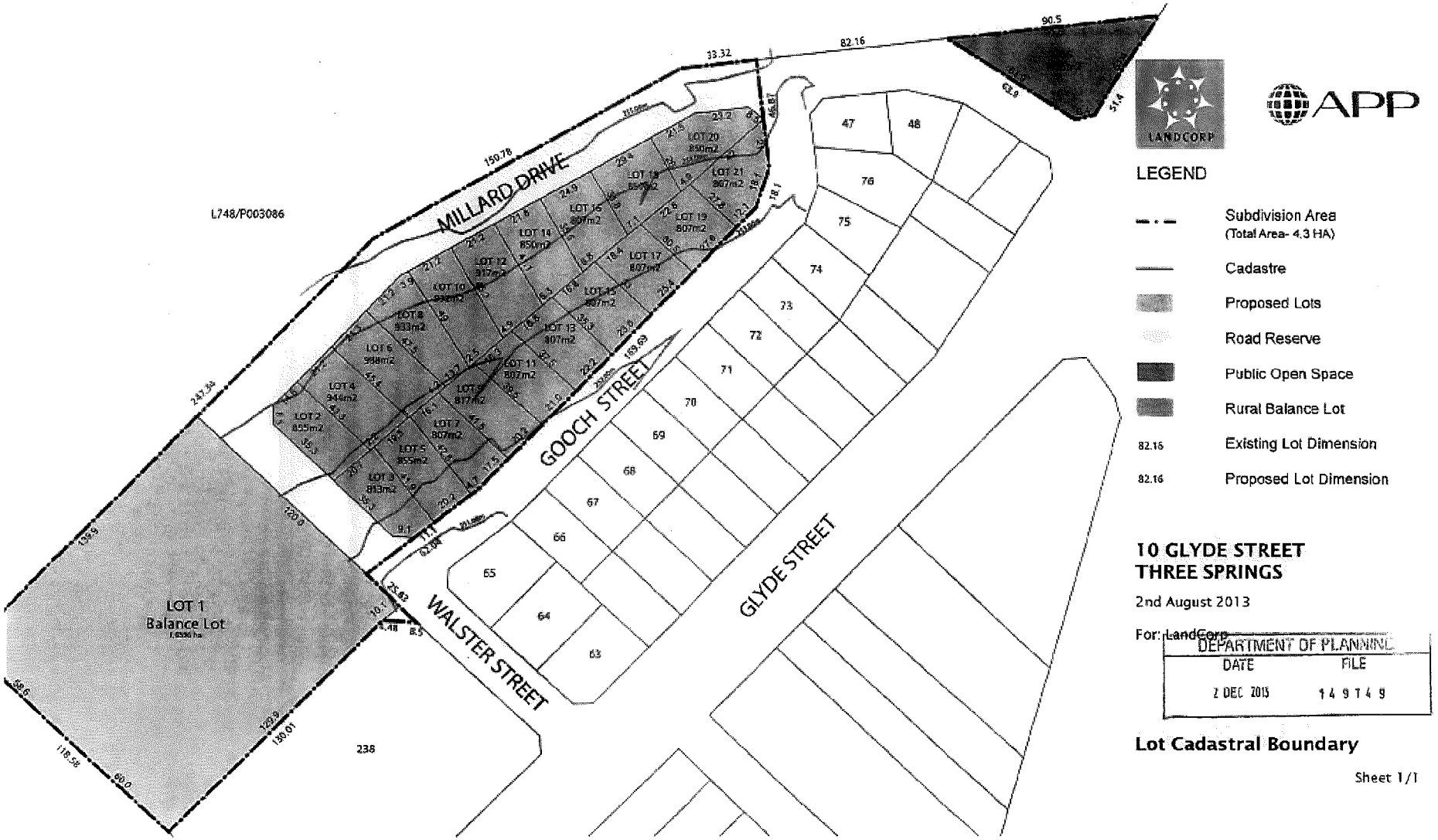
2. The landowner/applicant and the local government are advised to refer to the Institute of Public Works Engineering Australia Local Government Guidelines for Subdivisional Development (current edition). The guidelines set out the minimum best practice requirements recommended for subdivision construction and granting clearance of engineering conditions imposed.

3. In regard to Condition 1, the landowner/applicant is advised that the road reserves, including the constructed carriageways, laneways, truncations, footpaths/dual use paths and car embayments, are to be generally consistent with the approved plan of subdivision.

4. In regard to Conditions 5-6, the landowner/applicant shall make arrangements with the Water Corporation for the provision of the necessary services. On receipt of a request from the landowner/applicant, a Land Development Agreement under Section 67 of the *Water Agencies (Powers) Act 1984* will be prepared by the Water Corporation to document the specific requirements for the proposed subdivision.

Tim Hillyard
Secretary
Western Australian Planning Commission
24 February 2014

Central Regions, Regional Planning and Strategy
Office 10, 209 Foreshore Drive, Geraldton, Western Australia 6530
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e-mail: corporate@planning.wa.gov.au; web address: http://www.planning.wa.gov.au ABN 35 482 341 493



LANDCORP

APP

LEGEND

	Subdivision Area (Total Area- 4.3 HA)
	Cadastre
	Proposed Lots
	Road Reserve
	Public Open Space
	Rural Balance Lot
82.16	Existing Lot Dimension
82.16	Proposed Lot Dimension

10 GLYDE STREET THREE SPRINGS

2nd August 2013

For: LandCorp

DEPARTMENT OF PLANNING

DATE	FILE
2 DEC 2013	149149

Lot Cadastral Boundary

Sheet 1/1

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Scale 1:1500 @ A3 0 25 50 75 100 125m

2/08/2013

Appendix 8

LANDCORP

SHIRE OF THREE SPRINGS
FILE: ADM0343
ICR153893
28 MAY 2015
CEO ☐ ADMIN ☐
DCEO ☐ W/S ☐
EHO ☐ MECH ☐
ACTION:.....

Ref ICR143308
Ref ICR143144
Ref ICR142850

Enquiries Kylie Coman (9482 7520)

Chief Executive Officer
Shire of Three Springs
PO Box 117
THREE SPRINGS WA 6519

Dear Sylvia,

THREE SPRINGS LAND DEVELOPMENT – *Local* RDAP APPLICATION.

I refer to my previous letter (attached) dated 15 August 2014 concerning the Three Springs project. The following is an update.

The project was considered recently by LandCorp's Planning, Development and Communications Committee for progression through to the construction phase as discussed with Shane Collie from your office.

The project has not been approved to be progressed to construction due to its present low priority ranking within the *Local* RDAP. LandCorp prioritises all projects on the basis of pre sales, market demand need, third party contributions and the financial capacity of the RDAP to progress.

The projects business case has been taken to what we refer to as "shovel ready" level and Western Australian Planning Commission approvals are currently in place to support development (valid until the 2/12/2017).

Should circumstances change and the Shire is able to secure additional support (to source infrastructure or other funding and/or to secure advanced lot sales) to elevate the ranking within the *Local* RDAP please contact LandCorp so that the project can be re-evaluated. LandCorp will also review the projects status in 12 months' time in consultation with the Shire.

If you have any queries on this project, please contact Kylie Coman.

Yours sincerely

David McFerran
Manager Southern Regions
26 May 2015

Western Australian Land Authority ABN 34 868 192 835
Level 6, Wesfarmers House, 40 The Esplanade, Perth Western Australia 6000
Locked Bag 5, Perth Business Centre, Perth Western Australia 6849
T 08 9482 7499 F 08 9481 0861
E landcorp@landcorp.com.au
landcorp.com.au

Enquiries Kylie Coman (9482 7520)

Chief Executive Officer
Shire of Three Springs
PO Box 117
THREE SPRINGS WA 6519

Dear Sylvia,

THREE SPRINGS LAND DEVELOPMENT – *Local* RDAP APPLICATION.

In response to your 2010 *Local* RDAP (Regional Development Assistance Program) application round funding request, the LandCorp Board previously agreed to progress the Three Springs project to being "shovel ready" and to fully develop the business case for the project.

Over 80 *Local* RDAP applications have been submitted for funding consideration to the LandCorp Board over the past five (5) years and the Board has agreed to advance approximately 65 to a "shovel ready" status. Of that number, 23 projects have been constructed and those projects have released 178 lots to the market; all *Local* RDAP projects produce an operating loss, with funding for this important regional initiative being provided through an annual State Government $4 million Community Service Obligation (CSO) and from the proceeds from other LandCorp regional activities. LandCorp is currently planning to deliver a further seven projects in 2014/15 (three projects are currently being serviced and a further four are soon to be tendered for construction).

LandCorp has received positive feedback from those local governments where lots have been released to the market and it is unfortunate that over 30 projects still remain undelivered within the *Local* RDAP, with the majority of these waiting on the resolution of Native Title matters. With the tighter fiscal position faced by the State Government, LandCorp now finds itself in a position where it has had to review its capacity to deliver *Local* RDAP projects within the $4 million of CSO funding currently being guaranteed for that purpose.

To provide a strategic and equitable overview, all *Local* RDAP projects have now been ranked on how each project delivers against the *Local* RDAP principles identified within the *Local* RDAP application documents. The principles or priorities are:

- There is a social or economic need for the land to be developed;
- There is no existing private sector or other land supply / sales available;
- There is market failure and the private sector is not delivering land;
- LandCorp has access to the land needed to undertake the development;
- There is a state or regional strategic priority for the land to be developed;
- Appropriate zoning is in place to support the development;
- The site has access to services and infrastructure;
- The project is the most cost effective and practical development option;

Western Australian Land Authority ABN 34 868 492 835
Level 6, Wesfarmers House, 40 The Esplanade, Perth Western Australia 6000
Locked Bag 5, Perth Business Centre, Perth Western Australia 6849
T 08 9482 7499 F 08 9481 0861
E landcorp@landcorp.com.au
landcorp.com.au

ICR186852

LANDCORP

Appendix 9

Our Ref: A1559914 / 1204802
Enquiries: Robert Fenn (9482 7471)
Date: 5 January 2018

SHIRE OF THREE SPRINGS
FILE: ADM0343
12 JAN 2018
CEO ☐ ADMIN ☐
DCEO ☐ W/S ☐
EHO ☐ MECH ☐
ACTION:.....

Sylvia Yandle
Chief Executive Officer
Shire of Three Springs
PO Box 117
THREE SPRINGS WA 6519

Dear Sylvia,

PROPOSED RESIDENTIAL SUBDIVISION – LOT 10 GOOCH STREET, THREE SPRINGS

I refer to LandCorp's letter of the 25 May 2015, wherein the Shire was advised that the progression of the proposed residential project in Three Springs, under the Regional Development Assistance Program (RDAP), would be reviewed.

LandCorp has delivered over 250 additional regional lots under RDAP over the past seven years, substantially improving land availability options in regional WA. However, falling private sector economic activity and a reduction in the funding made available to RDAP has recently stalled 34 RDAP projects that are now "tender ready".

Fewer than three RDAP projects are expected to advance into construction in 2018/19, with no improvement on that situation expected in the following years. Therefore, the capacity to deliver projects is becoming more problematic and LandCorp is reluctant to maintain or resource an excessive number of projects within its development pipeline.

I note that the WAPC subdivision approval that was secured by LandCorp for the proposed Three Springs residential development has lapsed and the demand for the additional lots is still to be demonstrated. These factors impact upon LandCorp's ranking of the project within the RDAP and will further delay its potential delivery.

I am therefore reluctantly advising the Shire that LandCorp will not be to committing additional resources to the progression of the Three Springs residential project and that the project documentation will now be placed into LandCorp's archives. As previously advised, LandCorp is prepared to release those documents to the Shire, should your Council wish to proceed with the project without RDAP assistance.

LandCorp may agree to reinstate the project if there is a change in the capacity to fund the development and the urgency to deliver the project can be demonstrated. May I also

suggest that the Shire consider alternate solutions to achieve urban renewal and /or the delivery of additional housing into Three Springs, given the creation of "green-fields" residential lots will remain a major challenge.

For further information and advice, do not hesitate to contact the Senior Development Manager for the Regional Development Assistance Program, Mr Robert Fenn on 9482 7471, or robert.fenn@landcorp.com.au.

Yours sincerely

Mark Pasalich
Manager Regional South

WESTERN AUSTRALIAN LAND AUTHORITY ABN 34 868 192 835
Level 6, Wesfarmers House, 40 The Esplanade, Perth Western Australia 6000
Locked Bag 5, Perth Business Centre, Perth Western Australia 6849
T 08 9482 7499 F 08 9481 0861
E landcorp@landcorp.com.au
landcorp.com.au

FORM OF APPLICATION FOR PLANNING APPROVAL

(PLEASE COMPLETE ALL BOXES)

OWNER DETAILS:

Name(s): CM+RM PATMORE

Postal Address: [redacted] Postcode: 6518

Contact Person: CHRIS

Phone: [redacted] Email: [redacted]

Signature: [signature] Date: 5-2-23

Signature: [signature] Date: 5-2-23

NOTE: The signatures of ALL the owner(s) is required to process this application.

APPLICANT DETAILS: (if different from owner)

Name:

Postal Address: Postcode:

Contact Person:

Phone: Email:

Signature: Date:

PROPERTY DETAILS:

Lot/Location No: 10213 House/Street No:

Street Name: DING RD Locality/Suburb: ENEABBA

Diagram/Plan No: Volume No: Folio No:

EXISTING DEVELOPMENT/LAND USE:

Nature of any Existing Development/Land Use: PASTURE

PROPOSED DEVELOPMENT/LAND USE:

Description of Proposed Development/Land Use: GRAVEL EXTRACTION

Approximate Cost: —

Estimated Time of Completion: _____

REQUIRED INFORMATION & FEES:

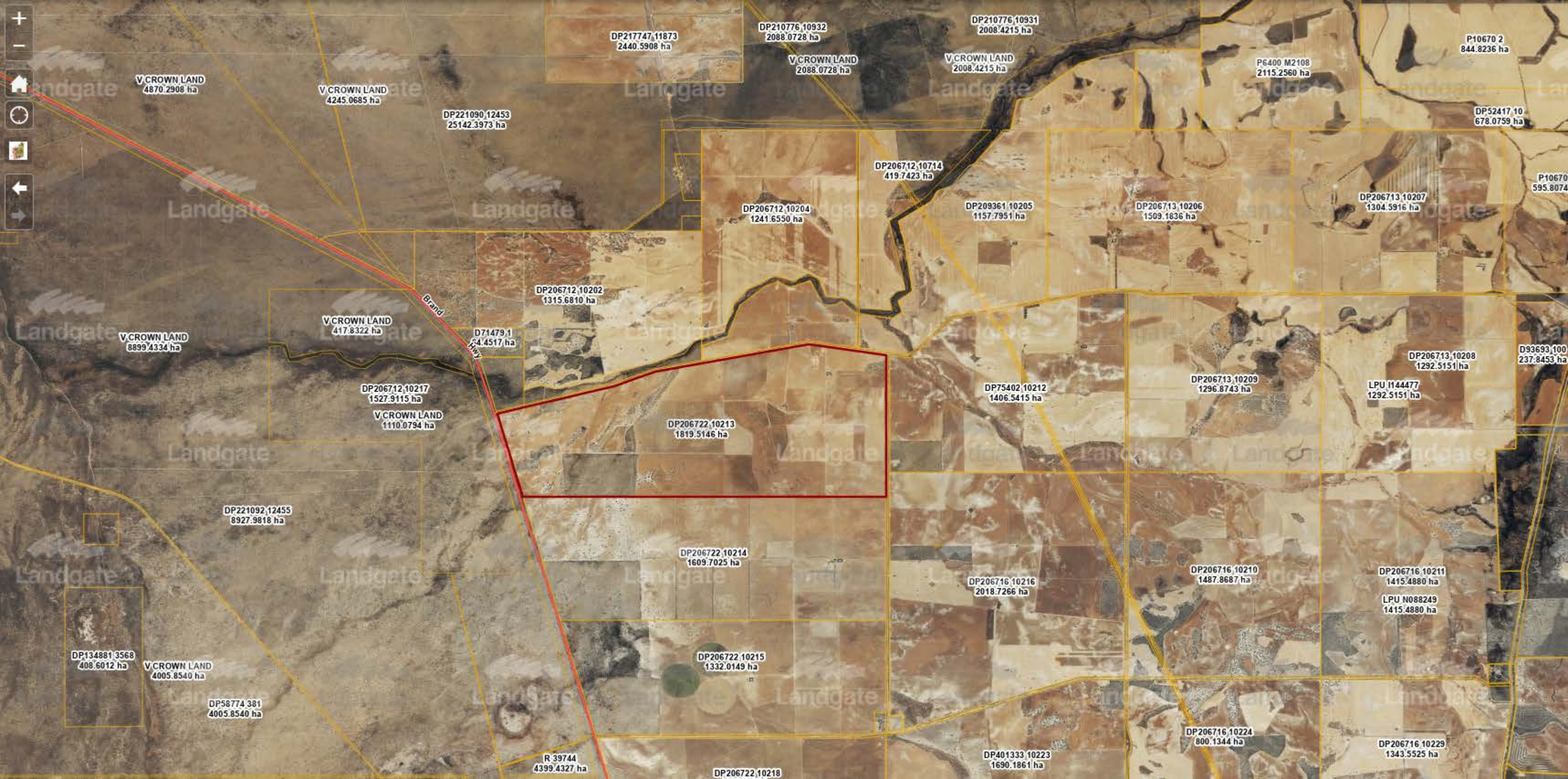
Please refer over for the information required to be submitted with this application and the schedule of fees. This application will not be processed without all required information including payment of the appropriate fee.

OFFICE USE ONLY:

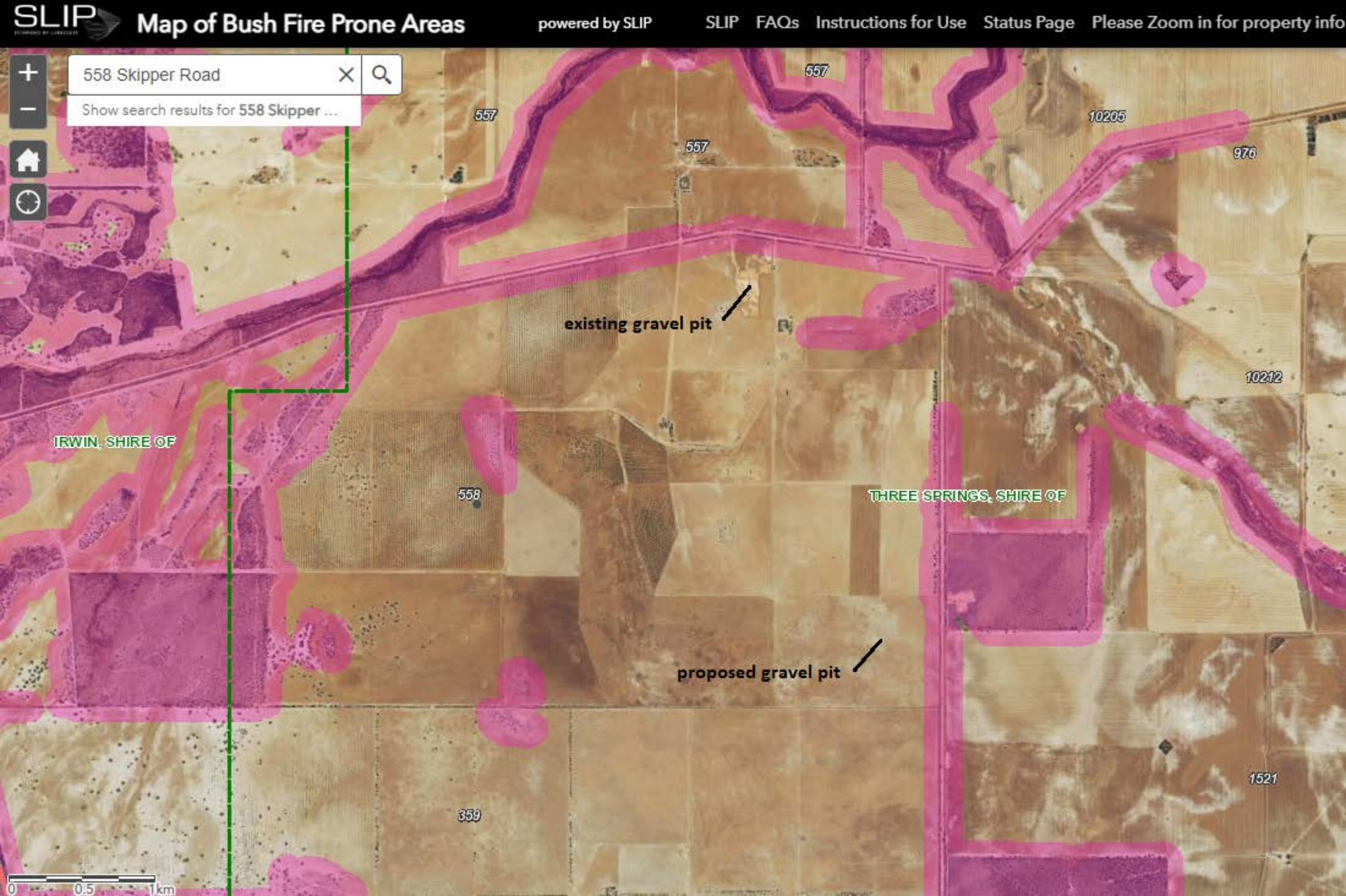
Date Received: _____ Application No: _____

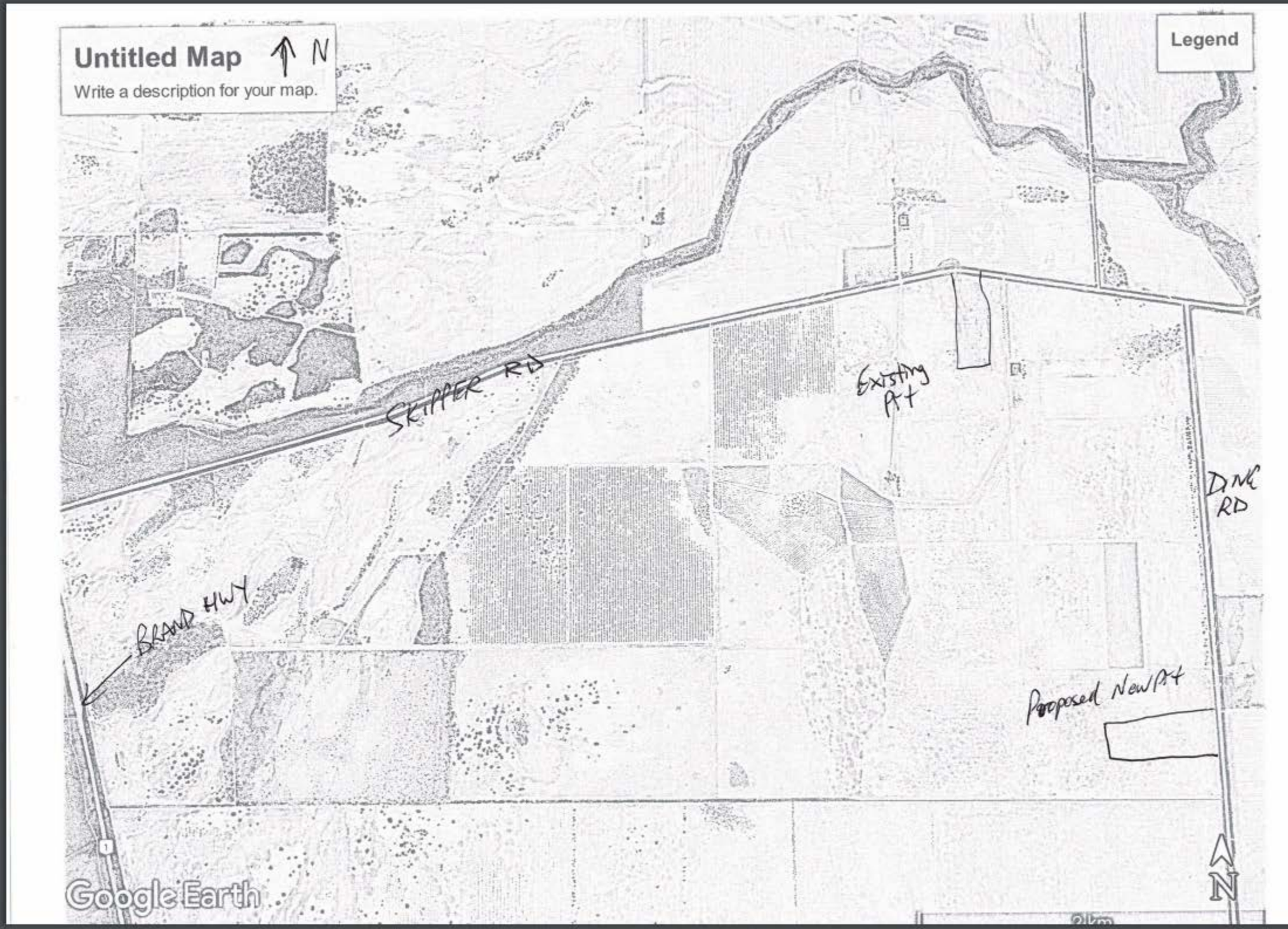
Accepting Officer's Initials: _____ File Number: _____

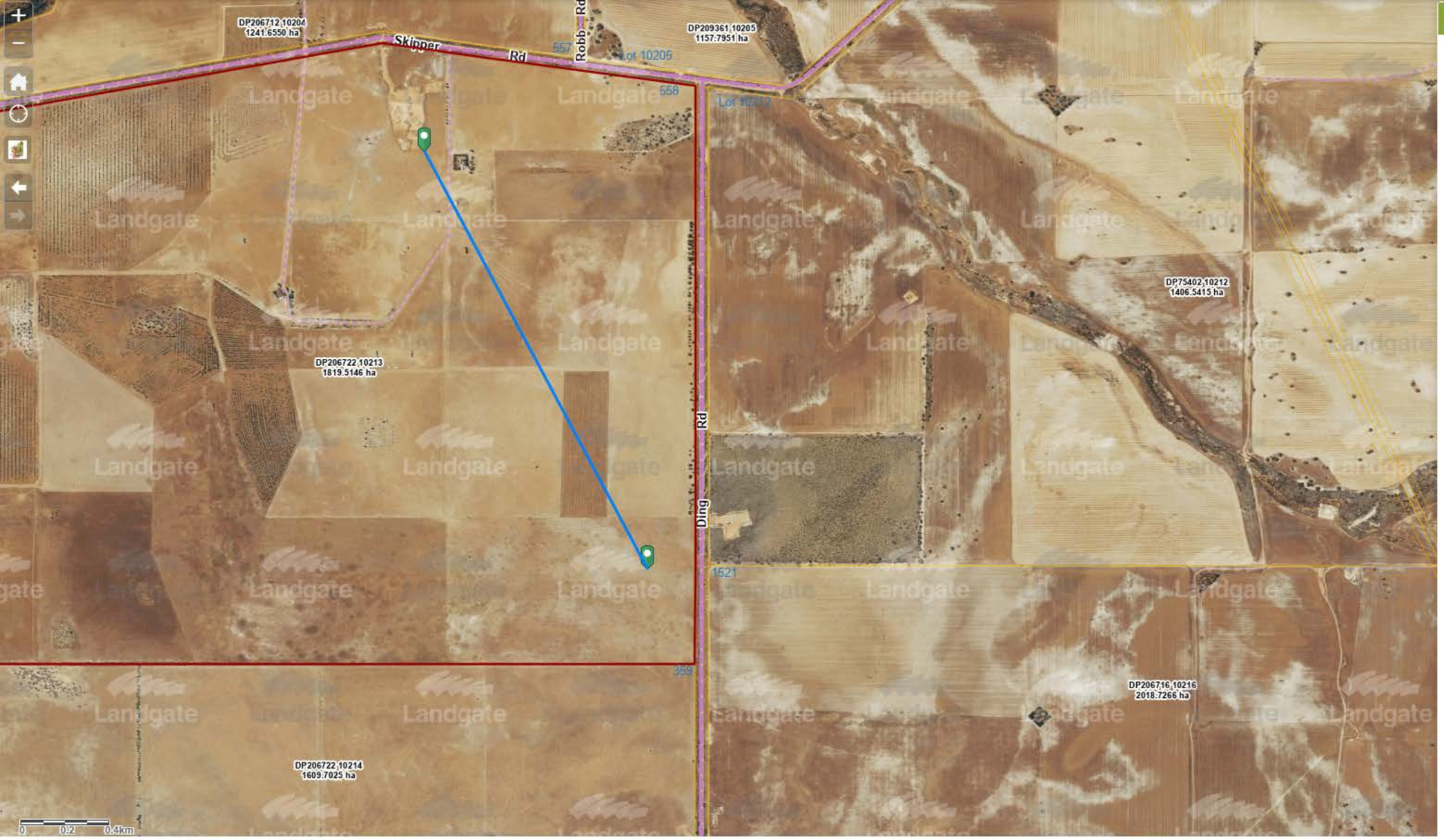
Required Fee: $_____ Date Paid: _____

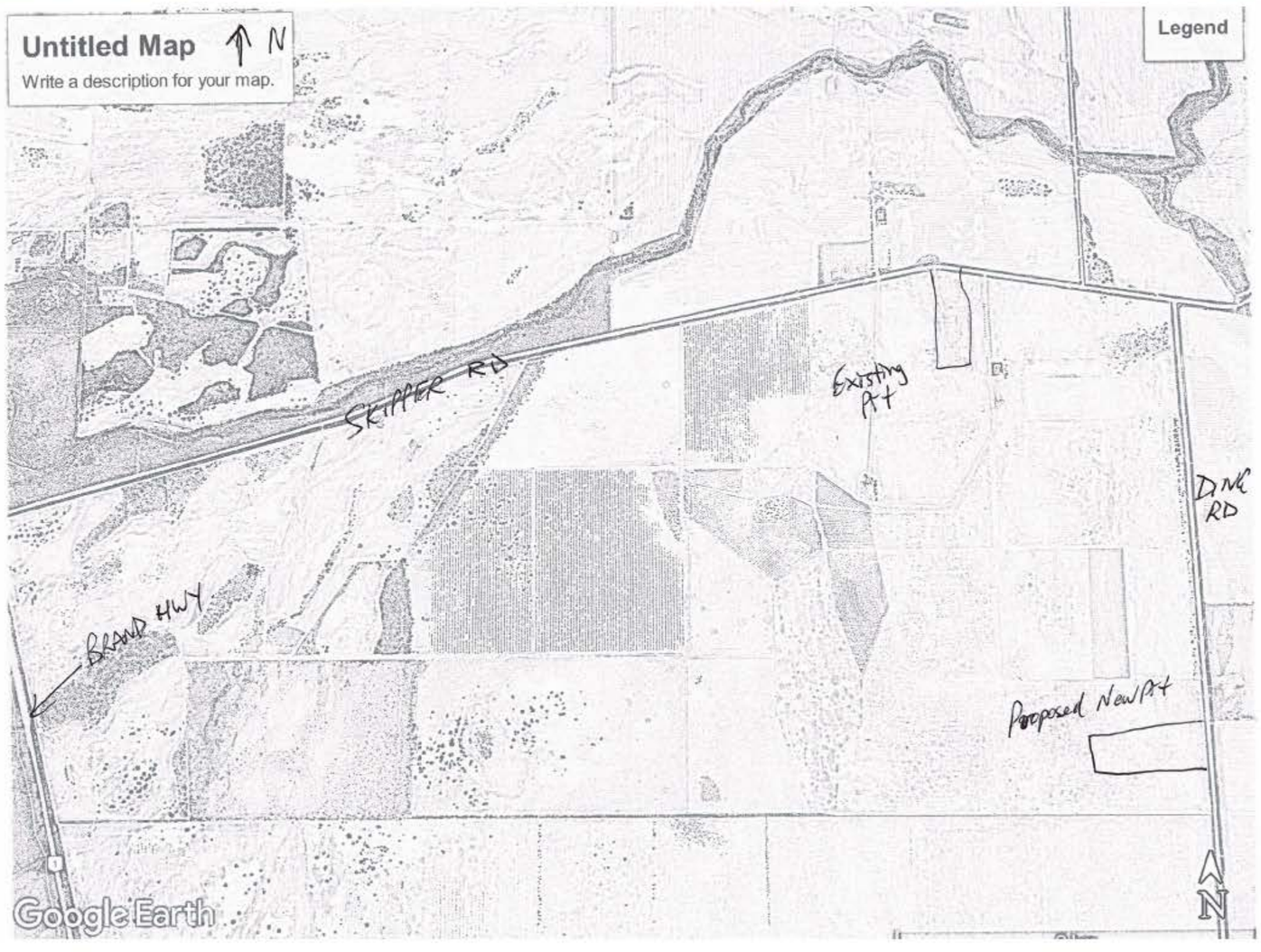

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2440.5908 ha
DP210776,10932
2088.0728 ha
DP210776,10931
2008.4215 ha
V CROWN LAND
2088.0728 ha
V CROWN LAND
2008.4215 ha
P6400 M2108
2115.2560 ha
P10670 2
844.8236 ha
V CROWN LAND
4870.2908 ha
V CROWN LAND
4245.0685 ha
DP221090,12453
25142.3973 ha
DP52417 10
678.0759 ha
DP206712,10714
419.7423 ha
P10670
595.8074
DP206712,10204
1241.6550 ha
DP209361,10205
1157.7951 ha
DP206713,10206
1509.1836 ha
DP206713,10207
1304.5916 ha
DP206712,10202
1315.6810 ha
Brand Hwy
V CROWN LAND
417.8322 ha
V CROWN LAND
8899.4334 ha
D71479,1
4.4517 ha
DP206713,10208
1292.5151 ha
D93693,100
237.8453 ha
DP206712,10217
1527.9115 ha
V CROWN LAND
1110.0794 ha
DP206722,10213
1819.5146 ha
DP75402,10212
1406.5415 ha
DP206713,10209
1296.8743 ha
LPU I144477
1292.5151 ha
DP221092,12455
8927.9818 ha
DP206722,10214
1609.7025 ha
DP206716,10216
2018.7266 ha
DP206716,10210
1487.8687 ha
DP206716,10211
1415.4880 ha
LPU N088249
1415.4880 ha
DP134881,3568
408.6012 ha
V CROWN LAND
4005.8540 ha
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1332.0149 ha
DP58774,381
4005.8540 ha
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800.1344 ha
DP206716,10229
1343.5525 ha
R 39744
4399.4327 ha
DP401333,10223
1690.1861 ha
DP206722,10218


Skipper Rd
Robb Rd
Ding Rd
Brand Hwy
D71479 1
64.4517 ha
DP206712,10202
1315.6810 ha
DP206712,10203
69.9022 ha
DP206712,10466
72.2049 ha
R 25495
142.1071 ha
DP206712,10204
1241.6550 ha
DP209361,10205
1157.7951 ha
Lot 10205
Lot 10213
DP75402,10212
1406.5415 ha
DP206722,10213
1819.5146 ha
1521
V CROWN LAND
1110.0794 ha
DP206712,10217
1527.9115 ha
DP206722,10214
1609.7025 ha
DP206716,10216
2018.7266 ha
557
558
559
0 0.2 0.4km
Landgate


SLIP
Map of Bush Fire Prone Areas
powered by SLIP
SLIP
FAQs
Instructions for Use
Status Page
Please Zoom in for property info
558 Skipper Road
Show search results for 558 Skipper ...
557
557
557
10205
976
existing gravel pit
10212
IRWIN, SHIRE OF
558
THREE SPRINGS, SHIRE OF
proposed gravel pit
1521
359
0
0.5
1km


Untitled Map
N
Write a description for your map.
Legend
SKIPPER RD
Existing Pit
DIKE RD
BRAND HWY
Proposed New Pit
Google Earth
N


Measurement
Meters
Measurement Result
2,372.4 Meters
Clear
DP206712,10204
1241.6550 ha
Skipper Rd
Robb Rd
557
Lot 10205
DP209361,10205
1157.7951 ha
558
Lot 10212
DP75402,10212
1406.5415 ha
DP206722,10213
1819.5146 ha
Ding Rd
1521
359
DP206716,10216
2018.7266 ha
DP206722,10214
1609.7025 ha
0 0.2 0.4km


Untitled Map
N
Write a description for your map.
Legend
SKIPPER RD
Existing Pit
DING RD
BRAND HWY
Proposed New Pit
N
Google Earth

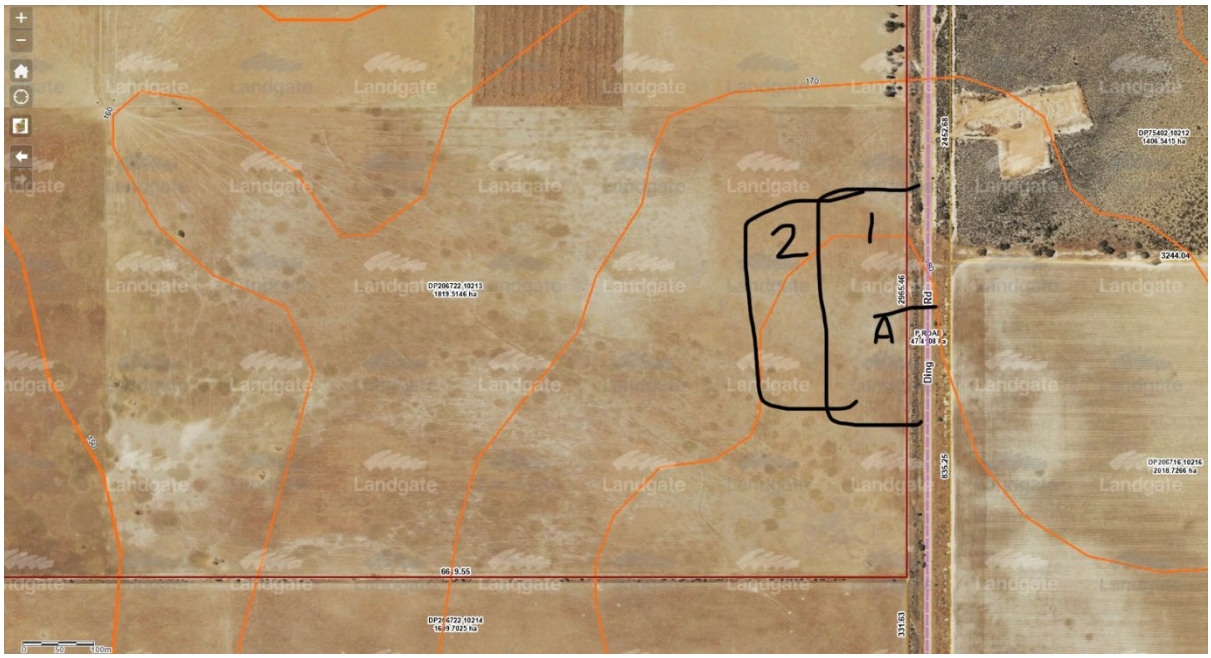

170
160
150
DP206722,10213
1819.5146 ha
2452.68
DP75402,10212
1406.5415 ha
3244.04
2965.46
Rd
Ding
835.25
DP206716,10216
2018.7266 ha
331.63
0
50
100m

From: Chris Patmore [redacted]
Sent: Monday, 20 February 2023 2:24 PM
To: Patricia Mckeon <es@threesprings.wa.gov.au>
Cc: Keith Woodward <ceo@threesprings.wa.gov.au>
Subject: Re: Proposed Extractive Industry - Ding Road

Please see photo attached with access marked “A”.
Also stages 1 and 2 marked.

To answer your questions below;
Property boundaries are already marked in red on your map.
The pit will be adjacent to the road.
Stockpiles will be in various parts of the pit and maximum 3m high.
Depth of excavation will be 1m.
Approx 3000 cubic metres per year based on past work.
Total will depend on the extent of the resource which is currently unknown.
Hours of operation will be daylight hours only.
Truck movements (based on 3000 cubes per year) will be 2 per week on average.
Machinery used will be one dozer, one loader and several trucks, but only spasmodic.
Road signage as needed. Clear vision long distance in both directions.
Gate will be closed as needed. Machinery not kept on site except occasionally.
Lifespan depends on resource. Maybe 5 years.
Rehabilitation by replacing overburden (topsoil).

Regards,
Chris




2
1
A
DP206722,10213
1819.5146 ha
DP75402,10212
1406.5415 ha
3244.04
2452.68
2965.46
Rd
Ding
835.25
DP206716,10216
2018.7266 ha
331.63
170
160
150
0
50
100m

From: Planning and Land Development Referrals <planning.land.development.referrals@westernpower.com.au>
Sent: Friday, 3 March 2023 9:46 AM
To: Patricia Mckeon <es@threesprings.wa.gov.au>
Subject: Enquiry: Re: Extractive Industry (Gravel) – Lot 10213 Ding Road, Arrowsmith East

Dear Patricia

Thank you for your submission to Western Power for Ref: `Extractive Industry (Gravel)` – Lot 10213 Ding Road, Arrowsmith East

Unfortunately requests for general comments, feedback and approval for proposals can't be provided for without application and the investigation and dialogue that allows.
We suggest:

- Reviewing your query against the processes referred to in our Strategic Planning web page
- Where a change of land use, or permanent road closure will affect our ability to access our infrastructure for maintenance or in an emergency, the original accessway or an alternative must be maintained. Changed access conditions should be communicated via our Land entry preferences form,
- Use our provided mapping tools and "Before You Dig" to locate any assets that would be affected by any proposed change or development,
- If there are transmission assets (66,000VOLTS-330,000 VOLTS) in proximity to your work, apply via our move or remove transmission and communication assets form,
- Ensuring any developers involved are aware that they will need to make an application to deal with any assets that are in the development area as well as for the power requirements for the development.

Thank you and we look forward to receiving your information/applications through the correct channels.

Kind Regards

Kate
Customer Service Coordinator - Planning and Land Development
Customer Experience

A 363 Wellington St. Perth 6000 | **T** 13 10 87
E planning.land.development.referrals@westernpower.com.au

westernpower.com.au

Ngala kaaditj Noongar moort keyen kaadak nidja boodja.
Western Power acknowledges the Traditional Owners of the lands on which we operate, and recognises their continuing connection to lands, waters and communities.

Electricity Networks Corporation, trading as Western Power
ABN: 18 540 492 861
TO THE ADDRESSEE - this email is for the intended addressee only and may contain information that is confidential. If you have received this email in error, please notify us immediately by return email or by telephone. Please also destroy this message and any electronic or hard copies of this message.
Any claim to confidentiality is not waived or lost by reason of mistaken transmission of this email.
Unencrypted email is not secure and may not be authentic. Western Power cannot guarantee the accuracy, reliability, completeness or confidentiality of this email and any attachments.
VIRUSES - Western Power scans all outgoing emails and attachments for viruses, however it is the recipient's responsibility to ensure this email is free of viruses.

Government of Western Australia
Department of Mines, Industry Regulation and Safety
Resource and Environmental Regulation

Your ref ADM0168 OCR235454
Our ref A0124/202201
Enquiries Steven Batty — 9222 3104
Steven.BATTY@dmirs.wa.gov.au

Keith Woodward PSM
Chief Executive Officer
Shire of Three Springs
Sent by Email — general@threesprings.wa.gov.au
PO Box 117 Three Springs WA 6519

Dear Keith Woodward PSM

SHIRE OF THREE SPRINGS - EXTRACTIVE INDUSTRY GRAVEL - LOT 10213 DING ROAD ARROWSMITH EAST

Thank you for your letter dated 2 March 2023 inviting comment on the development application for an Extractive Industry Licence (EIL) for Gravel at Lot 10213 Ding Road, Arrowsmith East in the Shire of Three Springs.

The Department of Mines, Industry Regulation and Safety (DMIRS) has determined that this proposal raises no significant issues with respect to mineral and petroleum resources, geothermal energy, and basic raw materials.

DMIRS lodges no objections to the above development application.

Yours sincerely



_____
Steven Batty
Senior Geologist
Mineral and Energy Resources Directorate
07 March 2023

Mineral House 100 Plain Street East Perth Western Australia 6004
Postal address: Locked Bag 100 East Perth WA 6892
Telephone +61 8 9222 3333 Facsimile +61 8 9222 3862
www.dmirs.wa.gov.au
ABN 69 410 335 356

From: Crowson, Chris [mailto:Chris.Crowson@atco.com]
Sent: Monday, 13 March 2023 3:25 PM
To: General <general@threesprings.wa.gov.au>
Subject: ATCO Response - LM23180 - Extractive Industry (Gravel) Lot 10213 Ding Road Arrowsmith East

Good afternoon

Re: Extractive Industry (Gravel) Lot 10213 Ding Road Arrowsmith East
ATCO Reference: LM23180

ATCO Gas Australia (ATCO) has no objection to the proposed application, based on the information and plan provided.

ATCO advice notes:

1. Anyone proposing to carry out construction or excavation works must contact *'Before You Dig Australia' (www.byda.com.au*) to determine the location of buried gas infrastructure. Refer to ATCO document *AGA-O&M-PR24- Additional Information for Working Around Gas Infrastructure https://www.atco.com/en-au/for-home/natural-gas/wa-gas-network/working-around-gas.html*
2. Proposed construction and excavation works need to be managed in accordance with the ATCO document *Additional Information for Working Around Gas Infrastructure - AGA-O&M-PR24 https://www.atco.com/en-au/for-home/natural-gas/wa-gas-network/working-around-gas.html*

Please accept this email as ATCO's written response.

Should you have any queries regarding the information above, please contact us on 13 13 56 or eservices@atco.com.

Kind Regards

Chris Crowson
Land Management Coordinator
Gas Division

E. chris.crowson@atco.com
A. 81 Prinsep Road, Jandakot, Western Australia 6164

ATCO.com.au LinkedIn Facebook Twitter

ATCO acknowledges the Traditional Owners of country throughout Australia and their continuing connection to land, sea and community. We pay respect to their Elders past, present and emerging, and in the spirit of reconciliation, we commit to working together for our shared future.

The information transmitted is intended only for the addressee and may contain confidential, proprietary and/or privileged material. Any unauthorized review, distribution or other use of or the taking of any action in reliance upon this information is prohibited. If you receive this in error, please contact the sender and delete or destroy this message and any copies.

Your Ref: OCR235448
Our Ref: LM: Planning March 2023
Contact: Neil Parry
Telephone: 08 9223 4944

ABN 78 081 609 289
Level 23, 140 St Georges Tce
Perth WA 6000
Postal Address
PO Box Z5267
Perth St Georges Tce WA 6831
Telephone: +61 8 9223 4300
Facsimile: +61 8 9223 4301

16 March 2023

Keith Woodward
Chief Executive Officer
Shire of Three Springs
PO Box 117
THREE SPRINGS WA 6519

Dear Keith

EXTRACTIVE INDUSTRY LOT 10213 DING ROAD, ARROWSMITH EAST

Thank you for your letter of 2 March 2023 seeking comment on the above proposal.

DBP as owners and operators of the Dampier to Bunbury Natural Gas Pipeline (DBNGP) have no objection to the proposed new gravel pit.

Should you have any further inquiries, please do not hesitate to contact me on the number above.

Yours sincerely

Neil Parry
Head of Land Management
Dampier Bunbury Pipeline

Government of **Western Australia**
Department of **Health**

Our Ref: D-AA-23/100697
Contact: Chris Hill/ Phill Oorjitham 9222 2000

Mr Keith Woodward PSM
Chief Executive Officer
Shire of Three Springs
PO Box 117
THREE SPRINGS WA 6519

Via email: general@threesprings.wa.gov.au

Dear Mr Woodward

PROPOSED EXTRACTIVE INDUSTRY (GRAVEL) — LOT 10213 DING ROAD, ARROWSMITH EAST

Thank you for your letter of 2 March 2023, requesting comments from the Department of Health (DoH) on the above proposal.

The DoH has no objection to the proposal.

Should you have any queries or require further information please contact Chris Hill or Phill Oorjitham on 9222 2000 or eh.eSubmissions@health.wa.gov.au

Yours sincerely

Matthew Lester
A/EXECUTIVE DIRECTOR
ENVIRONMENTAL HEALTH DIRECTORATE

17 March 2023

189 Royal Street East Perth Western Australia 6004
Telephone (08) 9222 2000 TTY 133 677
PO Box 8172 Perth Business Centre Western Australia 6849
ABN 28 684 750 332
www.health.wa.gov.au

-----Original Message-----
From: DFES Land Use Planning <advice@dfes.wa.gov.au>
Sent: Monday, 20 March 2023 8:04 PM
To: Patricia Mckeon <es@threesprings.wa.gov.au>
Subject: ICR2318836 - RE: Extractive Industry (Gravel) – Lot 10213 Ding Road, Arrowsmith East

Our Ref: D27975
Your Ref: Lot 10213 Ding Road, Arrowsmith East

RE: Extractive Industry (Gravel) – Lot 10213 Ding Road, Arrowsmith East

I refer to your email dated 02 March 2023 in relation to the referral of above proposed Development Application.

The documentation provided indicates that the Shire of Three Springs has not applied State Planning Policy 3.7 – Planning in Bushfire Prone Areas (SPP 3.7) to this proposal.

SPP 3.7 seeks to reduce vulnerability to bushfire through the identification and consideration of bushfire risks in decision-making at all stages of the planning and development process, including strategic planning and amendments.

A Bushfire Management Plan (BMP) is required to accompany strategic planning proposals, subdivision and development applications in areas above BAL–LOW or areas with a bushfire hazard level above low (refer to clause 6.2b). A BMP includes the bushfire assessment, identification of the bushfire hazard issues arising from the relevant assessment and a clear demonstration that compliance with the bushfire protection criteria contained within Appendix 4 of these Guidelines, is or can be achieved.

The BMP should be prepared as early as possible in the planning process and progressively refined or reviewed as the level of detail increases. The level of detail provided within a BMP should be commensurate with the applicable planning stage and scale of the proposal or application.

Should you apply SPP 3.7 then, we request the relevant information pursuant to this policy be forwarded to DFES to allow us to review and provide comment prior to the Shires endorsement of the amendment.

Note: The land is cleared of vegetation on supplied maps and does not contain dwellings or structures.

Guidelines for Planning in Bushfire Prone Areas states in 3.2 AREAS WHERE THERE IS NO APPARENT HAZARD:
If a proposal is in a designated bushfire prone area and the relevant assessment results in a property having either a Bushfire Hazard Level classification of 'Low', or achieves a BAL–LOW rating across the entire portion of developable land, then the planning proposal or development application does not require application of SPP 3.7 or these Guidelines despite the fact that it is designated within the Map of Bush Fire Prone Areas.

Regards
Tristan Whiting
Senior Land Use Planning Officer

20 Stockton Bend, Cockburn Central, Perth WA 6164
T: 08 9395 9301 | E: tristan.whiting@dfes.wa.gov.au | W: dfes.wa.gov.au

GOVERNMENT OF WESTERN AUSTRALIA

Department of **Biodiversity, Conservation and Attractions**

PARKS AND WILDLIFE SERVICE

Your ref: ADM0168
Our ref: PRS 50291
Enquiries: Nick Detchon
Phone: 9964 0901
Email: nicholas.detchon@dbca.wa.gov.au

Mr Keith Woodward PSM
Chief Executive Officer
Shire of Three Springs
PO Box 117
THREE SPRINGS WA 6519

Email: general@threesprings.wa.gov.au

Dear Mr Woodward

EXTRACTIVE INDUSTRY (GRAVEL) – LOT 10213 DING ROAD, ARROWSMITH EAST

Thank you for your letter of 2 March 2023 regarding the proposed gravel pit development application.

The Department of Biodiversity, Conservation and Attractions has no objections to the proposal as outlined in your letter. It is anticipated that the proposed gravel pit development and any associated environmental impacts will be appropriately managed through the existing planning framework.

Thank you for raising this matter to our attention. If you have any queries regarding this matter, please contact Nick Detchon on 9964 0901.

Yours sincerely

Allison Donovan
REGIONAL MANAGER
Midwest Region

23 March 2023

Midwest Region: 1st Floor, The Foreshore Centre, 201 Foreshore Drive, Geraldton
Phone: (08) 9964 0901 Fax: (08) 9964 0977
Postal Address: PO Box 72, Geraldton, Western Australia 6531
www.dbca.wa.gov.au

Enquiries: Mark Willson (08) 9956 1234
Our Ref: 21/3346 (002-304)
Your Ref:

22 March 2023

Chief Executive Officer
Shire of Three Springs
PO Box 117
Three Springs WA 6519

By email: general@threesprings.wa.gov.au

Dear Sir,

Extractive Industry (Gravel) – Lot 10213 Ding Road, Arrowsmith East

Thank you for consulting Main Roads on the extractive industry.

The proposal is not located within or adjacent to a road reserve under Main Roads jurisdiction. Main Roads has no current plans in the area that would affect Lot.

Accordingly, Main Roads does not object to the proposal and provides the following advice:

a) Main Roads recommends the Shire consider acquiring contributions from developments creating traffic that impact Brand Highway and Mount Adams Road intersection:
   - to seal the intersection to improve skid resistance and facilitate the swept path movement of all vehicles and;
   - seal a minimum of 60m metres from the edge of the Brand Highway along Mount Adams Road to prevent dirt and debris being deposited on the road network.

b) Extension of the Restricted Access Vehicle (RAV) Network access or Heavy Vehicle Accreditation requires a separate application made to Main Roads Heavy Vehicle Services Branch. Information can also be found on the Heavy Vehicles Access Requirements in WA section of the Main Roads website.

Main Roads support of the proposal is valid for a period of two (2) years from the date of this letter. Any changes or date extensions relating to this development application must be referred to Main Roads for comment and recommendation.

Should the Shire disagree with or resolve not to include as part of its conditional approval any of the above conditions or advice, Main Roads requests an opportunity to meet and discuss the application further, prior to a final determination being made.

If you would like any further information please contact Mark Willson on (08) 9956 1234 or by email mark.willson@mainroads.wa.gov.au

Yours sincerely,

for Louise Adamson
Regional Manager
Mid West-Gascoyne Region

Department of
Primary Industries and Regional Development

GOVERNMENT OF WESTERN AUSTRALIA

Your reference: OCR235455
Our reference: LUP 1558
Enquiries: Greg Doncon

Keith Woodward
132 Railway Road
Three Springs WA 6519
general@threesprings.wa.gov.au

Date: 24 March 2023

Dear Keith

Extractive Industry (Gravel) – Lot 10213 Ding Road, Arrowsmith East

Thank you for inviting the Department of Primary Industries and Regional Development (DPIRD) to comment on the proposal to establish a second gravel pit on Lot 10213 Skipper Road, Arrowsmith East.

The Department of Primary Industries and Regional Development (DPIRD) does not object to the proposed establishment of second pit and recommend that the following should be considered:

- Ensure that biosecurity protocols are maintained for the site. This is important to minimise biosecurity risks for the landowner, adjoining farms and along the transport route and
- Ensure the rehabilitation and decommissioning measures for the site after extraction is completed so the land may support an activity of a similar nature as that prior to the establishment of the extractive industry.

DPIRD also recommends that the shire is guided in its consideration of extractive industry development by Sections 5.9 and 5.12 of the Western Australian Planning Commission's *State Planning Policy 2.5 Rural Planning* (2016) as well as *State Planning Policy 2.4 Basic Raw Materials* (2021).

DPIRD assumes that when the second pit is operational, the decommissioning and rehabilitation of the original pit will commence as per the extension conditions as outlined in the Ordinary Council Meeting Minutes, 20 November 2019.

For more information, please contact Greg Doncon on 90813117 or greg.doncon@dpird.wa.gov.au

Yours sincerely

Dr Melanie Strawbridge
Director Agriculture Resource Management Assessment
Sustainability and Biosecurity

From: Lebessis, Anthony <anthony.lebessis@team.telstra.com>
Sent: Sunday, 16 April 2023 11:50 AM
To: Patricia Mckeon <es@threesprings.wa.gov.au>
Subject: Re: Extractive Industry (Gravel) – Lot 10213 Ding Road, Arrowsmith East

Good afternoon,

Please be advised that Telstra has **no objections** to the application for a 2nd gravel pit for Lot 10213 Ding Road, Arrowsmith East. However since there are assets in the area of concern please note:

As these assets comprise an essential component of the Telstra network, we take this opportunity to highlight Telstra's rights and requirements to ensure that they are understood. The following is stated for your information:

(1) Telstra's existing facilities are grandfathered under the 1997 Telecommunications Act. This enables such facilities to legally occupy land in perpetuity for the duration of that facilities use.

(2) Part 1 of Schedule 3 of the Telecommunications Act 1997 authorises a carrier to enter land and exercise any of the following powers:

- inspect the land
- install a facility
- maintain a facility

In the case of installation and planned maintenance a notification will be afforded and such work will generally proceed during business hours. However, from time to time, certain activities need to be carried out without delay in order to protect the integrity of the network. Such activities may require vehicular access without notice and at any time of the day or night.24/7 access for maintenance must be maintained.

(3) If at any time in the future it becomes necessary, in the opinion of the carrier because of a subdivision of any land to remove, or alter the position of a facility, the carrier may enter the land and do anything necessary or desirable for that purpose. Under clause 53 of Schedule 3 of the Telecommunications Act 1997, the person who proposes to subdivide the land is liable to pay the carrier the reasonable cost of anything reasonably done by the carrier in this regard.

(4) There is a requirement that all access to Telstra's network is facilitated by Telstra, via the normal channels available to all customers Australia wide. Tampering with, or interfering with telecommunications infrastructure or a facility owned or operated by a carrier (being Telstra) is an offence under the Criminal Code Act 1995 (Cth). Heavy penalties may apply for breach of this prohibition, and any damages suffered, or costs incurred, by Telstra as a result of any such interference may be claimed against you. **This means that you are not permitted to interfere with, repair or relocate Telstra's infrastructure, either personally or through a contractor without approval and authorization from Telstra.**

(5) All individuals have a legal "Duty of Care" that must be observed when working in the vicinity of Telstra's communication plant. It is the constructor's/land owner's responsibility to anticipate and request the nominal location of Telstra plant via Before You Dig Australia (visit www.1100.com.au) in advance of any construction activities in the vicinity of Telstra's assets. On receipt of plans, notwithstanding the recorded location of Telstra's plant, the constructor/land owner is responsible for obtaining a Telstra accredited Asset Plant Locator

to perform a cable location, potholing and physical exposure to confirm the actual location of the plant prior to the commencement of site civil work. **Telstra reserves all rights to recover compensation for loss or damage caused by interference to its cable network or other property.**

In the event Telstra's assets require relocation, please engage **Telstra's Asset Relocation** team to obtain a quote to relocate the assets from the location in question. The relocation of the assets would be carried out at your cost, however the relocation would ensure that the land/s and its projected use would not be hindered or restricted by easements.
The existing network on the area of concern cannot be built over.
Please phone 1800 810 443 (opt 1) or email F1102490@team.telstra.com to arrange for asset relocation at the property.

Our network runs along in prallel with Brand Highway to the West, Skipper Road to the North and Ding road to the East including the service lead-in to the property..

Regards

Anthony Lebessis
Planned Services-Consultant
Network Technical-Specialist
Road Closures/Openings, Tenures & Reticulations
Planned Services
GBS Field Services
Brisbane QLD 4001
Australia

P +07 3455 2365
M 0455 431 696
E Anthony.Lebessis@team.telstra.com
W www.telstra.com

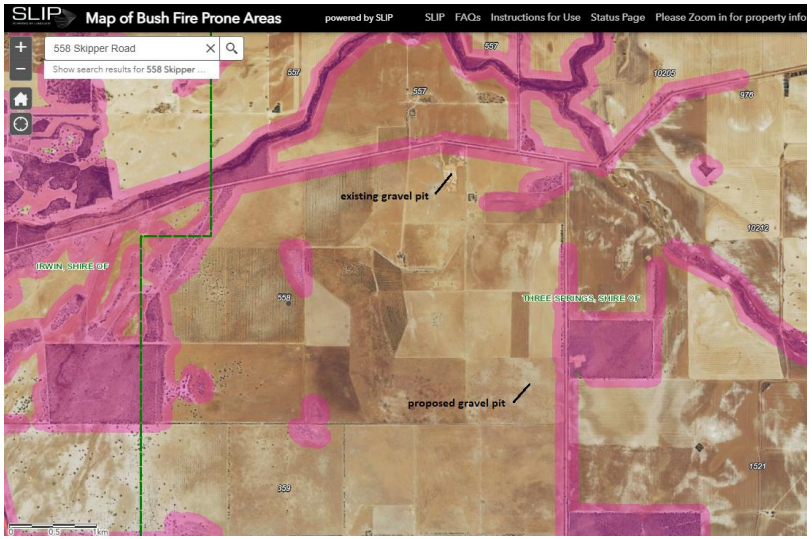
This email may contain confidential information.
If I've sent it to you by accident, please reply to this email to notify the sender of its incorrect delivery and then delete both it and your reply.

PLEASE NOTE:

Please email your future requests to F0501488@team.telstra.com * DO NOT POST ***. Also ensure that clear and legible plans or maps are provided in order to avoid delays in processing your request .**

BEFORE YOU DIG www.byda.com.au
Zero Damage - Zero Harm

Schedule of Submissions – Proposed Extractive Industry (Gravel) – Lot 10213 Ding Road, Arrowsmith East				
Date Received	Respondent	Nature of Submission	Comment	Recommendation
1 (3/3/23)	Western Power	Unfortunately requests for general comments, feedback and approval for proposals can't be provided for without application and the investigation and dialogue that allows. We suggest: • Reviewing your query against the processes referred to in our Strategic Planning web page • Where a change of land use, or permanent road closure will affect our ability to access our infrastructure for maintenance or in an emergency, the original accessway or an alternative must be maintained. Changed access conditions should be communicated via our land entry preferences form, • Use our provided mapping tools and "Before You Dig" to locate any assets that would be affected by any proposed change or development, • If there are transmission assets (66,000-330,000 volts) in proximity to your work, apply via our move or remove transmission and communication assets form, • Ensuring any developers involved are aware that they will need to make an application to deal with any assets that are in the development area as well as for the power requirements for the development. Thank you and we look forward to receiving your information/applications through the correct channels.	Unfortunately Western Power has again chosen to abrogate its responsibility to provide comment to local government in this matter and in other planning matters including scheme reviews, rezonings, development applications, road and ROW closures and general planning enquiries. The Shire wrote directly to Western Power providing sufficient information for it to be able to make comment upon this application. Copy of Western Power's submission has been provided to the applicant to ensure they are aware of their own Dial Before Your Dig requirements prior to commencement. In the event that the applicant seeks to make/upgrade power connection this will be required to be done through their direct approach to Western Power and at their expense, as is standard Western Power practice.	Note submission.
2 (7/3/23)	Department of Mines, Industry Regulation & Safety	DMIRS has determined that this proposal raises no significant issues with respect to mineral and petroleum resources, geothermal energy, and basic raw materials. DMIRS lodges no objections to the development application.	No additional comment	Note submission.
3 (13/3/23)	ATCO Gas	*No objection* ATCO has no objection to the proposed application based on the information and plan provided. Anyone proposing to carry out construction or excavation works must contact *'Before You Dig Australia'* to determine the location of buried gas infrastructure. Proposed construction and excavation works need to be managed in accordance with the ATCO document *Additional Information for Working Around Gas Infrastructure - AGA-O&M-PR24.*	Copy of ATCO submission has been provided to applicant to ensure they are aware of their Dial Before Your Dig requirements prior to commencement. In the event that Council approves the application it is also recommended that the following advice note be included with the determination: *"The applicant is advised that this planning approval does not negate the requirement for any additional approvals, or compliance, that may*	Note submission and include advice note as outlined in Comment section.

			be required under separate legislation including but not limited to the following where required, Environmental Protection Act 1986 and the Mines Safety and Inspection Act 1994. It is the landowner's responsibility to obtain any additional approvals required before the development lawfully commences."	
4 (16/3/23)	Dampier Bunbury Pipeline	DBP as owners and operators of the Dampier to Bunbury Natural Gas Pipeline (DBNGP) have no objection to the proposed new gravel pit.	No additional comment	Note submission.
5 (17/3/23)	Department of Health	DoH has no objection to the proposal.	No additional comment	Note submission.
6 (20/3/23)	Department of Fire & Emergency Services	The documentation provided indicates the Shire has not applied State Planning Policy 3.7 – Planning in Bushfire Prone Areas (SPP 3.7) to this proposal. SPP 3.7 seeks to reduce vulnerability to bushfire through the identification and consideration of bushfire risks in decision-making at all stages of the planning and development process, including strategic planning and amendments. A Bushfire Management Plan (BMP) is required to accompany strategic planning proposals, subdivision and development applications in areas above BAL–LOW or areas with a bushfire hazard level above low. A BMP includes the bushfire assessment, identification of the bushfire hazard issues arising from the relevant assessment and a clear demonstration that compliance with the bushfire protection criteria contained within Appendix 4 of these Guidelines, is or can be achieved. The BMP should be prepared as early as possible in the planning process and progressively refined or reviewed as the level of detail increases. The level of detail provided within a BMP should be commensurate with the applicable planning stage and scale of the proposal or application. Should you apply SPP 3.7 then, we request the relevant information pursuant to this policy be forwarded to DFES to allow us to review and provide comment prior to the Shires endorsement of the amendment. Note: The land is cleared of vegetation on supplied maps and does not contain dwellings or structures.	Both the existing and proposed gravel pits sites are located outside of the area identified as bushfire prone upon the DFES State Map of Bushfire Prone Areas (see below).  The gravel pit operation will be required to meet with the standard restrictions on movement of vehicles in paddocks, requirement for maintenance of fire breaks and prohibition of lighting fires as they apply across the Shire of Three Springs.	Note submission and include conditions and advice note as outlined in Comment section.

Schedule of Submissions – Proposed Extractive Industry (Gravel) – Lot 10213 Ding Road, Arrowsmith East				
Date Received	Respondent	Nature of Submission	Comment	Recommendation
		Guidelines for Planning in Bushfire Prone Areas states in 3.2 Areas Where There is No Apparent Hazard: If a proposal is in a designated bushfire prone area and the relevant assessment results in a property having either a Bushfire Hazard Level classification of 'Low' or achieves a BAL–LOW rating across the entire portion of developable land, then the planning proposal or development application does not require application of SPP 3.7 or these Guidelines despite the fact that it is designated within the Map of Bush Fire Prone Areas.		
7 (23/3/23)	Department of Biodiversity Conser-vation & Attractions	DBCA has no objections to the proposal. It is anticipated that the proposed gravel pit development and any associated environmental impacts will be appropriately managed through the existing planning framework.	No additional comment	Note submission
8 (22/3/23)	Main Roads WA	The proposal is not located within or adjacent to a road reserve under MRWA jurisdiction. MRWA has no current plans in the area that would affect Lot 10213. MRWA does not object to the proposal and provides the following advice: • recommends the Shire consider acquiring contributions from developments creating traffic that impact Brand Highway and Mount Adams Road intersection; • seal the intersection to improve skid resistance and facilitate the swept path movement of all vehicles; • seal a minimum of 60m from the edge of the Brand Highway along Mount Adams Road to prevent dirt and debris being deposited on the road network. Extension of the Restricted Access Vehicle (RAV) Network access or Heavy Vehicle Accreditation requires a separate application made to MRWA Heavy Vehicle Services Branch. MRWA support of the proposal is valid for a period of 2 years from the date of this letter. Any changes or date extensions relating to this development application must be referred to MRWA for comment and recommendation. Should the Shire disagree with or resolve not to include as part of its conditional approval any of the above conditions or	In the event that Council approves the application it is recommended that the following conditions be applied to the determination: *"The vehicle access point(s) from the road network into the development shall be located, installed and maintained to the satisfaction of the local government.* *Repairing of any damage to Ding Road or the Ding Road/Skipper Road intersection including the surface is required by reason of use of the road in connection with the development to the approval of the local government with all costs met by the landowner.* *The landowner is responsible to ensure that no parking of vehicles associated with the development occurs within a public carriageway, including the road verge.* It is also recommended that any approval include advice notes stating that: *"The applicant is advised that this planning approval does not negate the requirement for any additional approvals, or compliance, that may be required under separate legislation including but not limited to the following where required, Environmental Protection Act 1986 and the*	Note submission and include advice notes as outlined in Comment section.

Schedule of Submissions – Proposed Extractive Industry (Gravel) – Lot 10213 Ding Road, Arrowsmith East				
Date Received	Respondent	Nature of Submission	Comment	Recommendation
		advice, MRWA requests an opportunity to meet and discuss the application further, prior to a final determination being made.	*Mines Safety and Inspection Act 1994. It is the landowner's responsibility to obtain any additional approvals required before the development lawfully commences.* *The applicant will need to consult with the Main Roads WA Heavy Vehicle Services branch to ascertain any approval requirements that may be required for their proposed heavy vehicle combinations, transport routes and operations."*	
9 (24/3/23)	Department of Primary Industries & Regional Develop-ment	DPIRD does not object to the proposed establishment of a 2nd pit and recommend that the following should be considered: • Ensure that biosecurity protocols are maintained for the site. This is important to minimise biosecurity risks for the landowner, adjoining farms and along the transport route. • Ensure the rehabilitation and decommissioning measures for the site after extraction is completed so the land may support an activity of a similar nature as that prior to the establishment of the extractive industry. DPIRD also recommends the Shire is guided in its consideration of extractive industry development by Sections 5.9 and 5.12 of the WAPC's *State Planning Policy 2.5 Rural Planning* as well as *State Planning Policy 2.4 Basic Raw Materials*. DPIRD assumes that when the second pit is operational, the decommissioning and rehabilitation of the original pit will commence as per the extension conditions as outlined in the 20/11/19 Council Meeting Minutes.	Copy of DPIRD submission has been provided to the applicant to ensure they are aware of their advice. It is recommended that, in the event that Council approves the application, the following conditions be applied to the determination: *"The landowner must undertake post-closure rehabilitation of the development to the approval of the local government, and post-closure obligations shall have regard for the following documents to ensure that the rehabilitation of the Extractive Industry site improves the visual and conservation values of the landscape:* • *Department of Planning Lands & Heritage's 'Visual Landscape Planning in Western Australia';* • *Department of Mines, Industry Regulations & Safety's 'Mining Proposal and Mine Closure Plan for Small Mining Operations; &* • *Department of Water & Environment Regulation's 'Water Quality Protection Note WQPN 15: Basic raw material extraction'.* *Post closure requirements shall become applicable upon the earlier of the following events:* • *acknowledgement by the landowner that extractive activities are completed; or* • *the approval period for the development having expired."* *"The landowner is responsible to ensure that biosecurity protocols are maintained for the site."* It is also recommended that any approval include an advice note stating that:	Note submission and include conditions and advice note as outlined in Comment section

Schedule of Submissions – Proposed Extractive Industry (Gravel) – Lot 10213 Ding Road, Arrowsmith East				
Date Received	Respondent	Nature of Submission	Comment	Recommendation
			"In regards to condition 8 the Department of Primary Industries & Regional Development have advised that biosecurity protocols are be maintained for the site to minimise biosecurity risks for the landowner, adjoining farms and along the transport route and should further information be required on appropriate practices the applicant should to contact DPIRD in this regard."	
10 (16/4/23)	Telstra	Telstra has no objections to the application for a 2nd gravel pit for Lot 10213. However since there are assets in the area that comprise an essential component of the Telstra network, we take this opportunity to highlight Telstra's rights and requirements to ensure that they are understood. Telstra's existing facilities are grandfathered under the *Telecommunications Act 1997*. This enables such facilities to legally occupy land in perpetuity for the duration of that facilities use. Part 1 of Schedule 3 of the *Telecommunications Act 1997* authorises a carrier to enter land and exercise any of the following powers: - inspect the land - install a facility - maintain a facility In the case of installation and planned maintenance a notification will be afforded and such work will generally proceed during business hours. However, from time to time, certain activities need to be carried out without delay in order to protect the integrity of the network. Such activities may require vehicular access without notice and at any time of the day or night.24/7 access for maintenance must be maintained. If at any time in the future it becomes necessary, in the opinion of the carrier because of a subdivision of any land to remove, or alter the position of a facility, the carrier may enter the land and do anything necessary or desirable for that purpose. Under clause 53 of Schedule 3 of the *Telecommunications Act 1997* the person who proposes to	Copy of Telstra's late submission has been provided to the applicant to ensure they are aware of their Dial Before Your Dig requirements prior to commencement. In the event that Council approves the application it is also recommended that the following advice note be included with the determination: *"The applicant is advised that this planning approval does not negate the requirement for any additional approvals, or compliance, that may be required under separate legislation including but not limited to the following where required, Environmental Protection Act 1986 and the Mines Safety and Inspection Act 1994. It is the landowner's responsibility to obtain any additional approvals required before the development lawfully commences."* In the event that the applicant seeks to make/upgrade Telstra connection this will be required to be done through their direct approach to Telstra and likely at their expense, as is standard Telstra practice.	Note submission and include advice note as outlined in Comment section.

		subdivide the land is liable to pay the carrier the reasonable cost of anything reasonably done by the carrier in this regard. There is a requirement that all access to Telstra's network is facilitated by Telstra, via the normal channels available to all customers Australia wide. Tampering with or interfering with telecommunications infrastructure or a facility owned or operated by a carrier (being Telstra) is an offence under the *Criminal Code Act 1995* (Cth). Heavy penalties may apply for breach of this prohibition, and any damages suffered, or costs incurred, by Telstra as a result of any such interference may be claimed against you. This means that you are not permitted to interfere with, repair or relocate Telstra's infrastructure, either personally or through a contractor without approval and authorization from Telstra. All individuals have a legal "Duty of Care" that must be observed when working in the vicinity of Telstra's communication plant. It is the constructor's/landowner's responsibility to anticipate and request the nominal location of Telstra plant via Before You Dig Australia (visit www.1100.com.au) in advance of any construction activities in the vicinity of Telstra's assets. On receipt of plans, notwithstanding the recorded location of Telstra's plant, the constructor/landowner is responsible for obtaining a Telstra accredited Asset Plant Locator to perform a cable location, potholing and physical exposure to confirm the actual location of the plant prior to the commencement of site civil work. Telstra reserves all rights to recover compensation for loss or damage caused by interference to its cable network or other property. In the event Telstra's assets require relocation, please engage Telstra's Asset Relocation team to obtain a quote to relocate the assets from the location in question. The relocation of the assets would be carried out at your cost, however the relocation would ensure that the land/s and its projected use would not be hindered or restricted by easements.		

Schedule of Submissions – Proposed Extractive Industry (Gravel) – Lot 10213 Ding Road, Arrowsmith East				
Date Received	Respondent	Nature of Submission	Comment	Recommendation
		The existing network on the area of concern cannot be built over. Please phone 1800 810 443 or email F1102490@team.telstra.com to arrange for asset relocation at the property. Our network runs along in parallel with Brand Highway to the West, Skipper Road to the North and Ding Road to the East including the service lead-in to the property.		

Beach Energy Limited | ABN 20 007 617 969
Level 8, 80 Flinders Street, Adelaide, South Australia 5000
T +61 8 8338 2833 | **F** +61 8 8338 2336
beachenergy.com.au

Attachment 10.4.1

23rd February 2023

By Email

Shire of Three Springs
132 Railway Rd
Three Springs WA 6519

Attention: Shire of Three Springs

To whom it may concern,

Planning application for a rig-site camp and main camp associated with the drilling of the Trigg Northwest-1 conventional well on Lot #10711 (P209764), part of Beach Energy's 2023 exploration drilling program

Please find attached a planning application for the installation and operation of a rig site camp and main camp, that will be utilised to support Beach Energy's upcoming conventional exploration drilling program within Exploration Permit EP 320 under the *Petroleum and Geothermal Energy Resources Act 1967*. This program does not involve hydraulic fracture stimulation ('fraccing').

The following information provides some background to the project and application.

Overview and Location

Beach Energy are planning to construct two exploration wells (Trigg-1 and Trigg Northwest-1) within EP 320, situated on the eastern side of the Brand Highway, in the Shire of Three Springs, approximately 20 km south of Dongara and 270 km north of Perth. Land tenure, associated with these well site locations, is currently freehold land used for agricultural purposes. The Trigg Northwest-1 well site is planned to be constructed on Lot 10711 (Plan P209764) in the Shire of Three Springs at coordinates 29°30'39.44"S 115°16'41.63"E.

Camp Overviews

The rig-site camp is planned to accommodate up to 8 key drilling personnel each. These personnel are expected to be onsite for the duration of the drilling program. The rig camp will be positioned within the lease of the well site. The main camp is planned to accommodate up to 70 personnel expected to be onsite for the duration of the drilling program. The main camp will be positioned approximately 300 m south from the well site. The drilling program is temporary in nature and planned to be completed within 80-95 days per well site. Mobilisation is anticipated in late April 2023.

At the main camp, cooking facilities and utility facilities (with water storage) will be available. At the rig-site camp, cooking facilities will not be available. Water is planned to be supplied to the sites by mobile water tankers as required and stored in tanks at the rig site. This water will either be sourced locally from Dongara or from the nearby Beharra Springs Gas Facility.

Access to the camps will be down existing access tracks and will require a maximum of 20 loads for the camp mobilisation.

Application to Construct or Install an Apparatus for the Treatment of Sewage

Houston Utility Service have applied to the Shire of Three Springs for the unit to treat sewage for the camp on 15/02/2023.

Application

In addition to the completed Development Application Form, the following information has been attached to this application:

Attachment 1: Site layout - showing the layout for the main camp and mini camp

Attachment 2: Building specifications

Attachment 3: Potable water description - information regarding the potable water planned for use at the well location.

This information has been collated and submitted for and on behalf of Beach Energy Limited.

Yours sincerely,

Colin Green

Digitally signed by Colin Green
Date: 2023.02.23 12:36:49 +08'00'

Colin Green

Drilling Manager

Beach Energy Limited



There is no warranty this map is free from errors or omissions.

GDA2020

- Proposed well location
- Development envelope
- Footprint
- Roads

beach

31/10/2022

WA22-0027B

Attachment 1: **Site Layout**


BED 1
BED 2
BED 3
BED 4
BED 5
BED 6
BED 7
1600
3200
600
300
TYPE 1
TYPE 2
TYPE 3
TYPE 4
TYPE 5
TYPE 6
TYPE 7
TYPE 8
TYPE 9
SPU #1
SPU #2
SPU #3
14060 TYP.
2500 TYP.
1200
29090
36966
985
EQUALIZER HOSE

beach

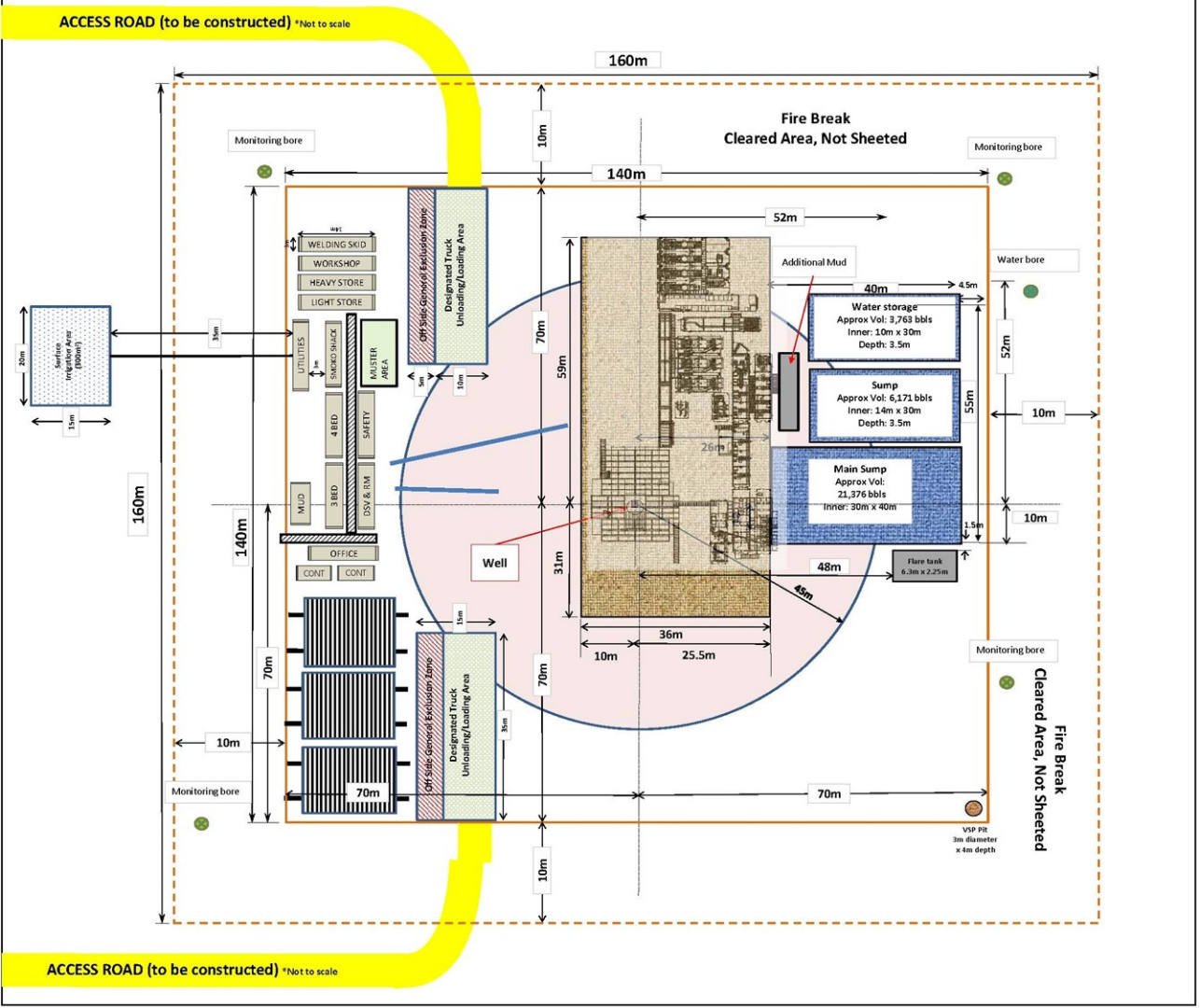
N E S W

2023 Perth Basin campaign - Site Layout - Drilling

Required Soil Bearing Capacity (Graded and Compacted Area)

GRADED AND COMPACTED AREA FOR LOAD BEARING

GRADED AREA/PERIMETER



Attachment 2: Building Specifications

PRITAB
MANUFACTURING, MAINTENANCE & CONSTRUCTION



March 2014

Rig #106

Camp Manual

10 Civil Court Toowoomba QLD AUSTRALIA 4530 (PO Box 432 Highfields) Ph: 07 4642 2855 Fax: 07 4642 2856
Email: reception@pritab.com.au

General Camp Specifications / inclusions

Camp is manufactured as per the following specifications unless otherwise specified

ITEM	MATERIAL	SIZE
Skid	360 UB 44.5 kg/m	14 m x 2.4 m
Base	180 UC 20.9 kg/m	12.4 x 3.15 m
Base Cross Members	RHS welded	75 x 50 x 2mm
Flooring	Tongue & groove plywood	2700 x 1200 x 19mm
Floor Covering	Commercial grade vinyl (2mm)	All floor & 100mm up walls
Wall Frames	RHS Welded	50 x 50 x 1.6mm
Insulation—Walls	50mm	50mm
Insulation—Roof	50mm	50mm
Wall Sheeting—Internal	Colorbond—Surfmist	0.55mm
Wall Sheeting—External	Maxi Rib—Surfmist	0.42mm
Ceiling Sheeting	Maxi Rib—Surfmist	0.42mm
Roof Sheeting	Zink Trimdec	0.42mm
External Doors	Fabricated steel	40 x 40 x 1.6mm frame—750 x 2030 Powder coated 1.6mm zincanneal skin
Internal Doors	Standard timber (Int. quality)	720x2030mm
Electrical	All electrical wiring to AS3001 and includes flex cabling to the generator switch board.	
Emergency Lighting	Included to illuminate walkways & carpark areas in the event of power failure	
Alarm system	Addressable central alarm system (fire, smoke, man trap in freezer)	
Walkways	Fold down along side of building and aluminum through centre of camp	

Internal fixtures constructed to following specifications

ITEM	MATERIAL	SIZE
Cupboards & Shelving	Powder coated Zincanneal	1.55mm
Bench Tops (office, bedroom & laundry)	Timber with Laminex type surface	32mm
Bench Tops (kitchen & prep room)	Stainless Steel (food grade)	1.2mm

All units are ready to plug into power and water supply.

Warranty

- ***12 months on structural items including skids, frame work and brackets.***
- ***3 months on buildings other than structural .***
- ***All non Pritab manufactured items will have manufacturer's warranty.***
- ***Air conditioners will not have any warranty. (PRITAB does not receive any warranty from our manufacturers / suppliers, however we can provide an in house warranty structure should the need arise, this would be provided at additional cost)***

Note: Equipment and appliances that may be specified in this document are subject to change according to availability. If unavailable, an item of similar specification will be substituted.



PRITAB provides superior transportable field accommodation solutions that not only meet Australian standards but are purpose built for Australian conditions.

Our services were established in response to the increasing need for professional camp manufacturing services that meet requisite industry standards. We supply all types of mobile units including ensuited bedrooms, kitchen, site offices, cold rooms, dining, laundry, recreational and utility areas which are used extensively throughout Australia. The camps are fully insulated with reverse cycle air conditioning and satellite television. Pritab has the ability to design and deliver a complete camp solution package which is specific to the needs of the client.



All appliances are permanently installed for ease of building transport.

FEATURES

- MP 3.3 Compliant (optional)
- Modern
- Robust
- Built in Australia for Australian conditions
- Camps are built to move weekly
- Smaller Camps up to the 40 Person Mobile Camp can do Camp moves within 50km dismantle at 8am and be up and running by 4pm depending on the availability of trucks causing little interruption to residents.
- Larger Camps are made to move over Several Days but each end be functional causing little interruption to residents
- All Spares are readily available in the Region
- Designed to last 15 to 20 years subject to proper logistics and maintenance of the Camp
- Skid or trailer mounted
- Built to your specifications or to our engineered, proven designs
- Split system reverse cycle AC's
- Plug-and-play, electricity, water and waste
- Satellite TV ready
- Data and communication ready
- Fully insulated
- All electrical to AS 3000 and 3001





Laundry Unit

Dining Room Unit





Kitchen Unit



Gymnasium

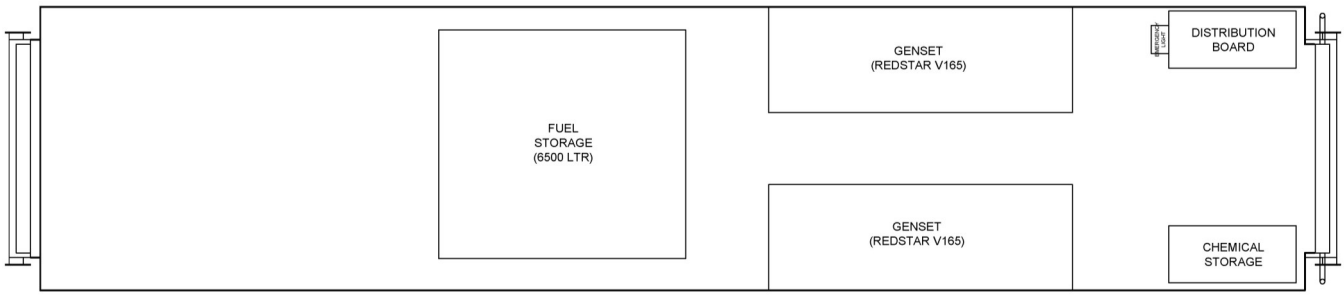
Sewerage Processing Unit





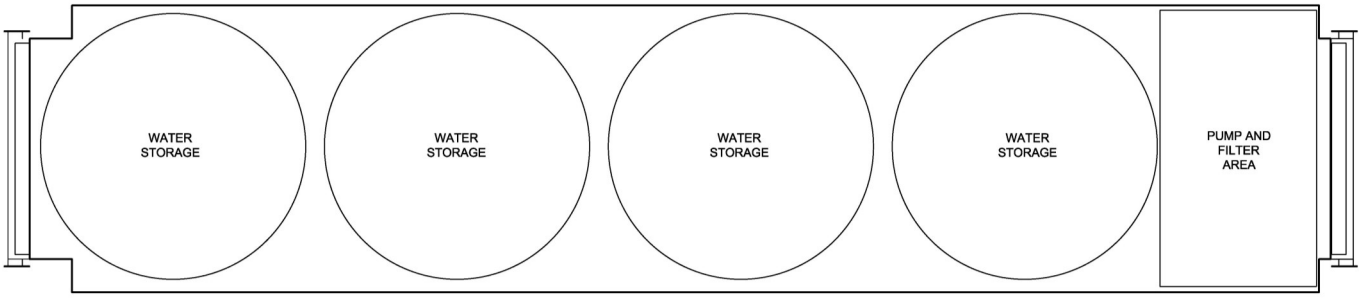
Utility Unit

506-024SM: Utility Skid



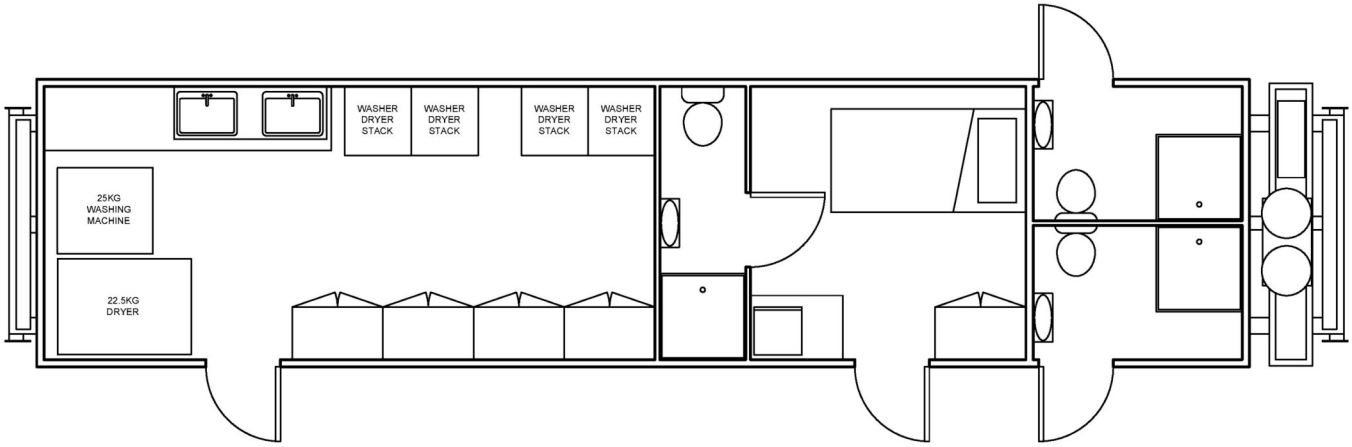
Unit comes with complete and ready to plug in.	
Skid dimensions are 14m x 3m.	
Utility Skid Includes:	
2	150kva Inteligen generators
1	6500ltr safe fill, self bunded, diesel storage tank
1	Distribution board *(with 2 spare outlets when original camp is fully operational)*
1	General storage area
1	Chemical storage cabinet

522-002SM: Water Storage Skid



Unit comes with complete and ready to plug in.	
Skid dimensions are 14m x 3m.	
Utility Skid Includes:	
4	13,500ltr poly water storage tanks *(with canvas shade canopy covering tanks)*
4	Pressure pumps
1	Potable water filtration system *(Potable water in)*
1	Canvas shade cover over water storage tanks

513-015SM: Laundry / First Aid

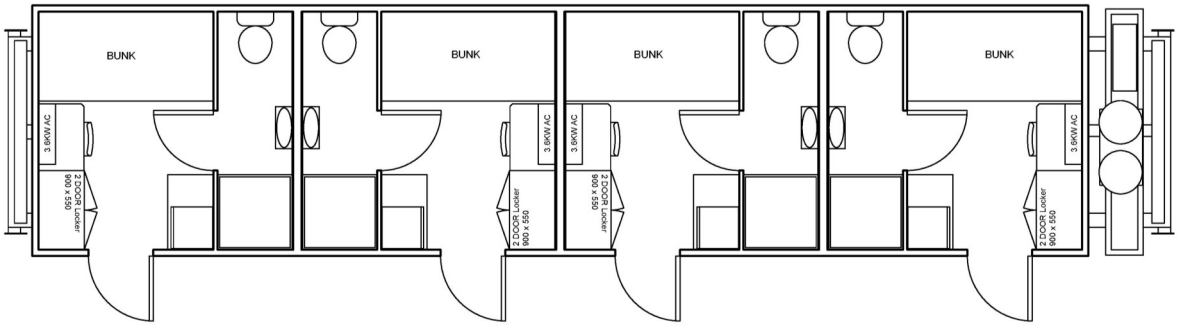


Unit comes with all plumbing including waste water transfer pump, plumbing under building to transfer pump, 2 x 125 litre 3.6kw quick recovery hot water systems, 1.5" suction hose to SPU and 1.5" water supply hose ready to plug in.
Building includes fold down walkways and canvas walkway covers.

Building dimensions are 12.4m x 3.15m on a 14m skid.

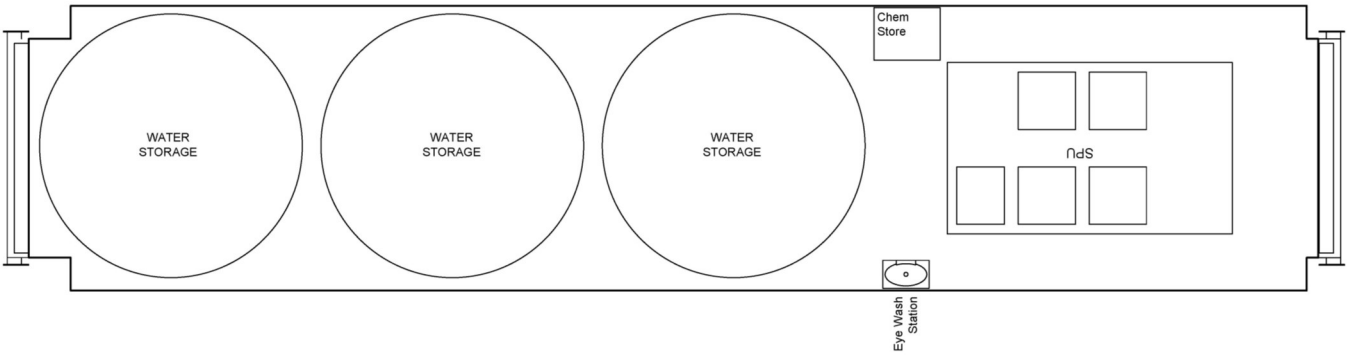
Laundry Includes:	
4	8kg commercial grade stack washer / dryers
1	25kg washing machine
1	22.5kg dryer
2	Laundry tubs
4	Double door tall linen cupboards
First Aid Room includes:	
1	King size single bed
1	1700 x 900 double door cupboard
1	Workstation with chair
1	100l fridge
Ensuite includes:	
1	Shower & toilet
1	Exhaust fan
1	Vanity sink & cabinet
2	Coat hooks
1	Toilet roll holder

507-028SM: 8 Person Sleeper with Ensuites



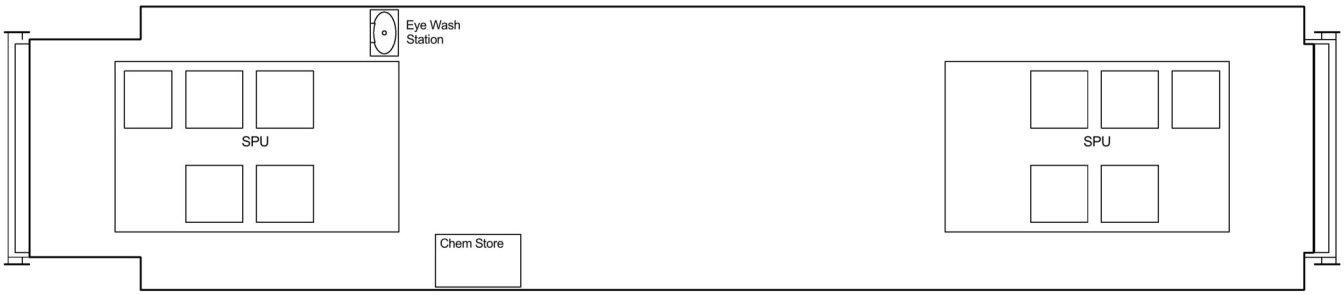
Unit comes with all plumbing including waste water transfer pump, plumbing under building to transfer pump, 2 x 125 litre 3.6kw quick recovery hot water systems, 1.5" suction hose to Waste Treatment Unit and 1.5" water supply hose ready to plug in. Building includes fold down walkways and canvas walkway covers. Building includes IP65+ rated quick connect boxes and connection point at end of building.	
Building dimensions are 12.7m x 3.15m on a 14mtr skid.	
Each bedroom includes:	
2	King Size Single Beds
1	TV LCD 19" with DVD player
1	2 door locker cupboard with hanging space & shelving
1	Workstation desk and chair
1	Split system air conditioner
1	Battery back up smoke detector linked to all rooms in unit
1	Addressable back to base smoke detection alarm
1	Room light
1	LED bedside reading light
1	100ltr fridge
1	Towel rail
Each ensuite includes:	
1	Porcelain toilet with plastic cistern
1	900 x 900 fibreglass shower cubical with water saving shower head, mixer tap and curtain.
1	Exhaust fan
1	Vanity sink and mirror
1	Toilet roll holder
2	Coat hooks
1	Chain lock on doors *(Lockable from inside bathroom)*

522-005SM: Sewerage Treatment / Storage Skid



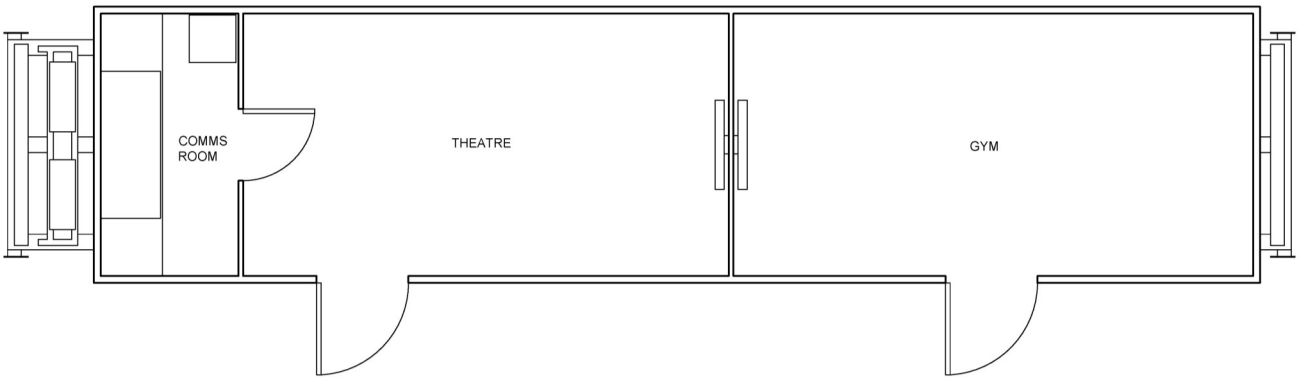
Unit comes with complete and ready to plug in.	
Skid dimensions are 14m x 3m.	
Sewerage Treatment / Water Storage Skid includes:	
1	Sewerage treatment unit *(unit only available on rental agreement - i.e. not included in purchase price)*
1	Eye wash station
1	Chemical storage cabinet
3	Potable Water Storage Tanks *(13500ltr Poly Tanks with shade canopy covering tanks)*

509-004SM: Dual Sewerage Treatment Skid



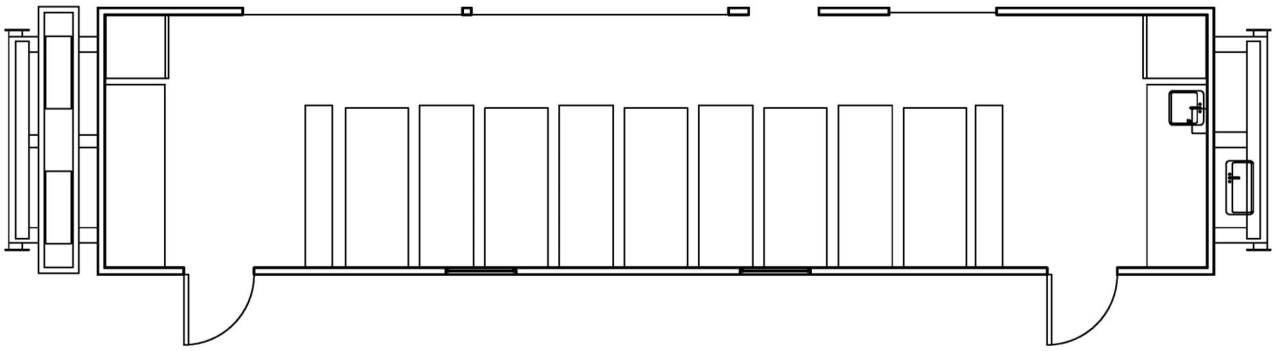
Unit comes with complete and ready to plug in.	
Skid dimensions are 14m x 3m.	
Dual Sewerage Treatment Skid Includes:	
2	Sewerage treatment units *(units only available on rental agreement - i.e. not included in purchase price)*
1	Eye wash station
1	Chemical storage cabinet
1	General storage area

515-012SM: Gym / Rec Room



Building dimensions are 12.4m x 3.15m on a 14m skid.	
Gym Room includes:	
4	Various resistance and cardio units *(eg. Spin bike, rowing machine, treadmill & multi gym)*
1	42" TV
2	Split system air conditioners
Recreation room includes:	
9	Tub style leather chairs
1	42" TV
1	Post form bench top with underbench storage cupboard
2	Split system air conditioners
Comms room includes:	
1	42RU rack for communications
1	Post form bench top with underbench storage

502-021SM: Dining Room



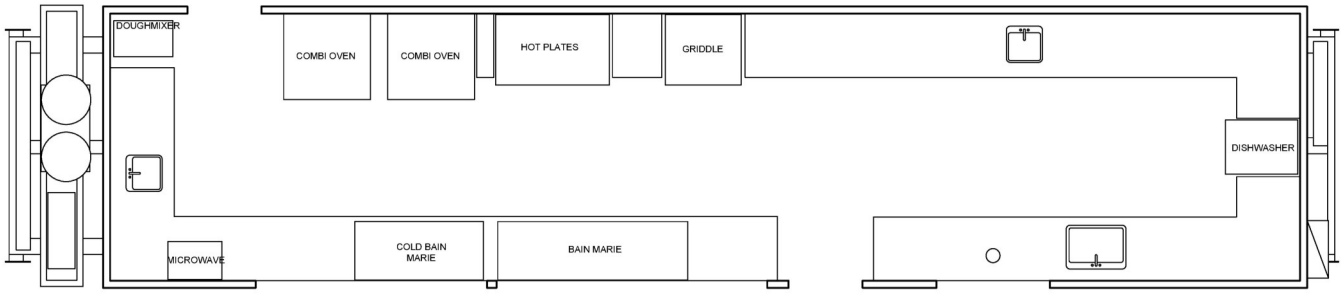
Units come with all plumbing including waste water transfer pump, plumbing under building to transfer pump, 1.5” suction hose to SPU and 1.5” water supply hose ready to plug in. Building includes fold down walkways and canvas walkway covers. Building includes IP65+ rated quick connect boxes and connection point at end of building.

Building dimensions are 12.4m x 3.15m on a 14m skid.

Dining rooms include:

5	Dining tables
4	Double row storage seats
2	Single row storage seats
1	Single pan stainless sink with hot/cold in bench zip taps
1	Twin tub drink dispenser *(with cold water tap over, to fill drink dispenser)*
1	External hand wash facilities
1	Domestic grade upright refrigerator
1	Glass door upright refrigerator
4	Split system air conditioners
1	Commercial style conveyer toaster
1	Bug zapper

501-013SM: Kitchen



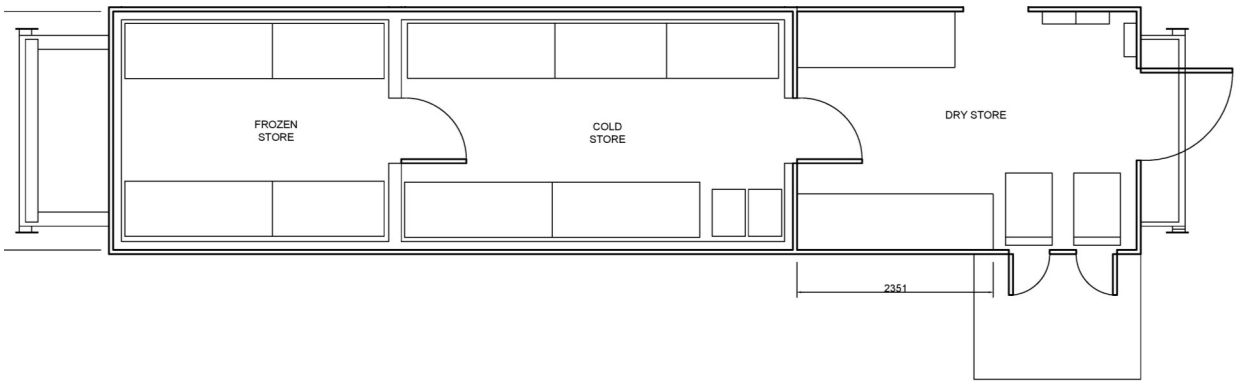
Unit comes with all plumbing including waste water transfer pump, plumbing under building to transfer pump, 2 x 125 litre 3.6kw quick recovery hot water systems, 1.5" suction hose to SPU and 1.5" water supply hose ready to plug in.

Building dimensions are 12.4m x 3.15m on a 14m skid.

Kitchen Includes:

1	Provision only for bain marie *(services etc. so it may be procured & installed at a later date if required)*
1	Hot 6 tray bain marie
1	Cold 6 tray bain marie
1	Dough Mixer
1	Stainless deep pot wash sink
2	Single pan stainless sinks *(one with hands free taps)*
1	Commercial dishwasher *(centrally mounted against end wall)*
1	Microwave *(wall mounted)*
1	Servery bench with under bench storage cupboards
1	6 burner hot plate / oven
1	Griddle plate
2	Combi ovens
2	Split system air conditioners
1	3 draw cutlery drawer
1	Stainless steel range hood *(compliant AS 1668.2)*
1	Single door food waste cupboard with stainless bench top chute

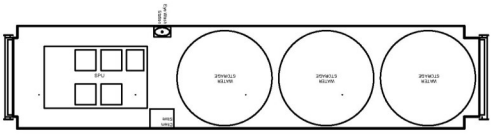
508-016SM: Cold Store / Dry Store / Freezer



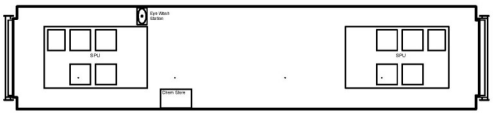
Unit comes with all plumbing including waste water transfer pump, plumbing under building to transfer pump, 1.5" suction hose to Waste Water Treatment Unit and 1.5" water supply hose ready to plug in. Ice machine doors are supplied with fold down walkway.	
Building dimensions are 12.4m x 3m on a 14m skid.	
Freezer includes:	
1	Chiller unit *(able to be used as either cold room or freezer)*
4	Food storage shelves *(complete with food grade storage containers)*
1	Man trap alarm & emergency exit device
1	Condenser drain has S bend and cam lock fitting with cap for transport
Cold Store incudes:	
1	Chiller unit *(able to be used as either cold room or freezer)*
5	Food storage shelves *(complete with food grade storage containers)*
1	Man trap alarm & emergency exit device
1	Condenser drain has S bend and cam lock fitting with cap for transport
Dry Store incudes:	
1	Set of container doors for access to stores and ice machines
1	Split system air conditioner
2	Stainless food storage shelves
2	Ice machines *(with drains plumbed into main waste system)*

Proposed 56 Person Camp Lay Out *(Indicative - Skid Mount)*

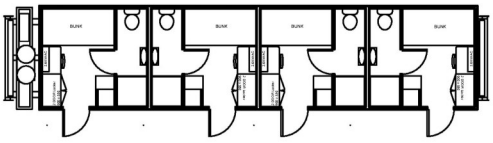
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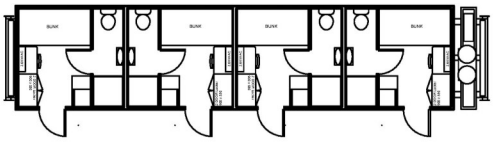
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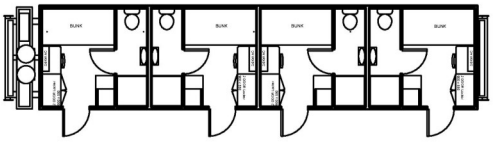
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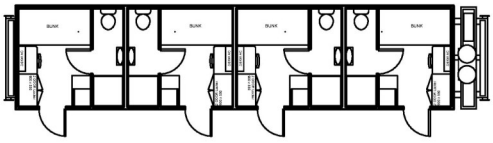
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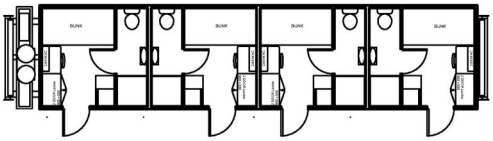
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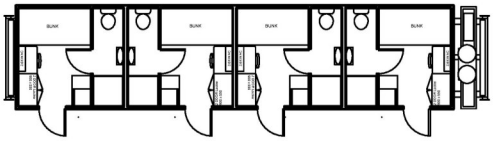
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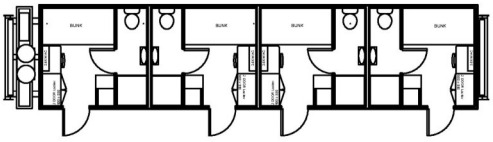
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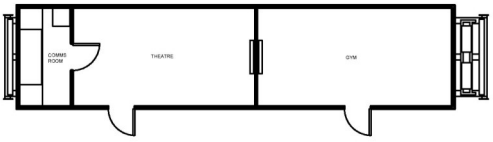
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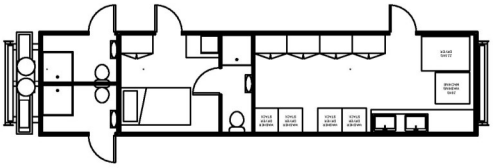
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515-012



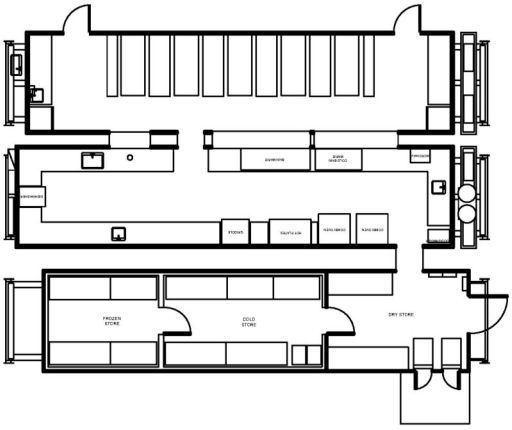
513-015



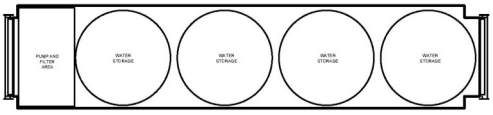
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501-013

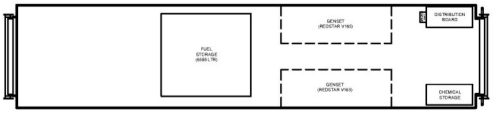
508-016



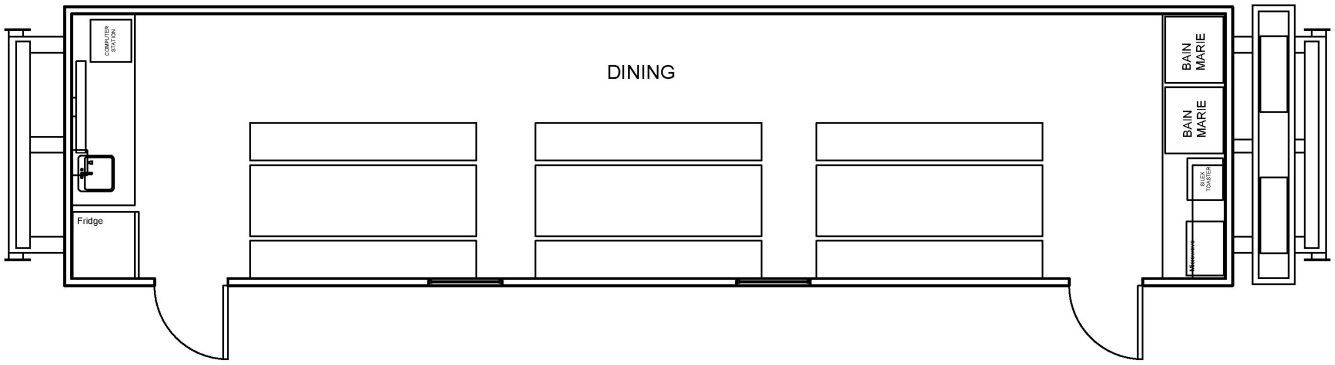
522-002



506-024



502-020SM: Lunch Room



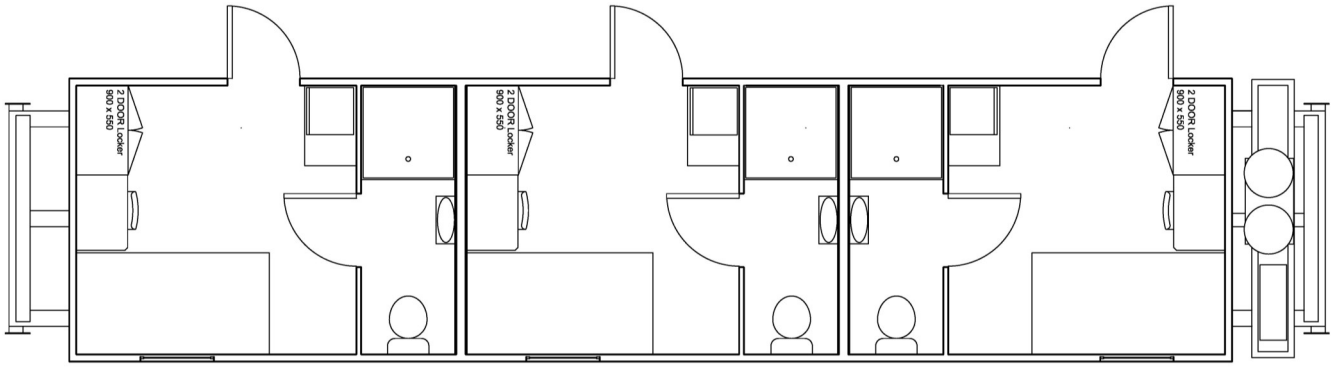
Unit comes with all plumbing including waste water transfer pump, plumbing under building to transfer pump, 1.5" suction hose to Waste Treatment Unit and 1.5" water supply hose ready to plug in. Building includes IP65+ rated quick connect boxes and connection point at end of building.

Building dimensions are 12.7m x 3.15m on a 14mtr skid.

Dining room includes:

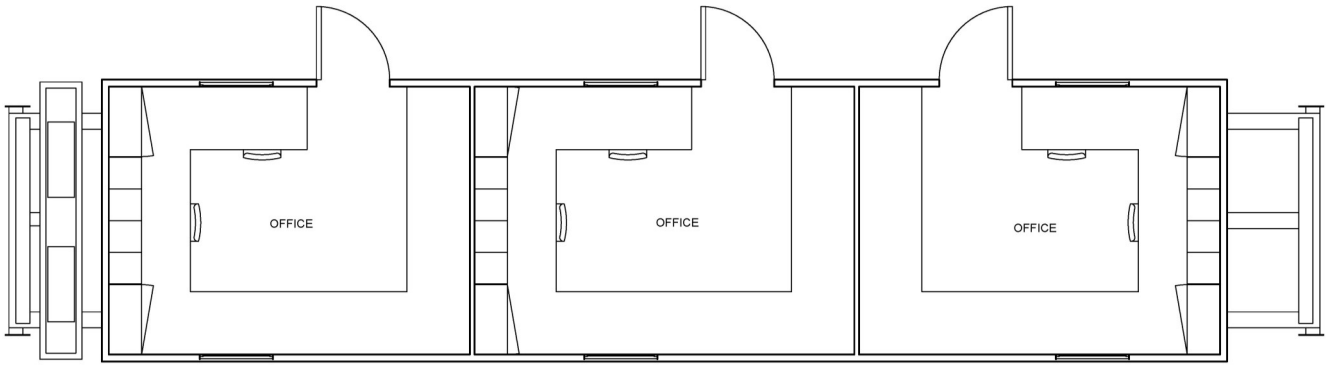
3	Dining room tables
6	Single row seats with under seat storage
1	Data points connected to 42" TV screen
1	Double tray hot Bain Marie
1	Double tray cold Bain Marie
1	Silex toaster / griller
1	Stainless sink
1	42" Wall mounted TV
1	Wall mounted microwave
1	Upright domestic refrigerator
2	Fixed perspex windows
4	Split system air conditioners
1	Zip hot/cold water tap mounted into bench
2	Post form bench top with underbench storage

507-014SM: 3 Person Sleeper with Individual Ensuites



Unit comes with all plumbing including waste water transfer pump, plumbing under building to transfer pump, 2 x 125 litre 3.6kw quick recovery hot water systems, 1.5" suction hose to Waste Treatment Unit and 1.5" water supply hose ready to plug in. Building includes aluminum walkways which are stored on the end of the skid for transport . Building includes IP65+ rated quick connect boxes and connection point at end of building.	
Building dimensions are 12.7m x 3.15m on a 14mtr skid.	
Each bedroom includes:	
1	King Size Single Beds
1	TV LCD 19" with DVD player
1	2 door locker cupboard with hanging space & shelving
1	Workstation desk and chair
1	Split system air conditioner
1	Battery back up smoke detector linked to all rooms in unit
1	Room light
1	LED bedside reading light
1	100ltr fridge
1	Towel rail
Each ensuite includes:	
1	Porcelain toilet with plastic cistern
1	900 x 900 fibreglass shower cubical with water saving shower head, mixer tap and curtain.
1	Exhaust fan
1	Vanity sink and mirror
1	Toilet roll holder
2	Coat hooks

510-024SM: Triple Office



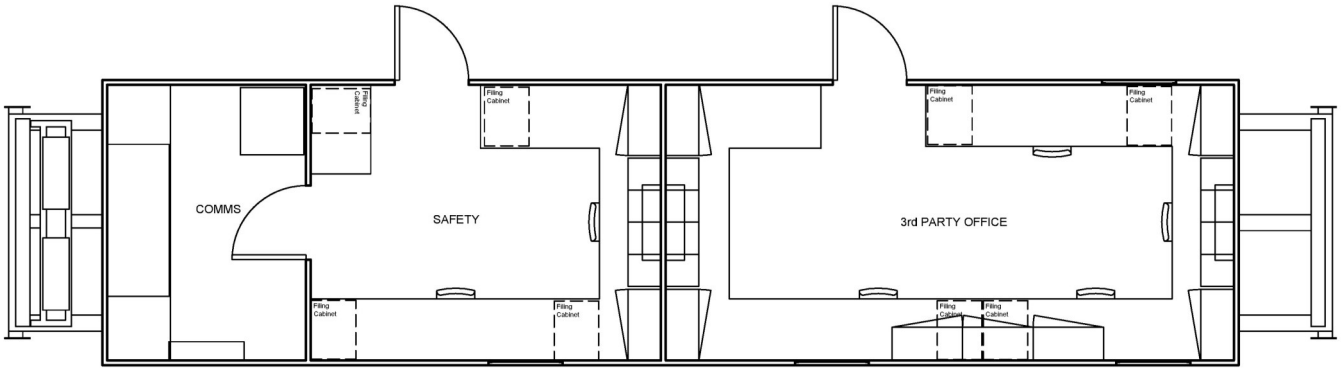
Unit comes with all plumbing including waste water transfer pump, plumbing under building to transfer pump, 2 x 125 litre 3.6kw quick recovery hot water systems, 1.5" suction hose to Waste Treatment Unit and 1.5" water supply hose ready to plug in. Building includes fold down walkways and canvas walkway covers. Building includes IP65+ rated quick connect boxes and connection point at end of building.

Building dimensions are 12.7m x 3.15m on a 14mtr skid.

Each office includes:

1	Wall mount bookshelf cupboard combination
2	Workstations with chairs
2	Fixed perspex windows *(one out each side of the building)*
3	Data points
3	Under bench, 2 drawer filing cabinets
1	100ltr refrigerator *(in 2 of the offices only)*
1	Split system air conditioner
1	Room light

510-042SM: Double Office

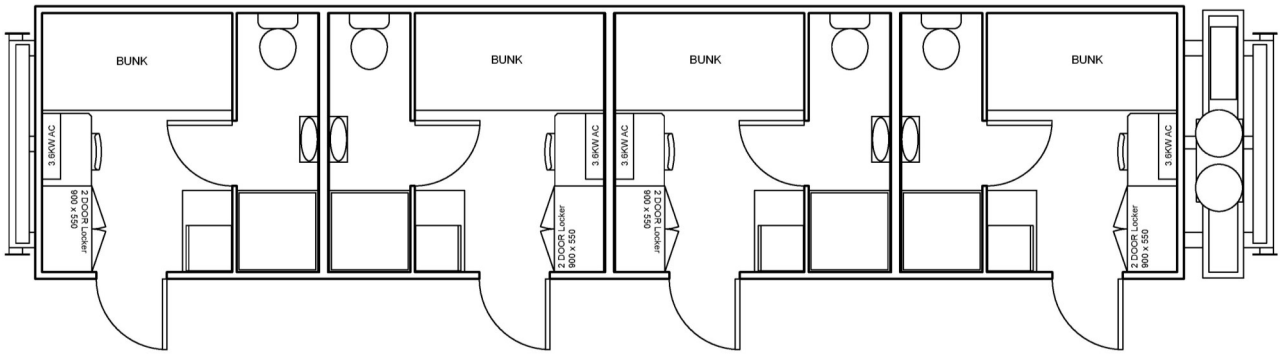


Unit comes with all plumbing including waste water transfer pump, plumbing under building to transfer pump, 2 x 125 litre 3.6kw quick recovery hot water systems, 1.5" suction hose to Waste Treatment Unit and 1.5" water supply hose ready to plug in. Building includes IP65+ rated quick connect boxes and connection point at end of building.

Building dimensions are 12.7m x 3.15m on a 14mtr skid.

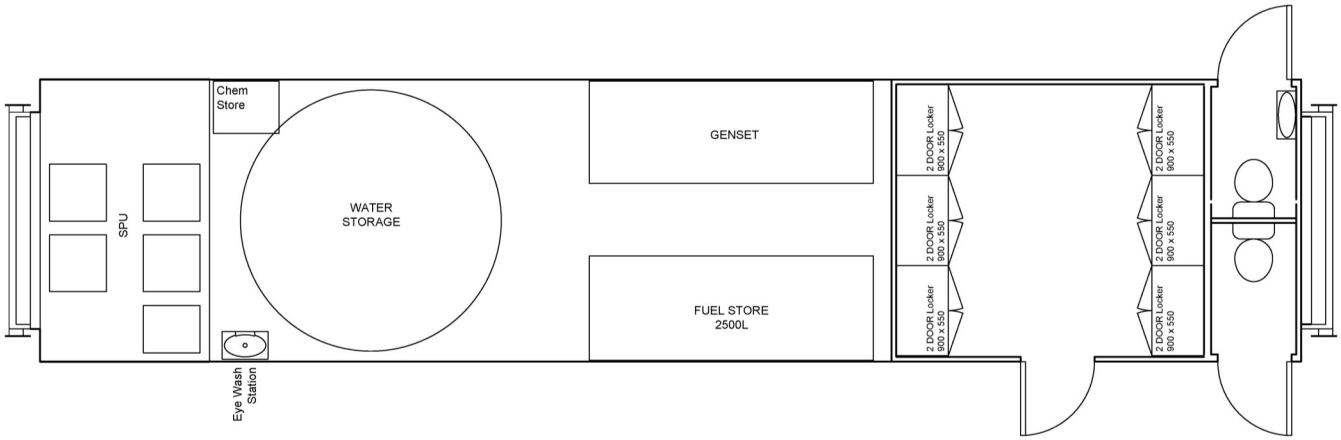
Safety office includes:	
1	Wall mount bookshelf cupboard combination
2	Workstations with chairs
1	Fixed perspex window *(one out each side of the building)*
3	Data points
4	Underbench filing cabinets
1	Split system air conditioner
Comms room includes:	
1	42 RU rack
1	Comms Cabinet
1	Post form bench top with underbench storage
1	Split system air conditioner
3rd Party Office includes:	
3	Wall mounted, bookshelf / cupboard combinations
4	Workstations with chairs
4	Underbench filing cabinets
6	Data points
2	Split system air conditioners

507-028SM: 8 Person Sleeper with Ensuites



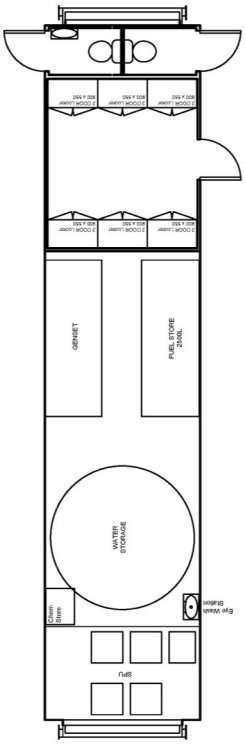
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Building dimensions are 12.7m x 3.15m on a 14mtr skid.	
Each bedroom includes:	
2	King Size Single Beds
1	TV LCD 19" with DVD player
1	2 door locker cupboard with hanging space & shelving
1	Workstation desk and chair
1	Split system air conditioner
1	Battery back up smoke detector linked to all rooms in unit
1	Addressable back to base smoke detection alarm
1	Room light
1	LED bedside reading light
1	100ltr fridge
1	Towel rail
Each ensuite includes:	
1	Porcelain toilet with plastic cistern
1	900 x 900 fibreglass shower cubical with water saving shower head, mixer tap and curtain.
1	Exhaust fan
1	Vanity sink and mirror
1	Toilet roll holder
2	Coat hooks
1	Chain lock on doors *(Lockable from inside bathroom)*

506-023SM: SPU / Utilities Skid

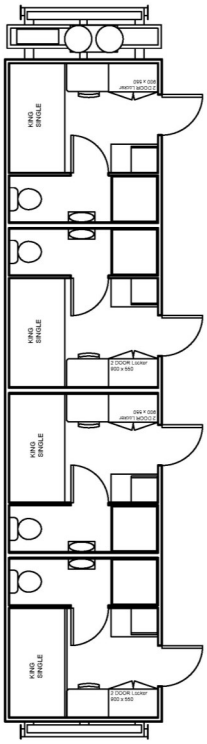


Unit comes complete. Building includes IP65+ rated quick connect boxes and connection point at end of building.	
Building dimensions are 12.7m x 3.15m on a 14mtr skid.	
Utility Skid includes:	
1	SPU attachment point *(SPU not included in price)*
1	13500ltr poly, potable water storage tank
1	150kva generator
1	Chemical storage cabinet
1	Eye wash station
1	2500ltr self bunded diesel fuel storage tank
1	Locker room with 6 x 2 door lockers
2	Toilets *(1 x male and 1 x female)*

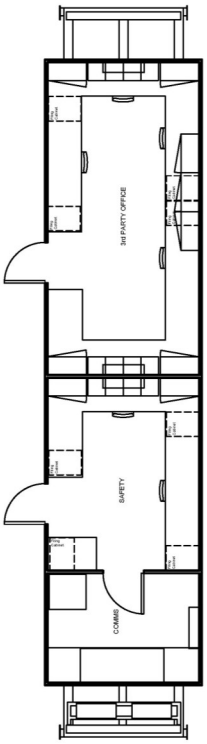
Proposed Well Site Camp Lay Out *(Indicative)*



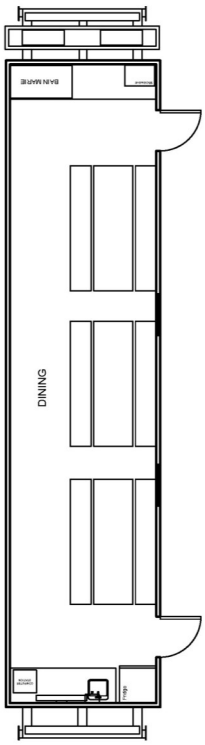
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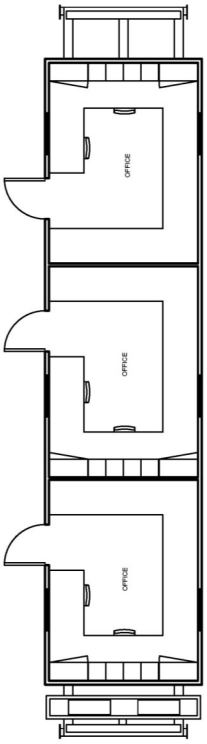
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Attachment 3: Potable Water Description

The water is currently planned to be sourced from freshwater bores (named Camp North 1 and Camp South 1) that are currently used to supply potable water to personnel that utilise the Beharra Springs Gas Facility accommodation facilities. This water source has been used for potable water at the gas facility for a long period of time with the last extraction licenced approved in 2013.

These bores target the Arrowsmith Perth – Superficial aquifers and are subject to water quality monitoring via the Beharra Springs Potable Water Sampling procedure (CDN/ID 3677655) which tests for the following parameters:

- *E.coli,*
- Total coliforms,
- hydrocarbons, and
- pesticides.

Attachment 10.4.1a

Plan

WAA 4120 BHS PLN
CDN/ID 19010952

Traffic Management Plan

Perth Basin Drilling & Completions

Review record (record the last 3 revisions here or the revisions required to achieve current approval version)

Revision	Date	Reason for issue	Reviewer/s	Consolidator	Approver
0	15/03/2023	Approved for use	PRO, DHI, KRO	KRO	DMA

Review due	Review frequency
15/03/2028	5 year/s

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THE THREE WHATS
What can go wrong?
What could cause it to go wrong?
What can I do to prevent it?

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1 Purpose

The purpose of this Traffic Management Plan (TMP) is to minimise project risks associated with local traffic movements and, minimise the risk and potential impacts on the local community.

2 Scope

In Scope:

- All drilling and completion traffic movement on any lease site or going to and from any of the proposed lease sites in licence areas EP320, L11 or L22 during the Perth Basin E&A campaign.
- All linehaul freight once it has left the Brand Highway to the lease site
- Light vehicle movements arranged or undertaken by the company between Perth and Dongara,
- Vehicle movements arranged or undertaken by the company between any lease site and Geraldton.

Out of Scope:

- Freight collection and freight consolidation outside of the in scope areas
- Line haulage via the Brand Highway to the local service roads to the sites
- Traffic movement within Beharra Springs Gas Facility (BSGF) situated in L11. This is covered by the existing BSGF TMP (CDN/ID 18993114).

3 Responsibilities/Accountabilities

Key roles and responsibilities for implementing this TMP are described below:

Role	Responsibilities
Wells Manager Onshore	• Approve this Plan
Drilling Superintendent	• Provide adequate resources to meet the obligations of this TMP. • Require all personnel to be aware of their responsibilities under this TMP.
Beach Site Supervisor	• Ensure this TMP is implemented effectively. • Ensure all traffic control measures outlined in this plan are in place and maintained in accordance with this plan. • Ensure, if required, inspections of the traffic controls, with any deviations documented; and review feedback from site inspections, personnel and other road users, and act to amend traffic control measures where required
Beach HSE Advisor	• Conduct compliance checks against the requirements of the TMP as per the HSE Assurance Plan
Ventia Rig Manager	• Ensure all rig move planning is completed and a copy of the rig move plan is provided to the Beach Site Supervisor.

Role	Responsibilities
Employees and Contractors	• Comply with the requirements of this TMP and operate in accordance with the OEMS 5.2 Transport and Logistics Standard and Beach Life Saving rules (LSR).

4 Definitions/Acronyms

Definitions of terms used in this procedure:

Terms/acronym	Definition/expansion
ALARP	As Low As Reasonably Practicable
Beach Energy	Beach Energy Limited
Beach Site Supervisor	Person in charge. Normally the Drilling Rig Manager or principal contractor supervisor.
BSGF	Beharra Springs Gas Facility
Risk Register	A document containing information on identified risk hazards with agreed controls for the E&A campaign.
Heavy Vehicle	As per the Heavy Vehicle National Law, a vehicle is a Heavy Vehicle if it has a GVM or ATM of more than 4.5t or a combination that includes a vehicle with a GVM or ATM of more than 4.5t
Incident	Any unplanned uncontrolled event that causes or has the potential to cause injury or illness to people, damage to plant, equipment or the environment, or loss. An incident is categorised by its outcome or potential for an outcome.
Job Safety Analysis (JSA)	A procedure carried out by the personnel involved in the task to assure themselves that all control mechanisms have been identified, within the environment in which the task will be carried out, so that it may be completed safely.
KSI	Killed or Seriously Injured
OEMS	Operational Excellence Management System
OSOM	Over Size or Over Mass
Shall/Must	A mandatory requirement
Should	A recommended requirement
TMP	Traffic Management Plan
Ventia	Drilling Contractor

5 Introduction

Beach is proposing to drill up to 6 gas exploration wells in permits EP 320, L11 and L22 in the Perth Basin near Dongara, which are planned to commence in early 2023.

The drilling campaign will include site preparation, including access tracks or roads and camp pad preparation, drilling and completion operations, including mobilisation/demobilisation and well testing operations, well decommissioning and site reinstatement.

The high-level objectives of the campaign are to prove up additional reserves in the Perth Basin and to provide additional production to the existing Beharra Springs gas plant. Wells in the Beharra Springs

and adjacent fields (in L11) are candidates for early connection to the plant, while wells in EP320 have the potential to be produced later.

The Perth Basin is a north to north-northwest trending, onshore and offshore sedimentary basin extending about 1300km along the southwestern margin of the Australian continent. The basin covers an area of approximately 172,300 square kilometres. Beach Energy's Perth Basin production assets consist of the Waitsia (non-operated) and the Beharra Springs (operated) assets.

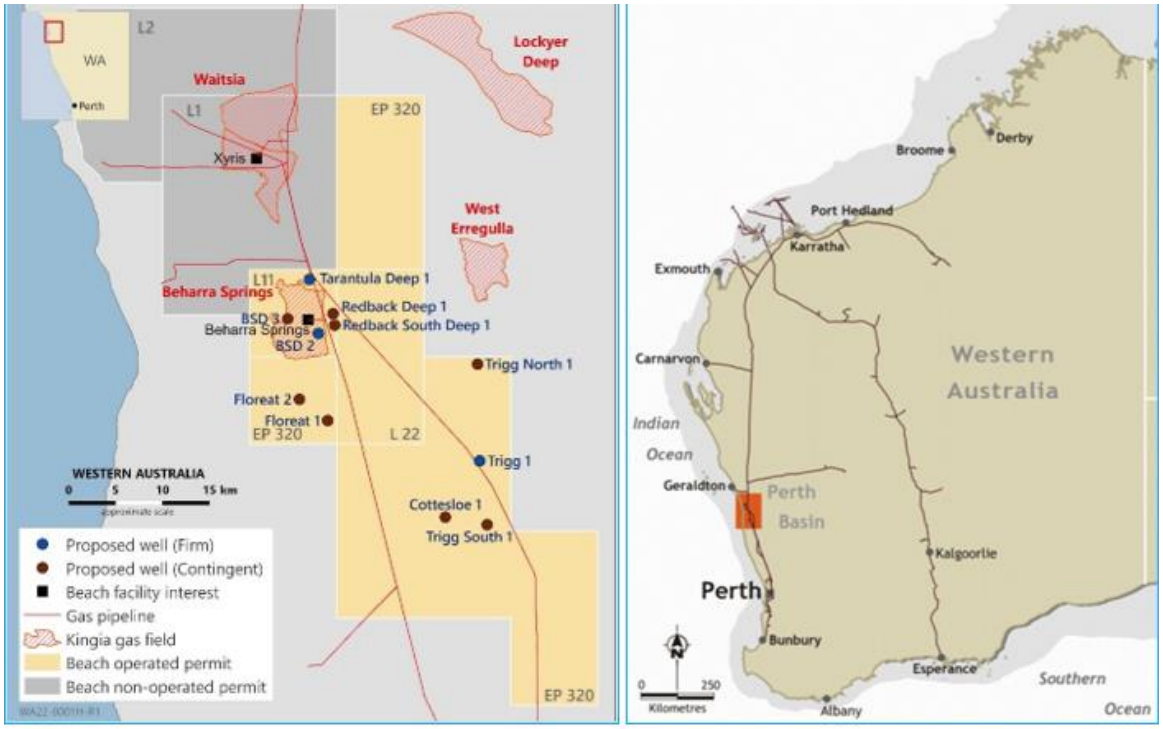


Figure 1 - Perth Basin Field Map

5.1 Wellsite Locations

A summary of the well licence locations is provided in Table 1 and a location map at Figure 1.

Table 1 – Well Licence location and land types

Well Name	Licence	Land Type
Trigg 1	EP320	Cropped land
Trigg North West A	EP320	Cropped land
Beharra Springs Deep 2_Deviated	L11	Existing lease / native vegetation
Tarantula Deep 1_ Deviated	L11	Existing lease / native vegetation
Redback Deep 1_ Deviated	L11	Existing lease / native vegetation
Peacock 1	L22	Native Vegetation

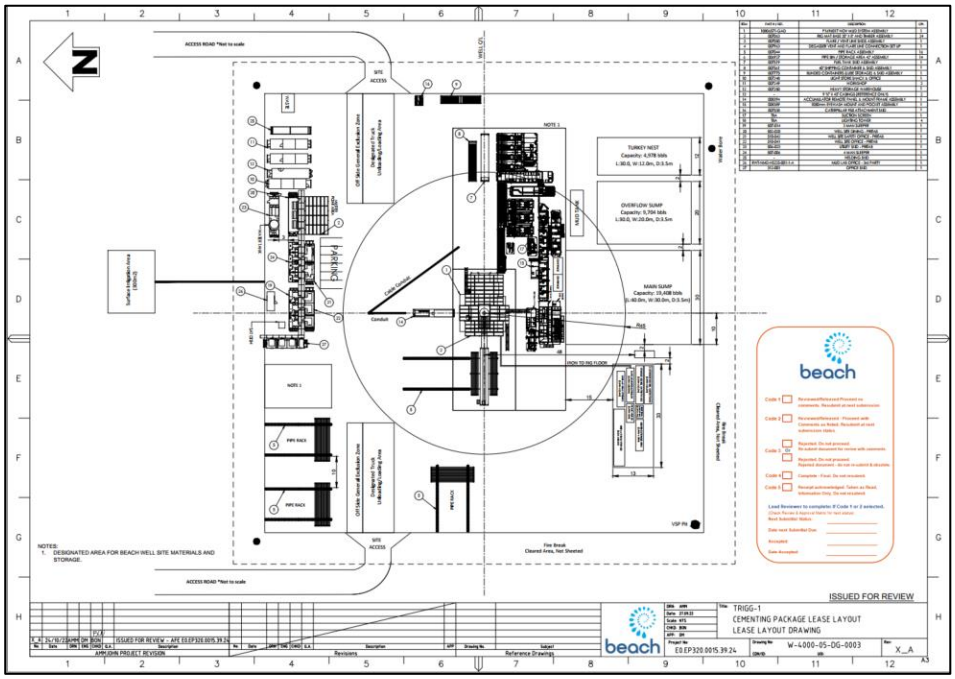


Figure 2 - Typical Perth Basin Wellpad Layout

5.2 Beharra Springs Gas Facility

Although not covered as part of the scope of this document, Drilling and Completions will have vehicles travelling past the Beharra Springs Gas Facility (BSGF), enroute to the L11 wellsite's and will likely need access to the facility over the term of the Perth Basin campaign. The following is a brief outline on the BSGF.

- BSGF is located via a private access road within the Yardanogo Nature reserve. This is the same access road drilling and completions will use to mobilise to L11 appraisal wells.
- The BSGF operation is manned 24/7. Unless arrangements have been made access to the facility is 6am and 6pm 7 days a week.
- Access is available to most types of vehicles (AWD,2-wheel drive vehicles,4WD and semi-trailers) however road trains access can be problematic to turn around and must be organised in advance with person in charge.
- As access is via unsealed road, wet weather can make it difficult and prior contact (08) 6374 2490 with site is recommended for advice on road condition when wet weather is forecast.
- Access road throughout the facility and office is 2-way traffic.

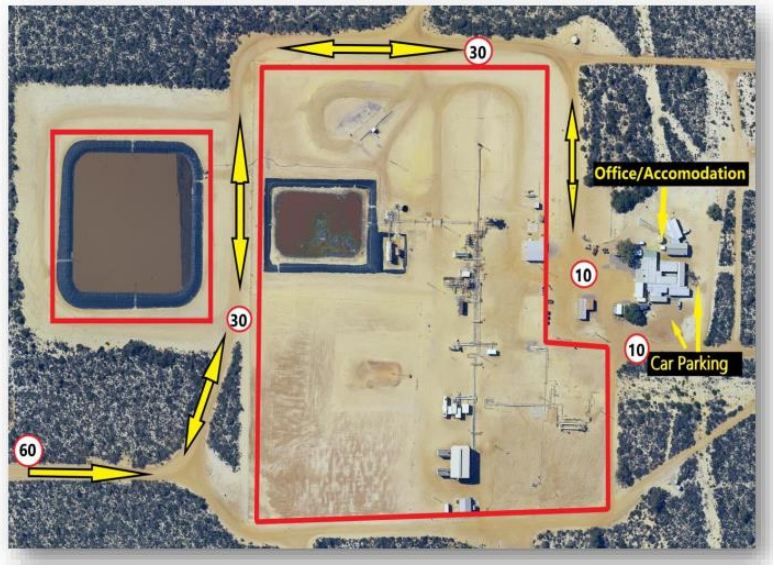
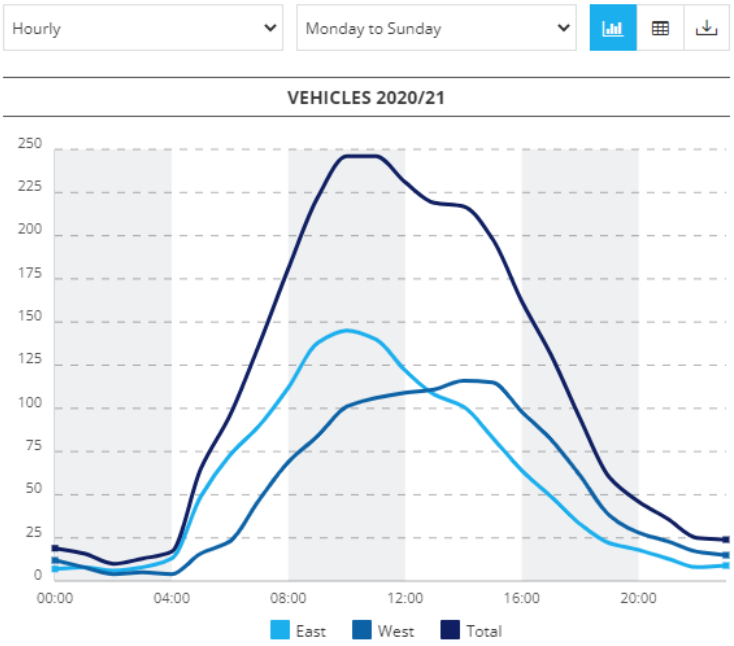


Figure 3 - Beharra Springs Gas Facility layout

6 Risk Management and Hazard Controls

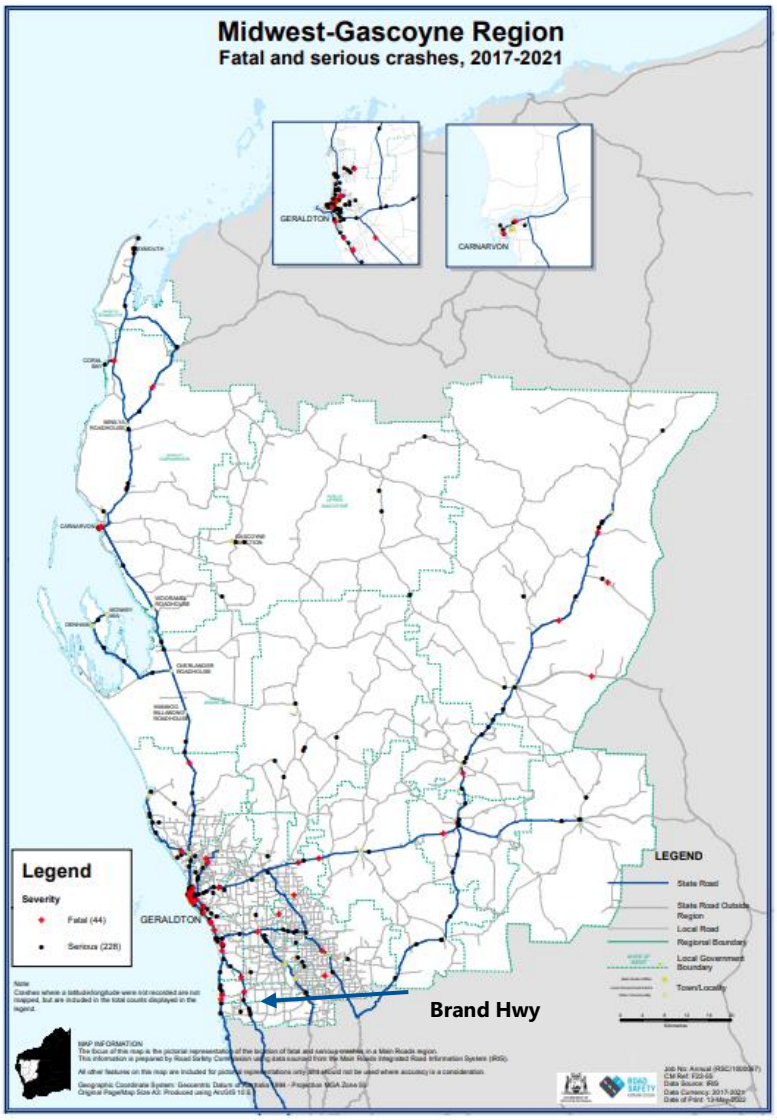
Driving is one of Beach's highest risk activities with over 1.5 million kms driven by Beach vehicles every year.

Dongara is in the Mid-West Gascoyne region, 359 kilometres north of Perth via the Brand Highway (National Route 1). Dongara is a popular year round tourist location and services the main North South road link of the state and there is always a tourism presence including and surrounding roads. The Brand Highway which is the nominated travel route from Perth is also one of two heavy vehicle routes for freight heading north.



Information from the Main Roads Western Australian website (trafficmap - Main Roads WA) shows an average of 2,700 vehicles travelling on the Brand Highway daily, with the statistical breakdown of volumes showing that 84.1% of vehicles were cars and 15.9% heavy vehicles. High peak travel times are between 4am and 8pm.

Western Australian Road Safety Commission data for the Midwest Gascoyne Region shows a high number of fatal and serious crashes in the region but particular along the Brand Highway.



Common crash circumstances for people Killed or Seriously Injured (KSI) are:

- 35% of people KSI in crashes where a single vehicle ran off the road or rolled over.
- 26% of people KSI were crashes where a single vehicle collided with an object (excluding animals)
- 63% of people KSI were in crashes on roads with a 110 km/h speed limit.
- 16% of people KSI were increased on roads with a 50 km/h speed limit.

Behaviour statistics include:

- Seatbelts were not worn by 12% of vehicle occupants KSI.
- Speed was suspected to be a factor in the crashes of 26% of people KSI.
- Inattention was suspected to be a factor in the crashes of 9% of people KSI.
- Fatigue was suspected to be a factor in the crashes of 16% of people KSI.

6.1 Traffic Risk Management

The primary objective of Beach's HSE risk management process is to ensure that all hazards and risks, to which people, community, environment, and asset are exposed, are systematically identified, risks are evaluated and measures for reducing them to levels that are As Low as Reasonably Practicable (ALARP) are put in place, documented, and maintained.

To achieve this, the traffic activities considered under the scope of this TMP have been subject to a risk assessment that was undertaken and conducted in accordance with Beach Energy's Risk Management Standard CDN/ID 18985348 and using Beach Energy's Risk Matrix. The risks and mitigations are tabled in CDN 19011763.

6.2 Key Residual Risks

The traffic management residual risks are detailed in Appendix A and they are accompanied with a brief discussion on the principal risk driver and key risk reduction measures. Of the residual risks identified and assessed, none are considered intolerable or unacceptable and all are mitigated to ALARP. Further specific and updated detail of the risks and mitigations are maintained in CDN19011763 which is the reference point for all campaign specific risks and hazards.

7 Minimum Vehicle Requirements

The minimum requirements for all heavy vehicles and light vehicle operations related to Beach Energy activities in the Perth Basin and under this TMP is in the Transport and Logistics Standard (CDN/ID 18985357). This standard covers:

- General vehicle requirements
- Vehicle specifications, sourcing, and maintenance.
- Driver competency
- Driver fatigue and fitness for duty
- Load securement
- In vehicles monitoring systems (IVMS)
- Driver and passenger behaviours
- Journey management
- Heavy vehicles and dangerous goods, and
- Site vehicle management.

Beach and all Contractor vehicles operating in the Perth Basin under this TMP shall meet the minimum requirements of this standard.

8 Minimum Safety Requirements

The following minimum safety requirements shall be adhered to throughout the Perth Basin campaign for Heavy Vehicles and Light vehicle operations. Underpinning these minimum safety requirements is the Chain of Responsibility (CoR) laws, which ensures everyone who works with heavy vehicles – from the business that employs a driver to the place where goods are delivered – is accountable for safety.

The primary duty is the obligation under the CoR is to ensure so far as is reasonably practicable the safety of any transport activities. This means everyone involved in a transport activity must identify the risks involved in the transport activities, assess those risks, and eliminate those risks, or if they can't be eliminated, minimise them as much as possible. More information relating to CoR can be found at the National Heavy Vehicle Regulator's website.

https://www.nhvr.gov.au/safety-accreditation-compliance/chain-of-responsibility/the-primary-duty/primary-duty-scope

In addition to the CoR obligations stated here and in section 11.3 of this plan (Rig Moves), the following minimum safety requirements shall apply:

- Heavy vehicle operators and vehicle loaders must ensure that persons who load heavy vehicles are properly trained and equipped to secure loads. A heavy vehicle load MUST be secured so it is unlikely to fall or be dislodged; be restrained using an appropriate restraint method; and be placed, secured or restrained in a way that meets the loading performance standards listed in Schedule 7 of the Heavy Vehicle (Mass, Dimension and Loading) National Regulation.
- All Heavy Vehicles will be loaded and secured in accordance with the Load restraint Guide 2018
- The drilling contractor Rig Manager/PIC or Beach Site Supervisor must be aware of traffic mobilising to and from the wellsite. See section 11.6 related to Contractor Call Out Checklist.
- Journey Management shall be in accordance with OEMS Journey Management Procedures. See Section 11.1.
- All drivers shall operate vehicles in accordance with national and state based laws as they apply to their operations.
- Only drivers who hold a full unrestricted and valid driver's licence for that class of vehicle being operated will be permitted to drive such a vehicle.
- Zero tolerance for Drugs, Alcohol, and any other illegal Substance abuse is maintained, and the relevant contractor shall have a process in place to ensure that operators are regularly checked and tested for the same.
- Before any vehicle is operated it is the responsibility of the driver to carry out the daily prestart check on the vehicle. This includes but is not limited to tyre condition, lights, brakes, horn, wiper blades, indicator lights, seat belts and any other safety critical feature of that vehicle in accordance with the Contractors maintenance system. The contractor shall ensure that all issues identified will be entered into the maintenance system and fixed.
- Vehicles are required to always drive with lights on for improved visibility.
- The roads from departure locations Perth, Geraldton and Dongara to site pass through or near several towns and homesteads. Drivers must drive carefully and restrict speed to prevent accidents, reduce dust, and reduce noise.
- Posted speed limits shall be obeyed.
- At the wellsite and access roads no vehicle is permitted to be parked or drive off the disturbance areas..
- All vehicle access to and egress from the lease shall be by forward movement.

- Drivers are expected to operate vehicles in a safe manner and drive to the road and prevailing weather conditions.
- All vehicle drivers and authorised passenger shall wear seat belts. Vehicle shall be not driven until all persons in the vehicle are wearing their seat belt correctly.
- IVMS to be fitted to Beach and contractor owned vehicles. Not mandatory in hire cars but preferred.
- A basic first aid kit and appropriate fire extinguishers to be maintained with each vehicle.
- Only diesel vehicles shall be permitted onsite.
- All vehicles will reverse park on the lease and camp sites in designated parking areas.

9 Travel routes

Preferred travel routes to site from both Perth and Geraldton airports are detailed in Appendix B.

10 Community Impact

10.1 Project Phases & Traffic Impact

The Perth Basin Drilling and Completions project is divided into the following distinct phases.

- Wellsite, access roads and accommodation camp site construction.
- Main rig and camp mobilisation
- Drilling
- Rig and camp moves
- Rig and camp demobilisation

The table below outlines the anticipated traffic impacts at each phase of the project.

Table 2 - Anticipated Traffic Volumes

Project Phase	Area	Activity / when	Estimated Total Loads	Duration	Average trucks / bus	Normal operating hours
Wellsite, access roads and accommodation camp site construction.	All	Site preparation including trucking for site and road base January 2023 onwards	4	4 to 6 weeks for each well pad location	10 trucks per day during the initial cut and fix operation.	6am to 6pm

Project Phase	Area	Activity / when	Estimated Total Loads	Duration	Average trucks / bus	Normal operating hours
Main rig and camp mobilisation	Waitsia to Twigg EP320 via Brand Hwy	Rig move rig and camp to site. Initially March 2023.	102	9-12 days Every 6 to 8 weeks thereafter.	10 per day	24 hours
Drilling	All	Ongoing material deliveries Crew bus change from Perth April 2023 onwards	45	70 days each well	2 truck per week 1 crew bus (up to 4 times per week)	24 hours 6am to 6pm
Move rig and camp	EP320 to L11 in field move	Rig move / June 2023	102	9-12 days	10 per day	24 hours
Rig and camp demobilisation	Beharra L11 to destination TBA	Removal of rig and equipment at end of campaign February 2024	102	9-12 days	10 per day	24 hours

Most traffic movements will be for standard project activities and therefore in daylight hours. Exceptions that may require vehicle movements at night will be for any urgent or unforeseen requirements for material / equipment deliveries or call out of personnel. Appropriate risk assessment, controls and permits will be in place if this is to occur.

10.2 Traffic impacts - Peak School Times

There are no scheduled school bus routes in our L11, L22 and EP320 operating areas. This has been confirmed by the neighbouring Irwin, Three Springs and Carnamah shires and their school bus providers.

If there is any change to School Bus routing, vehicles with a Gross Vehicle Mass (GVM) greater than 40.5t, gravel trucks or non-placard loads associated with the project will not be permitted to use those school bus identified routes during school bus schedule times.

Schedule for school bus movements is in the morning 07:30 to 09:00 and the afternoon 14:30 to 16:00.

- Truck movements along the project site access roads for all phases of the project will be outside the specified school bus schedule.
- During school and public holidays increased vigilance is needed as children are more likely to be active within the community.

Table 3 - School Terms

WA School Terms 2023	WA school term dates 2023
Term 1	Wednesday 1 February 2023 - Thursday 6 April 2023
Term 2	Monday 24 April 2023 - Friday 30 June 2023
Term 3	Monday 17 July 2023 - Friday 22 September 2023
Term 4	Monday 9 October 2023 - Tuesday 14 December 2023

10.3 Dust Suppression

To minimise the impact of dust on the community, dust suppression will be deployed as required during the mobilisation and demobilisation of the drilling rig and during the operational phase using a call out water truck service.

As per BSTD 5.2 Transport and Logistics Management the maximum speed limit for unsealed roads is 80 km/h. Notwithstanding this, drivers will consider road conditions and as necessary reduce speed limits to a safer speed to minimise dust nuisance and hazards of driving through dust.

Upon request from council or following a complaint from the public or landowner regarding dust; Beach Energy will investigate and address the issue as soon as practicable. The Beach site supervisor will coordinate all works associated with dust issue resolutions.

11 Traffic Management

11.1 Journey Management

The Beach Transport and Logistics Standard (CDN/ID 18985357) requires a dedicated Journey management Plan (JMP) for all journeys greater than 2 hours. For Perth Basin operations the JMP process will extend this to journeys less than 2 hours (excluding in field travel). See the requirements at Table 3 below.

As mentioned in Section 9.1 (Travel Routes), journeys to and from Perth must be via the Brand Highway. Refer to Journey Management Profile (CDN/ID 18992970) for more detailed journey directions and route emergency information.

Table 4 - Perth Basin Journey Management Requirements

Travel Route	Requirement	When	By whom	JM Close out
Journeys >2hrs *Travel to/from Perth*	1. TraXu app. See Section 11.2. 2. Back up to TraXu - Complete JMP form (CDN/ID 13569606). Copy sent to Beach Site Supervisor for approval, or 3. Contractors existing JM process.	Prior to departure	Driver	By driver as per the app requirements Beach Site Supervisor and/or Contractor Supervisor on arrival or advice from driver that journey has been completed safely

Travel Route	Requirement	When	By whom	JM Close out
Journeys <2hrs (excluding in field travel) Note: No JM is required for infield travel. Journeys do however need to be approved	1. Journey to be approved by the Beach Site Supervisor or contractor supervisor. 2. Text or phone call to be made on departure/arrival. 3. Information required. i. Driver name ii. No. of passengers iii. Vehicle registration iv. Departure point /time 4. Estimate arrival time.	Prior to departure	Driver	Beach Site Supervisor and/or Contractor Supervisor on arrival or advice journey has been completed safely

11.2 TraXu App Location monitoring

11.2.1 How does it work?

TraXu is a vehicle monitoring smart phone application which is managed and monitored by the National Response Centre (NRC). Driver welfare is monitored by registering, checking in and completing journey activities via the app. It operates on IOS and Android platforms and uses the mobile network to provide coverage in real time by the NRC 24/7.

11.2.2 Access

To access TraXu, download the from the Apple Store or Google Play and then call the NRC (1800 952 100) to finish the setup of the system. Vehicle Location is monitored via the mobile phone network back to a mapping application within the system that then monitors an activity or trip. The Application only accesses a location when the application is in use.

New users you will need the following information:

- Beach Energy Customer Code – **Bea-1694784**
- Contact details of 2 business escalations (persons to contact if check ins are not received and or the NRC are unable to contact the driver.

Once the Application is downloaded onto a smart phone, the user will need to:

- Select “Sign Up”
- Complete form fields.
- Select ‘submit’
- Wait for an SMS detailing your profile account number.
- Check the supplied email account for your username and password set up link.

11.2.3 Check Ins

The TraXu application route map will offer an estimated trip duration based on the information you enter when you create a new journey monitoring activity. The application is pre-set so that a break occurs every two hours and drivers will be required to check in at that time. Drivers will receive a notification check in reminder 15 minutes prior to the check in being due. Notifications are sent direct to the device being monitored so it is important that your device is not switched to silent and is audible to you while driving.

Never touch your mobile phone while driving. It is imperative that when the 15 minute warning is given, the driver finds a safe place to pull over, stops the vehicle and then uses the application to check in. If the driver does not hear the alert or is not able to check in, the NRC will call the nominated phone and check on the wellbeing of the driver and offer to extend the timing of the check in to enable the driver to pull over safely. If the driver is aware of a mobile phone blackspot they should let the NRC know in advance by leaving these details in the trip detail on the application.

11.2.4 Escalation Process

The NRC dialling out number is +613 9411 2100. It is best to save this in your phone, so you know it's the NRC checking you're ok. You can't return calls on this number. If you miss the call, you will need to dial 1800 952 100 or +613 9411 2107 for satellite dialling. Have your profile number handy when you call.

If the NRC don't reach you, they will attempt a second call, after which the 'no contact' will be escalated to your listed escalation contacts. Escalations must be business contacts, and who know your routine and what you are working on. You can update your contacts from the application, or you can let the agent on the call know you need to change the listed details and they will do it for you on the call.

11.3 Rig Moves

The drilling contractor is responsible to coordinate, manage and safely execute all rig moves. Where third party rig move subcontractors are used the drilling contractor must assess their subcontractors to ensure that they are competent and have serviceable and fit for purpose equipment to meet the rig move scope of work and meet the minimum requirements of this plan, including section 8 Minimum Safety Requirements.

A rig move plan is to be presented to the Beach onsite Drilling Supervisor prior to each rig move for review. The plan as a minimum must include:

- Rig move survey with route directions, distances, and any planned fatigue breaks (if required).
- Confirmation that route has been inspected by the contractor and is suitable and in an acceptable condition for the rig move.
- Load plan list including load dimensions.
- Reference to all necessary approved road traffic permits and relevant gazette notices.
- Roles and responsibility of key players i.e. Rig Supervisors, operators, pilots etc.

- Equipment listings with reference to service history, certification as appropriate.
- Work instructions relevant to rig up/down and move activities including relevant generic and specific hazards and controls.
- Communication protocols to ensure all personnel directly and/or indirectly involved in the rig move are appropriately briefed and how it affects them.

The drilling contractor must ensure that all personnel are trained in Heavy Vehicle Chain of Responsibility (CoR) as it applies to their operation, role, and jurisdiction and that those responsibilities are monitored and enforced during the rig move. All personnel have an obligation to ensure any possible breach of CoR is immediately stopped and investigated.

The Drilling contractor shall ensure that its drivers and contractors are instructed not to:

- exceed speed limits.
- drive when fatigued and or impaired.
- disregard compliance with mass and dimension requirements
- disregard compliance with loading requirements and, ensure that every Heavy Vehicle is loaded and secured in accordance with the Load restraint Guide 2018

11.4 Oversize Overmass Permits

Main roads Western Australia provide the guidance requirements for Over Size or Over Mass (OSOM) permits. See www.mainroads.wa.gov.au/heavy-vehicles for further details.

Key points:

- A high risk OSOM is a vehicle that Main Roads considers presenting an extraordinary risk to other road users or is likely to cause excessive disruption to other road users.
- The movement of high-risk OSOM vehicles, within the metropolitan area, will only be approved between the hours of 9:30pm and 5:00am.
- Class 1 Oversize - Allows for a vehicle and load to be up 5.5 metres in width, 5.5 metres in height and 40 metres in length.
- Class 1 Low Loader overmass - Allows low loader combinations to move loads with a gross mass of up to 92.5 tonnes for certain combinations.

Contractors mobilising any oversize Class 1 or 2 loads is responsible for arranging any permits and ensure all requirements set down by Main Roads WA are met.

11.5 Vehicle Escorts and traffic control

Vehicle escorts and traffic control is required for all oversize and overmass loads.

Where vehicle escorts or roadside traffic control is required, regardless whether it is on gazetted roads or in field roads, the contractor responsible for the load is to arrange and coordinate the process and advise the Beach Site Supervisor when completed and any limitations or restrictions applied.

Pilotage for OSOM vehicles will conform to the Main Roads Oversize vehicle and pilot vehicle general requirements which are available at the following site:

https://www.mainroads.wa.gov.au/globalassets/heavy-vehicles/getting-a-permit/osom/oversize-vehicle-and-pilot-vehicle-general-requirements.pdf?v=49f806

11.6 Load Restraint

Heavy vehicle operators and vehicle loaders shall ensure that persons who load heavy vehicles are properly trained and equipped to secure loads. A heavy vehicle load must be secured so it is unlikely to fall or be dislodged; be restrained using an appropriate restraint method; and be placed, secured or restrained in a way that meets the loading performance standards listed in Schedule 7 of the Heavy Vehicle (Mass, Dimension and Loading) National Regulation.

All Heavy Vehicle will be loaded and secured in accordance with the Load restraint Guide 2018

Where the third party will be sending major equipment to site, this will be checked when the equipment arrives on site by the Principal Contractor as part of the Contractors Third Party Equipment Check process.

Third party contractors are advised that the Chain of Responsibility laws apply equally to them as they do to Beach and the contractor collecting the goods from their premises. Third party contractors are advised that if equipment and materials turn up on site that do not meet the requirements of the CoR legislation or that do not meet the requirements of the Load Restraint Guide 2018, those materials may not be unloaded by the contractor or company personnel if there is a risk of injury or harm.

11.7 Crew Changes

A People Logistic assessment was completed to consider three primary mode of transport options for conducting crew changes from Perth to site. The options were.

1. Commercial air travel ex Perth to Geraldton with bus Geraldton to site.

2. Charter air travel ex Perth to Dongara with bus Dongara to site.

3. Charter bus travel ex Perth direct to site.

The purpose of this preliminary options assessment was to align the relevant stakeholder group on the preferred people logistics option to support the Perth Basin Project.

The options were analysed primarily pertaining to risk, budget, and travel duration. In addition, a comparative analysis was provided on the pros and cons of each option.

Option 3 charter bus Perth to site was the preferred option chosen. The following are minimum requirements for the preferred bus company.

- Contracted bus company must have a current appropriate HSE / Quality pre-qualification.

- Contracted bus company must as a minimum meet the minimum control requirements of Key Residue Risk Section 6.1 specifically risk 1.03 Vehicle incident travelling Perth to site.
- Contracting bus company is to adopt Beach Life Saving rulings specifically related to driving. See section 11.12.
- Fitted and fully operational seatbelts for all seats.
- In Vehicle Monitoring system (IVMS) fitted with IVMS reports available on request.
- Bus to be equipped with toilet.
- Contractor bus company to provide rest / work fatigue management requirements which must include a 15 min break enroute both ways and a rest period of 30 minutes on arrival at site.
- Contractor bus company must follow their own journey management process and where the company does not have a journey management process in place they are to follow the Beach process by completing the JMP form (CDN/ID 13569606) as detailed in Section 11.1.
- Contractor bus company must meet and abide by all relevant National and state legislation and laws related to the operations, service, and maintenance of their asset.

For more information on crew change using a contractor bus company refer to the CDN/ID 19011902 Perth Basin D&C Logistic management Guidelines.

11.8 Speed limits

The following are the speed limits for all anticipated roads travelled. Speed limits are to be always adhered to.

- Brand Highway maximum speed limit is 110Km/h unless otherwise signposted. At the time of this documentation development there was several controlled road works requiring reduction in speed.
- Mount Adams Road and Skipper Roads is 80km/h as per BSTD 5.2 Transport and Logistics Management for unsealed roads.
- Well site access roads 60 km/h
- Well site lease location and immediate access roads 10km/h.
- Roads around Beharra Springs Gas facility 30km/h
- Roads around BSGF office and accommodation is 10km/h

11.9 Road closures or deviations

Any road closures, deviations or construction activities within the project area will ensure that the guide to Temporary Traffic Management (Part 5) Short Term Low Impact Worksites is followed, as applicable to the scope, risks and tasks being considered. In particular, section 2 Design Process must form the basis of any Traffic Management activity. The need for specialised traffic controllers and the installation of signage that meets the requirement of AS1742.3 will be considered as part of the

planning process and risk assessment under the guide to Temporary Traffic Management (Part 5) Short Term Low Impact Worksites

In the event large or overweight vehicles are required to cross a pipeline; prior approval will be sought from the Beharra Springs Production Superintendent and/or the relevant senior pipeline engineer.

11.10 4WD

4WD vehicles are preferred but not mandatory to operate in the Perth Basin area. 4WD driver competency is also not required. This was the decision through the risk assessment process conducted by the Beharra Springs Gas Facility team and approved in July 2021. Copy of the risk assessment is available if required. The risk assessment details are also captured in the Beach Incident Management System (CMO 2021072413).

11.11 Life Saving Rules (LSR)

Employees & visitors to site are expected to follow the Beach LSR & LSR Procedure CDN 13663920



12 Emergency Response

The Perth Basin Emergency Response Plan Bridge CDN/ID 1893856 communicates the interface between each companies ERP and describes the response requirements specific to the campaign activities.

All emergency contacts details both internal and external are listed in the Perth Basin Emergency Contact Directory (CDN 19010647). The Perth Basin Emergency Contact Directory remains in force whilst there are drilling and completion activities ongoing and this emergency response plan remains in force.

13 Reference Documents

No.	Document	Document Number	Owner
1	Perth Basin Emergency Contact Directory	CDN/ID 19010647	Beach

No.	Document	Document Number	Owner
2	Emergency Response Plan Perth Basin	EWD-4036-SA-00301	Ventia
3	Beharra Springs Emergency Response Plan	CDN/ID 3677589	Beach
4	Incident Management Procedure	CDN/ID 18985406	Beach
5	Perth Basin D&C HSE Plan	CDN/ID 18993858	Beach
6	Emergency Response Plan	CCIO-HSE-PLN-04	CCI
7	Emergency Response Plan	6.4F6	Lenanes
8	Emergency Response Flowcharts	6.4F5	Lenanes
9	Rig 106 Safety Case	EWP-4036-OP-00101	Ventia
10	ISOS Medical Capabilities Study	June 2022	Beach
11	WA Work Health and Safety Act	2020	WA Government
12	WA Work Health and Safety (Petroleum and Geothermal Energy Operations) Regulations	2022	WA Government
13	Oversize Vehicle & Pilot Vehicle General Requirements	(D15#453366) dated July 2021	Main Roads WA
14	Load Restraint Guidelines	2018	National Roads
15	Journey Management Plan	CDN/ID 13569606	Beach
16	Journey Management Profile Perth to Site	CDN/ID 18992970	Beach
17	Beharra Springs Gas Facility Traffic Management Plan	CDN/ID 18993114	Beach
18	Main Roads Western Australian website (trafficmap - Main Roads WA)	Not numbered	Main Roads WA
19	Risk Management Standard	CDN/ID 18985348	Beach
20	Beach Transport and Logistics Standard	CDN/ID 18985357	Beach
21	Third Party Contractor Call Out Checklist	CDN/ID 19010949	Beach
22	Life Saving Rules Procedure Risk Assessment	CDN/ID 13663920	Beach
23	Perth Basin D&C Campaign Risk Register	CDN/ID 19011763	Beach
24	Perth Basin D&C Logistic management Guidelines	CDN/ID 19011902	Beach
25	Beharra Springs unsealed road 4WD Risk Assessment	CMO number 2021072413	Beach

14 Document information and history

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Document history

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A	01/03/2023	Issued for review	Kevin Rollins, Paddy Rogers, Dean Hindle	Kevin Rollins	-
0	15/03/2023	Approved for use	-	-	David Maggiori

Appendix A Baseline Traffic Risk Assessments

Risk ID:	**1.01**	**Crew change bus charter service between Perth and site/return**		
Maximum Credible Consequence:		**People – 1 to 3 fatalities (Critical)**	**Residual Risk:**	**High**

The risk identifies the potential consequence of serious harm/injury including potential fatality to persons travelling from Perth to the project area with a dedicated reputable bus/coach service provider.

Potential causes of this risk include but not limited to:

- Driver mis-operation of vehicle, due to distraction / fatigue; speeding; drugs or alcohol; recklessness; inexperience
- Unsafe driving practices (tailgating, unsafe lane changes, failing to indicate, failing to give way etc.
- Failing to drive to the conditions (wet, adverse weather conditions, poor visibility, poor road surface etc.)
- Sudden vehicle malfunction (e.g., tyre blow out, engine lock-up, automatic break activation failure, break line rupture, windscreen breakage/visibility reduction, wheel disconnection)
- Other road users, increased tourists, and council public road activities
- Wildlife, livestock on roads.

Potential credible consequence and likelihood include:

- Road traffic accident with one or more vehicles resulting in vehicle damage or injury up to and including fatalities.
- Damage to company reputation
- Potential legal or regulatory repercussions
- Likelihood assessed as highly unlikely with agreed controls effectively implemented.

The controls in place include but not limited to:

- Reputable passenger transport bus provider contracted with completed HSEQ Capability assessment completed.
- Appropriate bus selection considering journey trip time and number of passengers movements to minimise bus trips.
- Experienced, competent and accredited driver who holds valid National and WA licence required to operate a passenger vehicle and equipment.
- Compliance with the Beach Transport and Logistics Standard included all vehicles seats fitted with seatbelts to industry standard and In Vehicle Monitoring System.
- Driver instructions to drive to prevailing road conditions and not to exceed national and state speed limits. Ability to verify through IVMS data on request.
- Appropriate fitness for work, including current medical examinations and fatigue management arrangements that meets National Heavy Vehicle standards.
- Bus trips conducted during daylight hours except for emergencies which will be covered by a separate risk assessment.
- Pre departure safety briefings conducted by driver.
- Journey Management Process in place for all journeys and dedicated travel routes.
- Serviceable and fit for purpose onboard safety equipment and dashboard instrumentation.
- Service and maintenance conducted to manufactures specifications by competent staff with records kept and available on request.
- Beach Campaign Inductions completed by all drivers.

Risk ID:	1.01	Vehicle incident travelling Perth to site (excluding charter bus)		
Maximum Credible Consequence:		People – 1 to 3 fatalities (Critical)	Residual Risk:	High

The risk identifies the potential consequence of serious harm/injury including potential fatality to persons in a project vehicle or another road user involving a project vehicle during commute from Perth to the project area.

Potential causes of this risk include but not limited to:

- Driver mis-operation of vehicle, due to distraction / fatigue; speeding; drugs or alcohol; recklessness; inexperience
- Unsafe driving practices (tailgating, unsafe lane changes, failing to indicate, failing to give way etc.
- Failing to drive to the conditions (wet, adverse weather conditions, poor visibility, poor road surface etc.)
- Sudden vehicle malfunction (e.g., tyre blow out, engine lock-up, automatic break activation failure, break line rupture, windscreen breakage/visibility reduction, wheel disconnection)
- Other road users, increased tourists, and council public road activities
- Wildlife, livestock on roads.

Potential credible consequence and likelihood include:

- Vehicle incident with people consequences up to 1 to 3 fatalities depending on vehicle occupant numbers and more than one vehicle involved.
- Time undertaking investigation with local police and government involvement.
- Damage to company reputation.
- Likelihood assessed as highly unlikely with agreed controls effectively implemented.

The controls in place include but not limited to:

- Journey management procedure in place with dedicated traffic routes and rest periods scheduled.
- Dedicated and pre-qualified heavy vehicle companies for freight movements
- Only roadworthy vehicle with 5 star ANCAP safety rating used with prestart vehicle checks completed.
- Licenced drivers appropriate to the class of vehicle and instructed to follow all speed limits.
- Dedicated traffic routes to avoid roads with high volume of traffic.
- Daylight driving. Need to drive during night hours will need a specific risk assessment.
- Loads secured in accordance with current Government Load Restraint Guidelines.
- Heavy vehicle drivers to follow National guidelines for rest and fatigue.

Risk ID:	1.02	In field driving		
Maximum Credible Consequence:		**People – 1 to 3 fatalities (Critical)**	**Residual Risk:**	**Medium**

The risk identifies the potential consequence of vehicle damage in single vehicle collision with stationary object, driver and one passenger in car and is injured, potentially in the project area.

Potential causes of this risk include but not limited to:

- Driver mis-operation of vehicle, due to: Distraction / fatigue; Speeding; Drugs or alcohol; Recklessness; Inexperience
- Unsafe driving practices (tailgating, unsafe lane changes, failing to indicate, failing to give way etc.
- Poor road conditions and not driving to the conditions (e.g., potholes, washouts, incorrect signage, poor road design)
- Sudden vehicle malfunction (e.g., tyre blow out, engine lock-up, automatic break activation failure, break line rupture, windscreen breakage/visibility reduction, wheel disconnection)
- Animal or debris on roadway - unexpected roadway hazard

Potential credible consequence and likelihood include:

- Vehicle incident with people consequences up to 1 to 3 fatalities depending on vehicle occupant numbers and more than one vehicle involved.
- Lost time on schedule undertaking investigation with local police and government involvement.
- Damage to company reputation.
- Likelihood assessed as highly unlikely with agreed controls effectively implemented.

The controls in place include but not limited to:

- IVMS installed with alarm protocols and results monitored, including emergency alarms in company vehicles.
- Dedicated crew bus from main camp to rig site to minimise personal driving.
- Mine spec vehicles with 5 star ANCAP safety rating with prestart vehicle checks completed.
- Licenced drivers appropriate to the class of vehicle and instructed to follow all speed limits.
- Regular and appropriate vehicle maintenance checks
- Loads secured in accordance with current Government Load Restraint Guidelines.

Risk ID:	1.04/5	Personnel and equipment damage during rig move		
Maximum Credible Consequence:		People – 1 to 3 fatalities (Critical)	Residual Risk:	Medium

The risk identifies the potential consequence of equipment damage and/or injury up to and including fatality during rig move.

Potential causes of this risk include but not limited to:

- Collision with/struck by machinery/equipment/materials being loaded or unloaded.
- Caught between trailers connecting road trains.
- Road hazards (overhead lines, sharp turns, roundabouts, narrow roads, pipelines, etc) not identified prior to rig move.
- Equipment damage during loading/unloading.
- Spill of diesel/chemicals due to vehicle incident

Potential credible consequence and likelihood include:

- Injury or fatality to driver, on site load master, other traffic due to personnel struck/crushed by equipment/materials being loaded or unloaded or personnel struck by moving vehicles.
- Equipment /materials falling from transport vehicle during transit.
- Falling from height (off trucks / barriers down for rig move etc.)
- Equipment repair or replacement required resulting in delays.
- Likelihood assessed as highly unlikely with agreed controls effectively implemented.

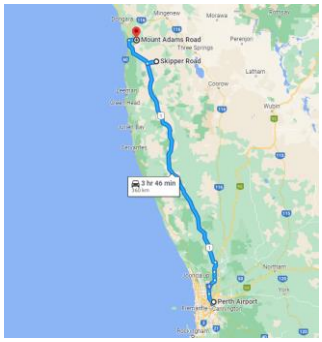
The controls in place include but not limited to:

- Comprehensive rig move plan provided by truck moving company/rig contractor.
- Rig move route driven by rig move company supervisor and all hazards identified.
- Pre rig move meeting and presentation of route and hazards for all drivers prior to rig move commencing.
- Drivers to follow National guidelines for Load Restraint
- Chain of Responsibility management in place
- Traffic management plan and controls in place as required.
- LUEZ established marked with high visibility cones.
- Vehicle reversing alarms and adequate lighting available.

Appendix B Traffic Routes

Perth to Site

Journey	Perth Airport to EP320 / L11
Estimated Distance	320kms to EP320 400kms to L11
Estimated trip time	3½ hrs to EP320 4 hrs to L11

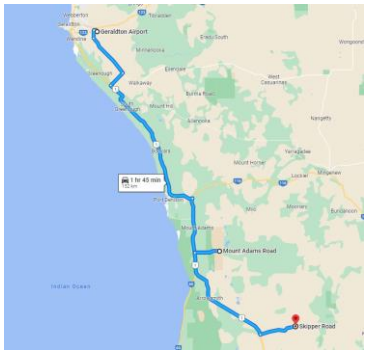


Travel route	Potential hazards / restrictions
Get on Tonkin Hwy / State route 4 (4kms)	• Busy roads • Numerous roundabouts and intersections • Heavy traffic • Pedestrians
Follow Tonkin Hwy to Brand Hwy (45kms)	• Increased speed limit to 110kph • Road trains and caravans • Heavy traffic during school holidays • Fauna – Kangaroos, emus, birds, reptiles • Low visibility during wet weather events • Only overtake when safe to do so. • Use dedicated overtaking lanes adhering to sign posted speed limits. • Be aware some road trains are up to 30 metres in length. • Roadworks
For EP320 - Follow Brand Hwy to Skipper Road Arrowsmith (250 kms) For L11 - Follow Brand Hwy to Mount Adams Road Arrowsmith (324 kms)	• As above. • Plan location to stop for 2-hours of driving 15-minute rest break
For EP320 - Turn right into Skipper Road follow rig signs to site (approx. 20kms depending on site) For L11 - Turn right into Mount Adams Road follow rig signs to site (approx. 30kms depending on site)	• Indicate early to alert traffic travelling behind you are committing to a right-hand turn and will be reducing speed. • Turn is across oncoming traffic lane at 110kph. • Reduce your speed as you are driving from a sealed road onto an unsealed road at the turn off. • Skipper Road / Mount Adams Road speed limit 80km as per OEMS • Local traffic / landowners • Road conditions can change – potholes, washouts, dust. • Fauna – expect to see Kangaroos, emus, birds, reptiles -always slow down and give fauna right of way • Occasional escaped cattle on road • Follow speed restrictions as you approach site
Comments	

1. Refer to Journey Management Profile (CDN/ID 18992970) for more details journey directions and route emergency information.
2. Journey Management Plan (CDN/ID 13569606) to be completed prior to departing Perth.
3. Report to Beach Site Supervisor and Rig Manager on arrival.
4. Close out Journey Management Plan.

Geraldton airport to site

Journey	Geraldton airport to site
Estimated Distance	120kms to L11 170kms to EP320
Estimated trip time	1hrs 20 mins to L11 2 hrs to EP



Travel route	Potential hazards / restrictions
Take Edwards Road and McCartney Road to National Route 1 in Greenough (24kms)	• Busy roads • Numerous roundabouts and intersections • Heavy traffic • Pedestrians
For L11 - Follow National Route 1 to Mount Adams Road (40kms) For EP320 - - Follow National Route 1 to Skipper Road (80kms)	• Increased speed limit to 110kph • Road trains and caravans • Heavy traffic during school holidays • Fauna – Kangaroos, emus, birds, reptiles • Low visibility during wet weather events • Only overtake when safe to do so. • Use dedicated overtaking lanes adhering to sign posted speed limits. • Be aware some road trains are up to 30 metres in length. • Roadworks
For L11 - Turn left into Mount Adams Road follow rig signs to site (approx. 30kms depending on site) For EP320 - Turn left into Skipper Road follow rig signs to site (approx. 20kms depending on site)	• Indicate early to alert traffic travelling behind you are committing to a left-hand turn and will be reducing speed. • Reduce your speed as you are driving from a sealed road onto an unsealed road at the turn off • Mount Adams Road / Skipper Road speed limit 80km as per OEMS • Local traffic / landowners • Road conditions can change – potholes, washouts, dust. • Fauna – expect to see Kangaroos, emus, birds, reptiles -always slow down and give fauna right of way • Occasional escaped cattle on road • Follow speed restrictions as you approach site

Comments

1. Journey Management Plan (CDN/ID 13569606) to be completed prior to departing Perth.
2. Report to Beach Site Supervisor and Rig Manager on arrival.
3. Close out Journey Management Plan.

Attachment 10.4.1b

Environment Plan

CDN/ID 19011222

Trigg Northwest 1 Exploration Drilling Environment Plan

Exploration Permit EP320

Review record (record the last 3 revisions here or the revisions required to achieve current approval version)

Revision	Date	Reason for issue	Reviewer/s	Consolidator	Approver
A	28/10/2022	Issued for internal review	Beach	ASW	CG
0	23/11/2022	Issued for DMIRS acceptance	ASW	Beach	CG
1	18/01/2023	Change of well name & minor amendments as per DMIRS feedback	ASW	Beach	CG

Review due	Review frequency
18/01/2028	5 years

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THE THREE WHATS

What can go wrong?

What could cause it to go wrong?

What can I do to prevent it?

Trigg Northwest 1 Exploration Drilling Environment Plan

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Definitions/Acronyms

Terms/acronym	Definition/expansion
AASS	Actual acid sulphate soils
AICS	Australian Inventory of Chemical Substances
ALARP	As low as reasonably practicable
ASS	Acid sulphate soils
ATU	Aerobic Treatment Unit
Beach	Beach Energy limited
BOM	Bureau of Meteorology
BSGF	Beharra Springs Gas Facility
CAMBA	China-Australia Migratory Bird Agreement
CMS	Convention on the Conservation of Migratory Species of Wild Animals
DBCA	Department of Biodiversity, Conservation and Attractions
DBCA	Department of Biodiversity, Conservation and Attractions
DFES	Department of Fire and Emergency Services
DMIRS	Department of Mines, Industry Regulations and Safety
dBA	Decibels
DO	Dissolved oxygen
DoW	Department of Water
DPIRD	Department of Primary Industries and Regional Development
DWER	Department of Water and Environmental Regulation
EC	Electrical conductivity
EP	Environment Plan
EP Act	*Environmental Protection Act 1986*
EPA	Environmental protection authority
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
ERP	Emergency Response Plan
ESA	Environmentally Sensitive Areas
GDE	Groundwater dependent ecosystems
GHG	Greenhouse Gas
GIS	geographic information system
HSE	Health Safety and Environment
ILUA	Indigenous Land Use Agreement
JAMBA	Japan-Australia Migratory Bird Agreement
LOWC	Loss of well control
MNES	Matter of national environmental significance
NGER Act	*National Greenhouse and Energy Reporting Act 2007*

NNTT	National Native Title Tribunal
NT Act	*Native title Act 1993*
OSCP	Oil Spill Contingency Plan
PASS	Potential acid sulphate soils
PDWSA	Public drinking water source areas
PDWSA	public drinking water source areas
PGER Act	*Petroleum and Geothermal Energy Resources Act 1967*
PGER(E)R	Petroleum and Geothermal Energy Resources (Environment) Regulations 2012
PTW	Permit to Work
RIWI Act	*Rights in Water and Irrigation Act 1914*
ROKAMBA	Republic of Korea-Australia Migratory Bird Agreement
SDS	Safety Data Sheet
TNW-1	Trigg Northwest 1
TFB	Total Fire Ban
VSP	Vertical seismic profile
WA	Western Australia
WMP	Well Management Plan
WoNS	Weeds of National Significance

1 Introduction

1.1 Background

Beach Energy Resources (Perth Basin) Pty Limited (Beach) is the part owner of the Beharra Springs Gas Facility (BSGF; the Facility). The Facility comprises of infrastructure contained within Production Licences L11 & L22, Exploration Permit EP320 and Pipeline Licence PL18 and is located within the North Perth Basin, Western Australia (WA) (Figure 2-1).

Within EP320, Beach is proposing to drill the exploration well Trigg Northwest 1 (TNW-1), targeting the Wagina, Kingia and High Cliff sandstones within the North Perth Basin.

1.2 Purpose

The purpose of this Environment Plan (EP) is to provide an outline of the activities associated with TNW-1 along with a description of the environmental management measures to mitigate any potential environmental impacts from that activity. The EP provides a management tool for implementing the activity in a manner consistent with the principles of ecologically sustainable development.

Under the *Petroleum and Geothermal Energy Resources Act 1967*, an EP is required to be prepared, approved and implemented for applicable activities. The objective of an EP is to reduce environmental risks and impacts of petroleum activities, to a level considered as low as reasonably practicable (ALARP).

1.3 Scope

The scope of this EP is limited to the exploration drilling activities associated with the TNW-1 exploration well.

The activities covered by this EP include:

- site preparation operations
- drilling and (if required) completion operations
- well testing operations (if well completed)
- immediate well abandonment after drilling or well suspension
- well site decommissioning and rehabilitation

The following activities are considered outside the scope of this EP:

- care and maintenance of the wellsite during well suspension (this is included in the Beharra Springs Petroleum Production Operations Environment Plan [3677584])
- progressive well site decommissioning for suspended wells (this is included in the Beharra Springs Petroleum Production Operations Environment Plan [3677584])

If the well is suspended and placed in care and maintenance, Beach will revise the Beharra Springs Petroleum Production Operations Environment Plan (3677584) to include TNW-1.

1.4 Instrument Holder and Nominated Operator

The instrument holders for petroleum Exploration Permit EP320 include:

- AWE (Beharra Springs) PTY LTD
- Beach Energy (Perth Basin) PTY LIMITED.

Beach is the nominated operator of EP320. In accordance with the *Petroleum and Geothermal Energy Resources (Environment) Regulations 2012* (PGER(E)R), the contact details for the operator are listed below (Table 1-1).

Table 1-1 Nominated Contact Details

Nominated Operator	Beach Energy Limited
Address	Level 8, 80 Flinders St, Adelaide SA 5000
Phone	(08) 8338 2833
Website	http://www.beachenergy.com.au/
Contact Person	Attention: Head of Environment

1.5 Environmental Management Framework

1.5.1 Corporate Environment Policy

Beach will undertake the activity with a commitment to the minimisation of its impact on the environment to ALARP in conducting its operations. This commitment is fundamental to the Company's Environmental Policy. Beach's Corporate Environmental Policy is included as Appendix A.

1.5.2 Legislative Context

The WA state government, through the *Petroleum and Geothermal Energy Resources Act 1967* (PGER Act) has regulatory jurisdiction for the exploration and development of all onshore petroleum resources. The PGER Act requires that other state and federal environmental laws and regulations are met, including but not limited to the WA *Environmental Protection Act 1986* (EP Act) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

An outline of Commonwealth legislation is included in Table 1-2 and state legislation in Table 1-3 that is considered relevant during the preparation of this EP.

Table 1-2 Commonwealth Legislative Requirements

Legislation	Description	Requirements relevant to the activity	Demonstration of how these are met in this EP
EPBC Act 1999	Provides for the protection and management of nationally and internationally important flora, fauna, ecological communities, and heritage places. Under the EPBC Act, an action requires approval from the Commonwealth Minister for the Environment if the action has, will have, or is likely to have, a significant impact on a matter of national environmental significance (MNES).	The activities covered under this EP do not impact on a matter of national environmental significance (MNES). Given there are no significant impacts expected from this activity on matters protected under the EPBC Act, approval of this activity under the EPBC Act is not required.	N/A
Native Title Act 1993 (NT Act)	The NT Act applies Native Title rights to Crown Land, but not to freehold, road reserves and forestry lands in WA. Native Title rights and interests may exist on Unallocated Crown Land. Native Title describes the rights and interests of Aboriginal and Torres Strait Islander people in land and waters, according to their traditional laws and customs, which are recognised under Australian law.	TNW-1 is wholly within freehold land.	N/A
National Greenhouse and Energy Reporting Act 2007 (NGER Act)	The NGER Act requires organisations that meet or exceed either of the following thresholds to report annually on energy produced, energy consumed and greenhouse gas emissions: • corporate (i.e., company-wide) threshold: 50kt CO2-e emitted or 100 TJ of energy consumed • facility (i.e., project) threshold: 25kt CO2-e emitted or 100TJ of energy consumed.	Beach reports emissions as required by the NGER Act as a direct result of activities undertaken within EP320.	The monitoring and recording of atmospheric emissions associated with this activity is detailed in Section 5.8.6.

Table 1-3: State Legislative requirements

Legislation	Description	Requirements relevant to the activity	Demonstration of how these are met in this EP
PGER Act	PGER Act legislates for the exploration and recovery of petroleum resources.	Beach operates under EP320. Various subsidiary legislation applies to this activity. Legislation that is referenced in this plan includes: • PGER(E)R • Petroleum and Geothermal Energy Resources (Resource Management and Administration) 2015.	See subsidiary legislation below
PGER(E)R	The PGER(E)R allow a risk-based approach to managing the environmental performance of WA petroleum facilities through EPs approved by the DMIRS. The EP regime aims to reduce environmental risks and impacts of petroleum activities, to a level which is considered ALARP.	Development of an EP for the activity. Development of an OSCP for the activity.	This EP. This OSCP.
Petroleum and Geothermal Energy Resources (Resource Management and Administration) 2015	These regulations require the provision of information on petroleum activities to assist in ensuring that the Minister is sufficiently informed about all significant aspects of exploration, discovery, development and production or injection operations in relation to petroleum and geothermal energy resources and management of safety by these operations.	Requires a Well Management Plan (WMP) to be developed.	Section 5.8.6.
Work Health and Safety (Petroleum and Geothermal Resources) Regulations 2022	These regulations require the provision of information on safety management related aspects of the activity including the development and implementation of a safety case by the drilling contractor.	Requires a Project H&S Management Plan and an Emergency Response Plan (ERP) to be developed.	Section 5.8.6
EP Act	The EP Act, and its regulations, legislates for the prevention, control and abatement of pollution and environmental harm, including clearing of native vegetation.	Beach believes that this activity can be managed under petroleum legislation given without the requirement for additional approval under the EP Act as it is not within: • 500 m of ESAs that include (World Heritage Properties, Bush Forever sites, Threatened Ecological Communities, defined wetlands, areas containing rare flora, areas covered by an Environmental Protection Policy	The activity can be managed under the PGER Act as no sensitive environmental receptors have been identified as having the potential to be impacted.

Legislation	Description	Requirements relevant to the activity	Demonstration of how these are met in this EP
		• 500 m of a declared/proposed State Conservation Estate, including National Park, Nature Reserve, Conservation Park, or State Forest and Timber Reserves • a Public Drinking Water Source Area • 2 km of a declared occupied town site. In addition to this, the activity is not: • a hydraulic fracturing exploration and development activity • within the Strategic Assessment for the Perth Peel Region and potentially in conflict with the outcomes of the Strategic Assessment • previously or currently subject to formal assessment by the EPA.	
Environmental Protection Regulations 1987	Regulation 5 of the EP Regulations specifies that any premises listed in Schedule 1 of the Regulations is a prescribed premise. A premise becomes prescribed under Schedule 1, Parts 1 and 2 where the activities on the premises meet the definition provided, and the threshold of production or design capacity for an activity on that premises is met or exceeded.	Approval is required for activities that create (or could result in) certain emissions or discharges. Works Approvals and Licences under Part V of the EP Act will be submitted to the Department of Water and Environmental Regulation (DWER) concurrently with this EP.	N/A to the scope of this EP given the activity is not deemed a prescribed activity or premises under Schedule 1 of the EP Act.
Environmental Protection (Clearing of Native Vegetation) Regulations 2004	These Regulations provide a framework for managing native vegetation clearing under the EP Act.	Native vegetation clearing is exempt from the requirements of a clearing permit as it is not in an ESA and the clearing is for petroleum exploration activities.	N/A as no native vegetation present.
Aboriginal Cultural Heritage Act 2021	The management of Aboriginal heritage in Western Australia is governed by the *Aboriginal Cultural Heritage Act 2021* (ACH Act). The Act recognises there is community interest in preserving and protecting places and objects of Aboriginal heritage, as part of State heritage.	Requires protection of Aboriginal Heritage objects and places where they are present. Beach is required to complete due diligence assessment and seek authorisation if the activity is deemed a tier 2 or tier 3 activity that has the potential to harm Aboriginal heritage proponents.	Beach is required to ensure that any ground disturbance is undertaken in accordance with the ACH Act.

Legislation	Description	Requirements relevant to the activity	Demonstration of how these are met in this EP
Bush Fires Act 1954	The Shire of Three Springs, through the *Bush Fires Act 1954*, provides advice on bushfire prevention, which includes requirements for firebreaks and issue of burning permits during seasonal periods when fire restrictions apply.	Hot works are a prescribed activity under the bushfire regulations, thus may occur as long as they are undertaken in accordance with the requirements of the Bush Fires Regulations.	Section 5.8.2 details the management measures (including the requirements of the bushfire regulations) associated with fire.
Biosecurity Conservation Act 2016 (BC Act)	This Act provides for the conservation and protection of biodiversity and biodiversity components in Western Australia.	Species protected under the BC Act are provided in Section 3.	Section 3.
Biosecurity and Agriculture Management Act 2007	This Act provides for: • the control of certain organisms • the use of agricultural and veterinary chemicals • the identification and attainment of standards of quality and safety for agricultural products, animal feeds, fertilisers and other substances and things • the establishment of a Declared Pest Account, a Modified Penalties Revenue Account and accounts for industry funding schemes, and related matters.	Identification and consideration have been given to declared pest species within the area of operation associated with the activities described in this EP. In addition to this, management measures considered in relation to weed management.	Section 3.2.3.2 of this EP describes pests declared under the Act, and Section 5.1 describes management measures for weed species.
Rights in Water and Irrigation Act 1914	The *Rights in Water and Irrigation Act 1914* provides for the regulation, management, use and protection of water resources. This Act provides for a licensing system for taking water; and a permitting system for activities that may damage, obstruct or interfere with water flow or the beds and banks of watercourses and wetlands in proclaimed rivers, surface water management areas and irrigation districts.	Beach are required to seek a water extraction licence to provide the water source for the drilling activity. This application has been submitted.	Section 5.6 details the management measures for groundwater extraction.
Health (Miscellaneous Provisions) Act 2011 Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974	Under the *Health (Miscellaneous Provisions) Act 2011*, the Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974 provide for the approval of construction or installation of a sewage apparatus. Regulations 4 and 4A specify the conditions of approval by a local government and by the Chief Health Officer for the Department of Health.	Beach plan to install mobile aerobic treatment units (ATU) within the main camp and well site camps for the expected drilling activities in accordance with applications to Shire of Three Springs under the regulations, prior to the installation of the camps on site to construct or install an apparatus for the treatment of sewage.	Section 2.10.2 details the treatment and disposal systems for the expected wastewater volumes.

1.5.3 International Conventions and Agreements

In the development of this EP, Beach has determined that the following international conventions and agreements are relevant for this activity.

- Japan-Australia Migratory Bird Agreement (JAMBA)
- China-Australia Migratory Bird Agreement (CAMBA)
- Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA)
- Convention on the Conservation of Migratory Species of Wild Animals (CMS).

Specifically, these conventions and agreements are considered relevant as they apply to several species identified as having the potential to be occur within or adjacent to the well locations (Section 3.2.4). Specifically, relevant requirements associated with these agreements are associated with minimising impacts and risks to species and their habitat protected under these agreements. Specifically, impacts to fauna and habitat is considered in Section 5.1 and Section 5.8.1 of this Plan with the potential impacts demonstrated to be ALARP and acceptable under the PGER(E)R.

1.5.4 Guidelines and Codes of Practice

To assist in preparing this EP Beach referenced DMIRS - Guideline for the Development of Petroleum and Geothermal Environmental Plans in Western Australia (DMIRS 2022). In addition to this, the following guidelines and codes of practice have been referenced:

- Commonwealth of Australia. 2015. Arrive Clean, Leave Clean Guidance
- Department of Mines and Petroleum. 2016. Guideline for Groundwater Monitoring in the Onshore Petroleum and Geothermal Industry
- Department of Water. 2016. Measuring the taking of water guidelines
- Department of Mines and Petroleum. 2012. Fauna Egress Matting and Ramps
- Department of Water. 2013. Water Quality Protection Note 26 - Liners for containing pollutants
- Department of Water and Environmental Regulation. 2018. Landfill Waste Classification and Waste Definitions 1996 (as amended 2018)
- Australian Standards. 2004. AS 1940:2004 The storage and handling of flammable and combustible liquids
- Australian Standard, 2007. AS 3833:2007 The storage and handling of mixed classes of dangerous goods, in packages and intermediate bulk containers
- Department of Environment Regulation. 2014. Assessment and management of contaminated sites. Contaminated sites guidelines.

2 Description of Activity

2.1 Location of Project

The TNW-1 well is located within EP320. The well is within the locality of Arrowsmith, in the Shire of Three Springs, located ~20 km south of Dongara and ~270 km north of Perth.

The location of the proposed well is listed in Table 2-1 and displayed in Figure 2-1.

Table 2-1: Location of Proposed Well

Well Name		**Trigg Northwest 1**
Surface Location	**Latitude**	29°30'39.44" S
	Longitude	115°16'41.63" E
Rig name and contractor		Ventia Rig 106
AMSL – GL (m)		183.0
Planned GL – RT (m)		191.73
Planned depth (m MDBRT)		8.73
Planned depth (m TVDRT)		5,069 (base case) 5,369 (deep case)
Bottom hole target coordinates (GDA 94 zone 50)		Wagina Formation 3830 mTVDSS 333858.7 E, 6734520.3 N Kingia Formation 4667 mTVDSS 333909.6 E, 6734508.8 N High Cliff Formation 4796 m TVDSS 333917.5 E, 6734507 N

2.2 Development Envelope

The Development Envelope for this EP has been defined as the area in which potential construction and supporting activities footprint will be undertaken. For the purpose of this EP, the Development Envelope is defined by the area marked in Figure 2-2 along with the proposed disturbance footprint. The disturbance footprint within the Development Envelope is 30.4 ha.

2.3 Timeframe and Schedule

Activities covered under this EP are planned to commence in Q2 2023CY. A summary of the proposed schedule is provided as Table 2-2. This schedule is based upon the most up to date information at the time of writing this EP, however it is subject to change due to rig availability and scheduling.

The majority of activities covered in this EP (site preparation, mobilisation, demobilisation, decommissioning and rehabilitation) are expected to be undertaken during daylight hours. Drilling, completion and well testing activities will include 24-hour operations.

Table 2-2: Exploration Well Schedule

Activities	Approximate duration	Indicative timing TNW 1
Site preparation operations	35 - 40 days per well site	Jan 2023
Drilling operations	45 - 55 days per well site	Apr 2023
Completion operations	5 - 10 days	Directly following drilling and operations, in a success case scenario
Well suspension	2 days per well site	Directly following drilling and evaluation operations, in a success case scenario.
Well testing	7 - 15 days	Approximately 2 weeks after end of Completion Operations in a success case scenario
Well abandonment	3 days per well site	Directly following drilling and evaluation operations, in a failure case scenario.
Well site decommissioning and reinstatement	Although the activities are provided for and described in this EP (to aid in commitment traceability), Beach plan to conduct well decommissioning and rehabilitation under this EP (in accordance with Table 2-6) whereas for suspended wells, close this EP out and conduct decommissioning under the Beharra Springs Petroleum Productions Operations EP (CDN/ID 3677584).	

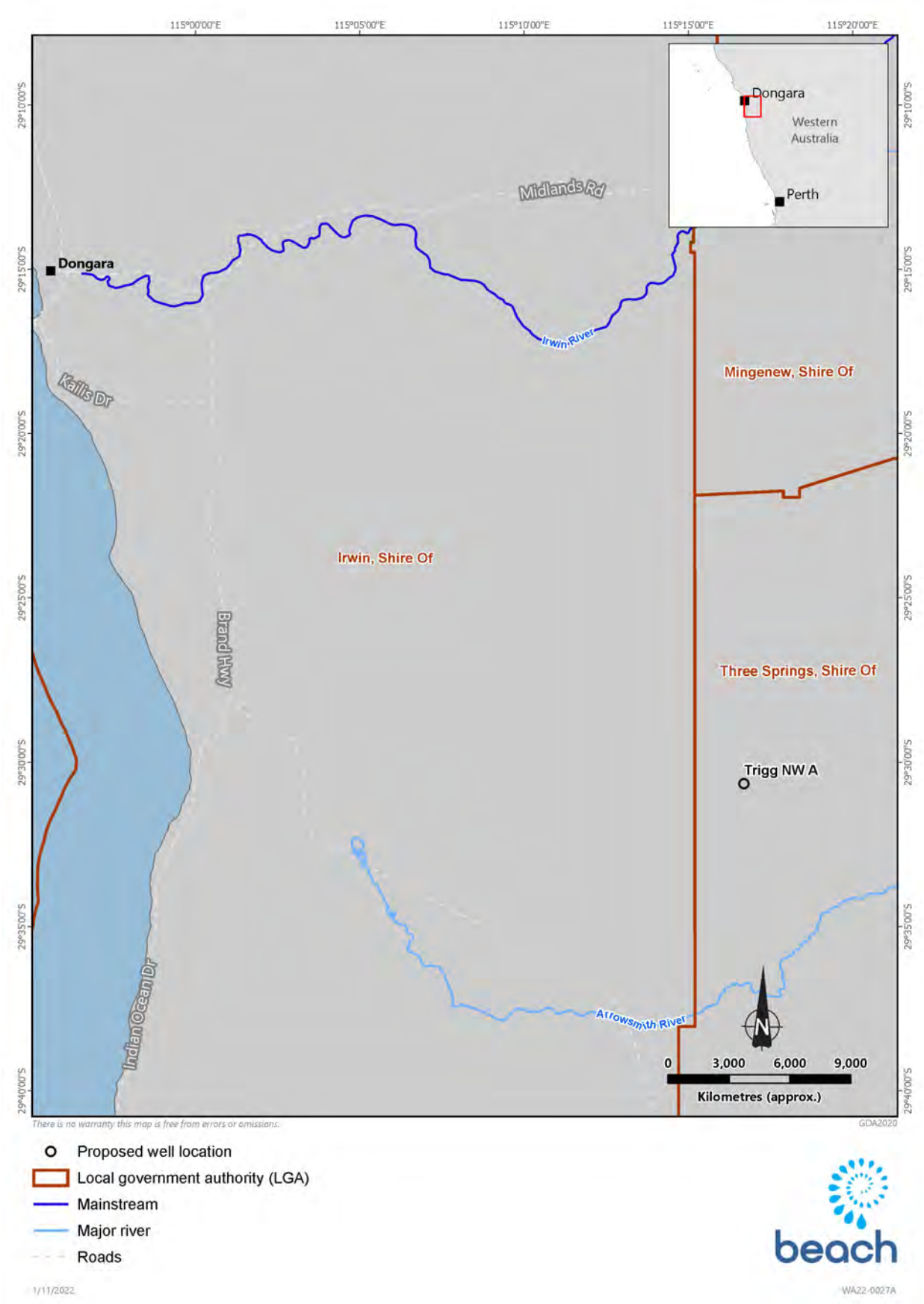


Figure 2-1 Regional Location



Figure 2-2 Development Envelope

2.4 Site Preparation Operations

2.4.1 Preparation of Access Tracks and Well Site

The site is located on agricultural grazing land containing tagasaste over pasture and weeds. The well site and camp are located adjacent to an existing road providing access to the sites.

The disturbance footprint required for the activity includes:

Table 2-3: Disturbance Footprint

Area	Development Envelope	Footprint	Clearing of Native Vegetation
Well Site		~3.1 ha	0 ha
Access Track		~0.1 ha	0 ha
Vertical Stack Flare / Fire Break Area		<2.0 ha*	0 ha
Camp		0.5 ha	0 ha
TOTAL	30.4 ha	5.7 ha	0 ha

- * Vertical Flare Stack / fire break areas: < 2.0 ha (based on well location, industry practice and Department of Fire and Emergency Services (DFES) recommendations.

2.4.2 Well Site Construction

Topsoil stripped from the well site will be individually stockpiled immediately adjacent to the well site to a maximum height of 2 m. Stripped subsoils are typically utilised as fill to level the well site however in the event surplus subsoils are generated during site construction then the excess would also be individually stockpiled immediately adjacent to the well site in low profile mounds with a maximum height of 2 m. Any vegetation cleared will be used to lightly cover the stockpiles in brush. Civil works are then undertaken to ensure the well site has a firm subgrade and is flat with a slight taper to allow for adequate site drainage. Once the correct grade is established, the well sites are sheeted with locally sourced material (which may comprise gravel or limestone marl). Equipment used during civil works may include:

- grader
- dozer
- four-wheel loader
- tip truck
- water cart
- excavator
- compactor
- light vehicles.

2.4.2.1 Sheeting Materials

Gravel or limestone marl will be utilised as a sheeting material for the well pad and access track. The material is to be sourced from an existing borrow pit. Topsoil is scraped off the surface of the borrow pit prior to material extraction to exclude vegetative material and weed seeds.

2.4.2.2 Abstraction Well, Monitoring Bore and Conductor Installation

Consistent with advice provided by DMIRS previously, the installation of a monitoring bore is not considered to be a petroleum activity. Consequently, it has been noted here but is not considered further.

A water well drilling rig will be utilised to install a groundwater extraction bore at the well location. While on site, the water well drilling rig will also be used to install the conductor casing string. The intended depth of the conductor is to ~60 m below ground level and is designed to provide isolation of the superficial groundwater aquifers.

2.4.3 Construction of Lined Mud Sump, Turkey's Nest, VSP Pit and Well Cellar

A lined mud sump, turkey's nest, VSP pit and well cellar will be constructed at the well site.

2.4.3.1 Residual Drilling Fluid and Cuttings Storage Pond (Mud Sump)

The mud sump has been designed with a total design holding capacity of ~4,388 m^3 (27,600 bbls) to hold all the drill cuttings and mud/water/downhole return cement to be generated during drilling operations, as well as providing sufficient capacity to hold water from rainfall events with an allowance for freeboard. The drilling sump is anticipated to be constructed as two separate compartments: a main sump and a recycle sump.

2.4.3.2 Water Holding Pond (Turkey's Nest)

The turkey nest has been designed with a total design holding capacity of ~604 m^3 (3,800 bbls) and is utilized to hold raw water for the drilling operation.

2.4.3.3 VSP Pit

The VSP pit is a small cylindrical pit to be utilised during VSP operations. The pit is to be excavated near the boundary of the lease (off the sheeted area, prior to the boundary of the lease). The approximate dimensions of the pit is 3 m diameter (round) by 4 m deep cylindrical hole. The excavated hole is to be lined with a cylindrical steel sided liner and located within ~70 – 80 m (straight line) from the well centre. The base of the pit is sealed with concrete or a bentonite layer to enable the pit to be filled with water for VSP operations. Once this pit is no longer required, the contents of the pit is emptied into the mud sump and the VSP pit backfilled.

2.4.3.4 Well Cellar

A well cellar is a cavity below ground level where the wellhead resides. The cellar itself is a steel plate lined pit installed around the well once the conductor has been installed by the water well drilling contractor. The objective of the cellar is to competently hold back the surrounding soils around the wellhead area so personnel can safely work inside this area during drilling operations. The conceptual cellar dimensions are as follows with the final dimensions to be determined once the drilling rig and wellhead systems are selected:

- 2.4 m length x 2.4 m width x 1.5 m usable depth.

2.4.4 Drilling Flare

The drilling emergency flare will be a dedicated vertical tank installed for the drilling activity. The emergency flare tank would only be utilised during emergency well control events. With the well targeting a gas play, in the unlikely event of a well control incident requiring gas to be flared off at surface, the environmental risk of liquid hydrocarbon carryover is negligible.

2.4.5 Baseline Soil Sampling

Soil samples will be collected during site preparation from selected areas with the aim to characterise:

- imported material
- different depths of the soil profile, ranging from topsoil through to the maximum depth of excavation
- potential impact from historical land use

Sample collection locations will include but not be limited to:

- base of the mud sump
- refuelling areas
- chemical and hydrocarbon storage areas
- vertical flare stack location

The samples will be analysed by a NATA accredited laboratory for a suite indicative of potential impact from contaminants proposed to be utilised during site preparation and operations (Table 2-4). Copies of the analysis will be provided to relevant stakeholders and appropriate regulatory bodies as per Section 6.10.

Once the activities have ceased and during rehabilitation of the site, the site will be resampled to characterise impacts to soil quality, and threshold levels will be selected in accordance with the intended land use as per Drill Sump Remediation Procedure (CDN/ID 18987109).

Table 2-4: Soil Sampling Parameters

Characteristic	
Hydrocarbons	BTEX
	TRH
Soil Characteristics	Soil Moisture
	pH
	Electrical Conductivity (us/c,)
Metals, Metalloids and Non-Metals	Aluminium (Al), Arsenic (As), Barium (Ba), Boron (B), Cadmium (Cd), Hexavalent Chromium (CrVI), Cobalt (Co), Copper (Cu), Lead (Pb), Manganese (Mn), Mercury (Hg), Molybdenum (Mo), Nickel (Ni), Selenium (Se), Silver (Ag), Vanadium (V), Zinc (Zn)
	Cyanide
	Fluoride
Pesticides	Organochlorine Pesticides

2.4.6 Groundwater Monitoring Bore

A groundwater monitoring bore will be installed in the superficial aquifer screened across the water table. The proposed monitoring bores at each of the well sites will be located in the hydrogeological direction of flow from the drilling sump, in order to facilitate pre- and post-groundwater monitoring. Baseline water samples will be taken prior to drilling (two occasions) and analysed for the parameters in Table 2-5.

Table 2-5: Groundwater Sampling Characteristics

Characteristic	
Physical parameters	pH value, Dissolved Oxygen, Electrical Conductivity, Total Dissolved Solids, Total Hardness, Total Alkalinity (field measured)
TRH	benzene, toluene, ethylbenzene, speciated xylenes and naphthalene (BTEXN)
	C6-C40 total recoverable hydrocarbons (TRH)
	ethane and methane
Dissolved metals	aluminium, arsenic, barium, beryllium, boron, cadmium, chromium, hexavalent chromium, cobalt, copper, iron, lead, lithium, manganese, mercury, molybdenum, nickel, selenium, titanium, uranium, vanadium and zinc.
Nutrients	total nitrogen, total kjeldahl nitrogen (TKN), ammonia, nitrate, nitrite, total phosphorus and filterable reactive phosphorus
Major Cations	calcium, magnesium, potassium and sodium
Major Anions	chloride, sulphate, carbonate and bicarbonate

2.5 Vehicle Movement

The drilling rig, well testing equipment, ancillary services, personnel and supplies will be mobilised by road to the project area. Access is via the mount Adams Road off the Brand Highway. Vehicle and equipment movement will be restricted to the designated access tracks.

There will be approximately 70-80 trailer loads moved during mobilisation and demobilisation.

A crew change bus will be used to move drilling personnel between Perth and the project location for rotational crew changes.

Utilisation of shared vehicles and a crew change bus will minimise vehicle movement to and from the site as much as practicable, minimising local traffic and vehicle-related safety and environment risks.

2.6 Drilling Operations

Once the well site has been constructed, all activities associated with drilling (e.g., refuelling, batching of drilling muds and cement) will occur only on the sheeted well site.

The drilling project phase involves the following key stages:

- drilling the well with a rotary drilling rig using recirculated water-based mud
- conducting wireline logging evaluation of the formations drilled
- cementing well steel casing strings in place
- completing the well ready for well testing in a success case scenario
- immediately abandoning or suspending the well.

A conceptual layout of the well site for drilling operations is shown in Figure 2-3.

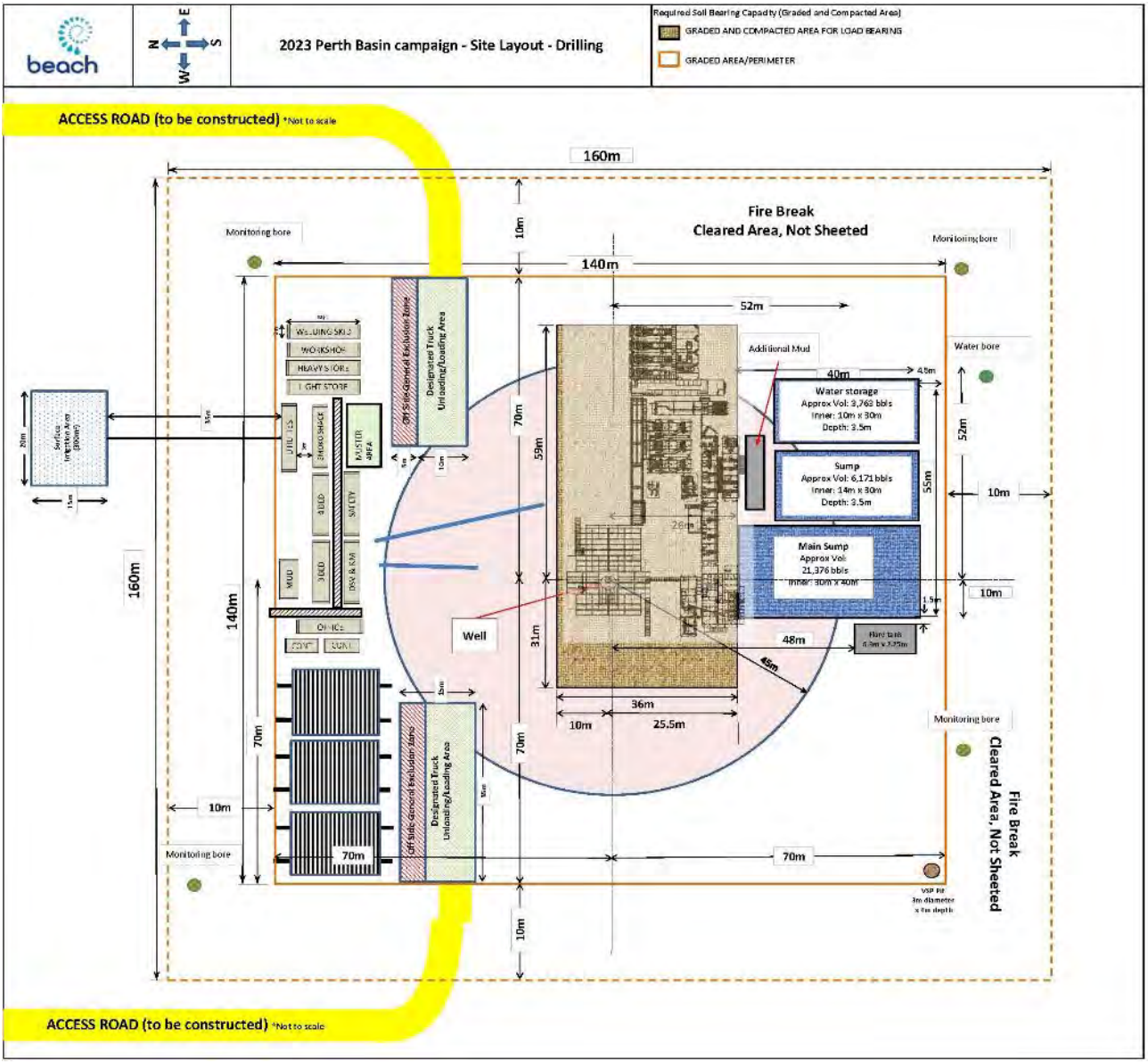


Figure 2-3: Conceptual Well Site Layout – Drilling

2.6.1 Well Construction

Each hole section will be drilled utilizing a water-based mud system and conventional overbalanced drilling techniques. The mud system utilized for this well comprises a low-toxicity water based salt / KCl / PHPA / Polymer systems (depending on hole section). The cuttings produced from the drilling operation will be allowed to move from the solids control system, down the cuttings chute into the mud sump.

As each well section is drilled to the section total depth, a casing string will be run and cemented in place (except in the case that a 6" reservoir section is drilled or if the well is permanently suspended – in these cases no casing will be run in the deepest section of the well). Both the casing and cement are designed to withstand the environmental conditions they are exposed to during the life of the well. Figure 2-4 illustrates a typical casing string cross section. These steel pipes are commonly referred to as Conductor Casing, Surface Casing and Production Casing.

Drilling operations are conducted 24 hours per day. For the purpose of this EP, side-tracks that are undertaken within the constructed well site have been considered within the scope of this EP, and evaluated accordingly. The well section below the side track depth in the well is typically plugged with cement in accordance with an accepted Management of Change to the DMIRS Well Management Plan. To side-track the well, a hole (window) is made in the previous casing string, or the open-hole cement plug is used to kick off the directional drilling assembly. The well is then directionally drilled at the desired angle from the main well bore and continued until the new bottom hole target is reached.

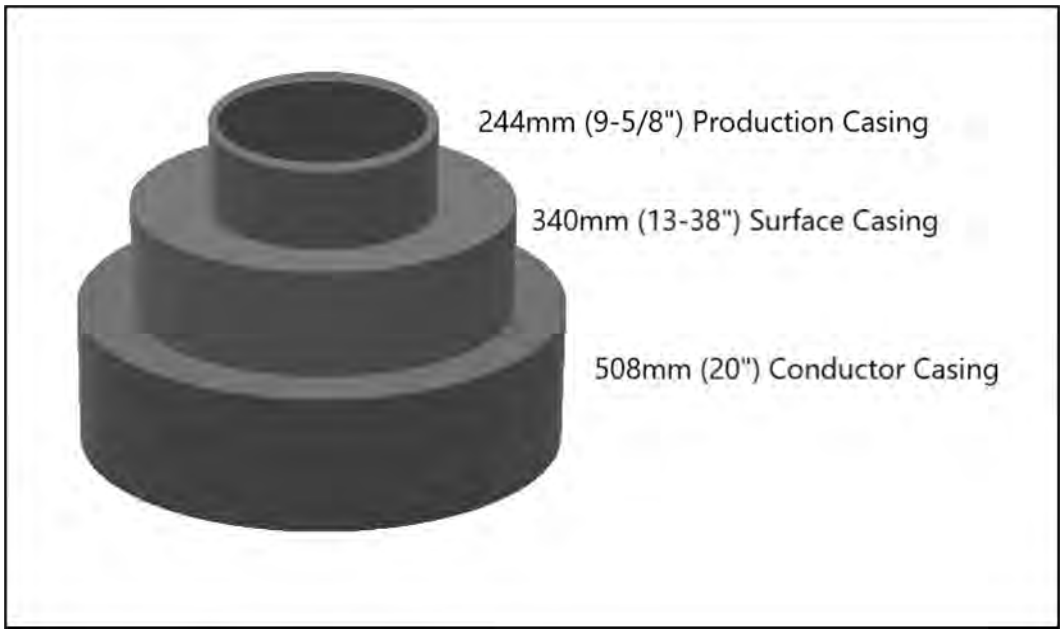


Figure 2-4: Conceptual Casing Schematic (surface)

2.6.2 Wireline Operations

A dry or success case electric wireline logging program is to be undertaken for all wells. Wireline activities are typically run from the drill rig whilst onsite, but it is possible that some logs are run following departure of the rig, for example VSPs. These activities typically involve conveyance of tools into the well via elective wireline to obtain petrophysical measurements of the subsurface formations, retrieval of physical samples such as cores and formation fluids, measurement of formation pressures and acoustic readings from check shots or VSP logs.

2.6.3 Completion Operations

The well will be completed in a success case scenario. These operations will be conducted with the drilling rig remaining in place. The casing strings in the well will be cleaned out and the casing at the reservoir depth will be perforated. A

completion string will be run that will include a production packer above the perforations to act as the primary barrier in combination with the production tubing string. The rig blowout preventer will be replaced with a production xmas tree ready for the well to be tested and later produced as required.

2.7 Well Testing

The well testing equipment proposed for this operation will be equipment utilised as standard for well test operations with a minimum pressure rating upstream of the choke manifold of 10,000 psi (68.95 MPa). The pressure capacity of the proposed well test equipment will be rated to handle any pressure potentially encountered throughout this phase of operations on the wells.

All well testing equipment will be pressure tested to greater than the maximum anticipated operating pressure prior to commencement of well testing operations and when pressure containing lines or equipment are broken open for any reason.

An emergency well shut down system (ESD) will be installed with piloted and remote shut-downs allowing for the well to be shut in if a pilot is tripped or manually initiated from a remote at a safe distance in the event of an emergency. Typically, two personnel will be monitoring in the immediate vicinity throughout the period the well is flowing with the capability of immediately shutting in the well if required. A data acquisition specialist will be onsite, and their role is to remotely monitor the well and surface well test package via the data acquisition system. All onsite personnel will have two-way radio communication and carry personal gas detectors.

A flare stack with a liquid burner injection ring will be installed to flare the gas and a contingent option for fluid disposal will be provided. The well testing equipment and flare system will be routinely inspected and maintained to ensure there is no opportunity for fluid to escape these facilities into the receiving environment. Mobile lighting towers will be on site to illuminate work areas during night hours, the light will be directed to work areas to minimise off site light pollution and disturbance.

The well will be opened to flow from the well head through a choke manifold with the well cushion fluid diverted to a tank. When gas is observed at surface the flow will be diverted through the 3 phase test separator where the water, condensate (not expected) and gas can be separated into their respective phases and measured accordingly. The gas will be diverted to flare and liquids to gauge/storage tanks.

2.7.1.1 Liquids handling

Liquids will be treated as follows:

- the liquid cushion will be stored in a hydrocarbon approved storage tank where it will be stored for reuse as cushion fluid in a future well. If there are no further tests planned after this programme the cushion will subsequently be transported away for sale or disposal at an approved facility. The storage tank will either be self-bunded (double skinned) or bunded
- condensate is not expected however in the event of <2 m^3/day of condensate it will be blended with the recovered diesel cushion
- condensate volumes >2m^3/day will be stored in a suitable double skinned or bunded storage tank and subsequently transported away for sale or disposal
- formation water / mud filtrate will be:
    - transferred to the lined sump for evaporation, or
    - transferred to approved disposal site if sump storage capacity is predicted to be exceeded, or

- pumped to the flare stack and atomised disposal in the flare.

In the unlikely event the fluid storage capacity on site is at risk of being exceeded, then Beach will review and risk assess alternative options and seek DMIRS approval prior to implementing a management solution.

The potential total gas flared during a well test ranges around 1.1 MMm^3/d per zone (2 Zones 2.2 MMm^3/d) and such that over a 7-day test period the maximum amount of gas that would potentially be flared is around $8MMm^3$ (2 Zones 16 MMm^3/d). The volume of fluids produced, and gas flared during this flow back and well test evaluation period will be recorded and reported as required under the National Pollution Inventory (NPI) and *National Greenhouse Energy Reporting Act 2007* (NGER Act) reporting regime and the PGER(E)R. No pipeline is available at this location therefore flaring well test gas is the only option available.

2.7.1.2 Gas Handling – Flaring

A 24" OD x 24 m tall vertical flare stack from a global leader in flare systems will be installed to flare the gas. It will have a liquid burner injection ring with multiple atomising nozzles for contingent injection of liquids to burn off with the flare. The stack is mounted onto a steel skid that eliminates the need for a concrete foundation. The skid only needs to be set on firm, flat soil and then connected to guy wires, screw anchors and tackle or alternatively be secured with concrete blocks placed on the skid. The flare stack will be installed within the lease boundary. Further and ongoing heat radiation modelling will be conducted to optimise the flare stack location.

The flare tip is designed to provide high stability combustion and has an automatic pilot ignition and monitoring system. The monitoring and ignition system will continuously monitor the flare and will automatically attempt to relight the flare if it were in the unlikely event to go out. Testing has shown that a stable flame is present in wind speeds greater than 240 kph and in addition to 250 mm of rain per hour. The flare nozzles will provide a VOC (volatile organic compounds) destruction efficiency of at least 99.8wt%.

The flare stack height of 24 m is the base design case and the height may be optimised subject to local conditions and the ongoing heat modelling. The flare stack has a small footprint and can be erected and dismantled in a few hours. The proposed flare stack is regularly used by Western Australia operators. It is a proven system.

2.8 Well Decommissioning

If the evaluation confirms the well is not successful, the well will be plugged back with cement as per the regulatory approved well decommissioning program. A preliminary well decommissioning plan will be included in the Well Management Plan, with the final plan approved by DMIRS Resource and Environmental Compliance Division under the *Petroleum and Geothermal Energy Resources (Resource Management and Administration) Regulations 2015* based on the actual results of the drilled well prior to commencement of the well decommissioning process. Specifically, the well decommissioning objectives and activities that will be undertaken are as follows (Figure 2-5):

- install the barrier cement plug(s) above the top of any zones containing moveable hydrocarbons to isolate the well above from the hydrocarbon zone by restoring the cap rock
- install intermediate cement plug(s) to achieve any additional isolation objectives as required
- install a surface cement plug to permanently isolate the well from the surface environment.

Cement plug height will be a minimum of 30 m for a single barrier and 60 m for common / combination barrier (excluding any length across the zone with flow potential). Once the well is plugged with cement, the wellhead and cellar are left in place, and the drilling package demobilized from site. Removal of the wellhead and cellar will occur following departure of the rig to coincide with other civil works activity being undertaken at the site.

2.9 Well Suspension

Following well testing activities the well will be suspended (Figure 2-6) (set tubing plugs as required for long term suspension) for future reservoir evaluation and other activities, including connection. A well test suspension diagram post-completion operations has been included as Figure 2-7. The well site will enter into a care and maintenance phase until the future works program is developed. Care and Maintenance activities are not considered within the scope of this EP (see Beharra Springs Petroleum Production Operations Environment Plan [3677584]).

As all site infrastructure may be retained for potential use for subsequent well operations, a care and maintenance regime will ensure the integrity of existing equipment is maintained and landowner commitments are met.

During this phase the well site will be monitored and inspected at least six monthly to ensure environmental aspects are managed to meet Beach and stakeholder expectations. The site inspection will typically involve a visual inspection of all infrastructure on site including:

- the cellar grate is in place and fencing secure
- fauna egress is in place
- excavation fencing is secure
- the mud sump liner integrity

Should any issues of non-compliance be identified during the site inspection the required actions to remedy such non-compliance issues will be documented and tracked until closure.

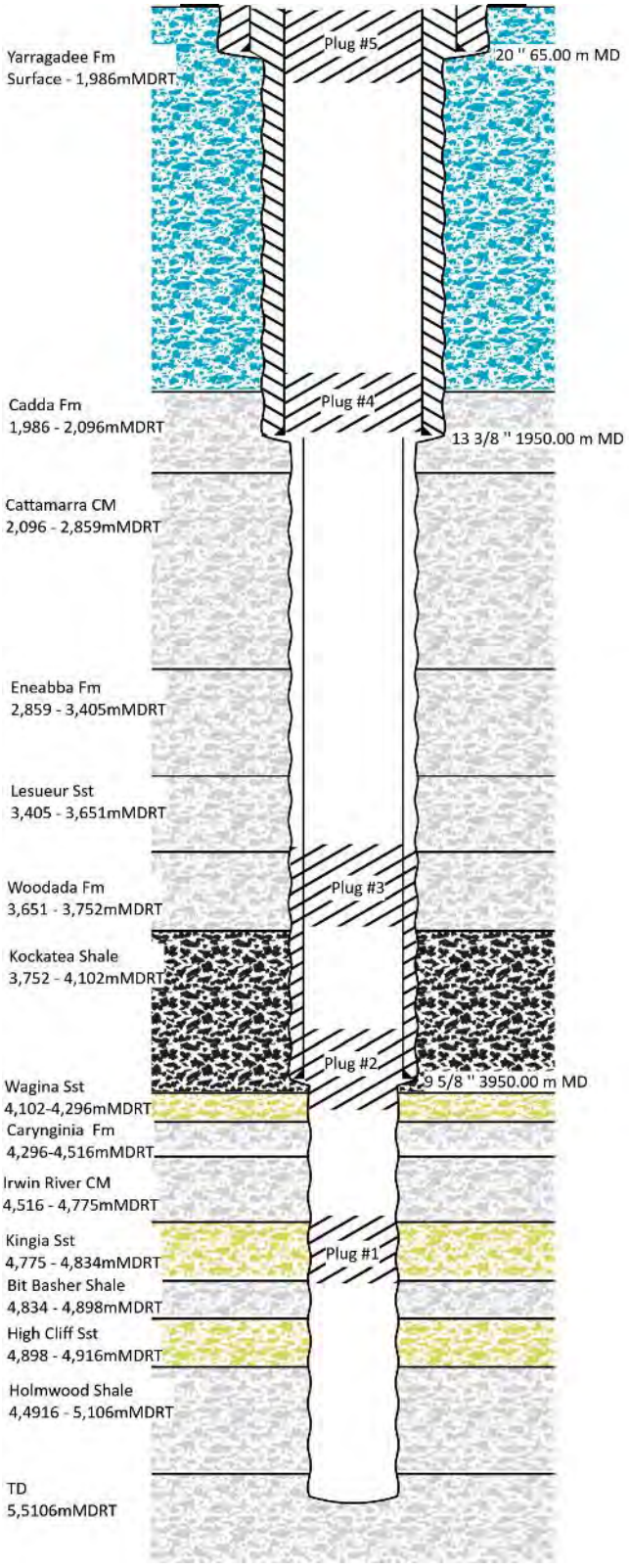


Figure 2-5: Decommissioned Well Diagram

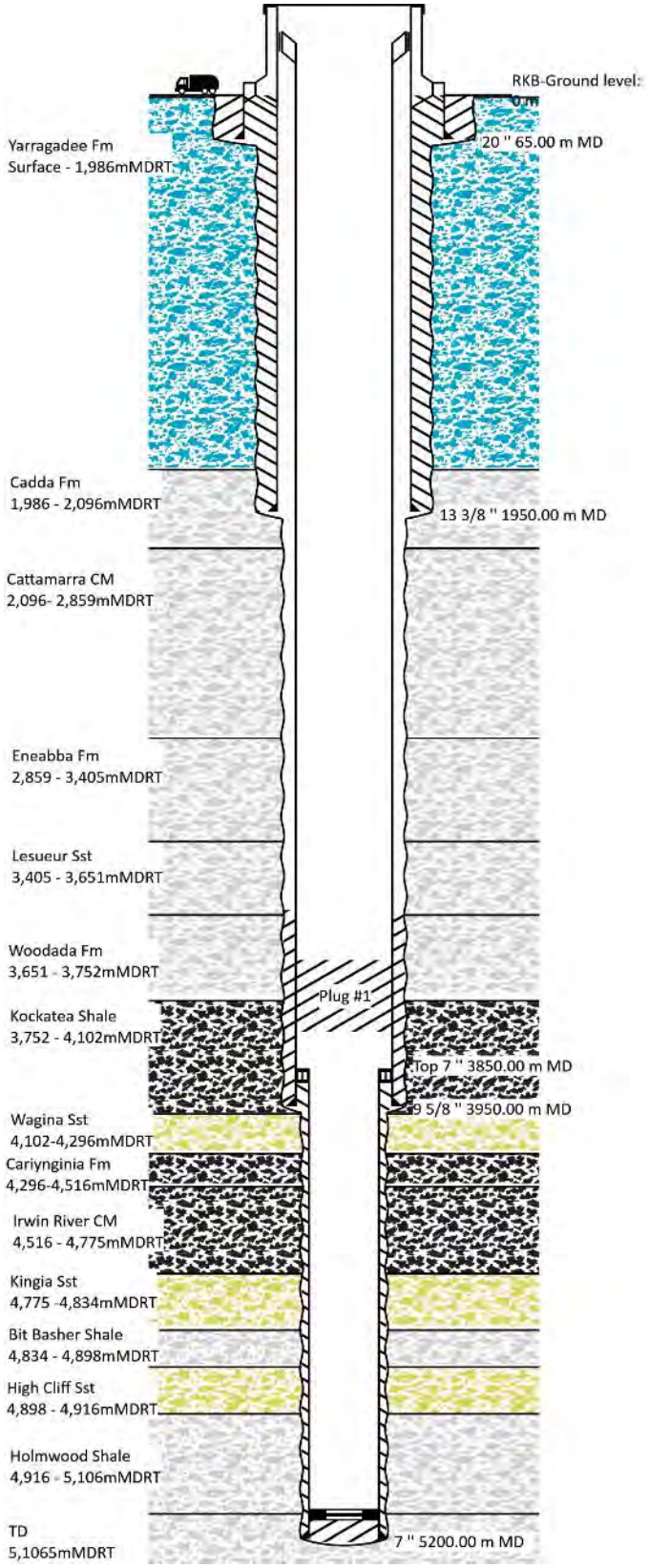


Figure 2-6: Well Suspension Diagram

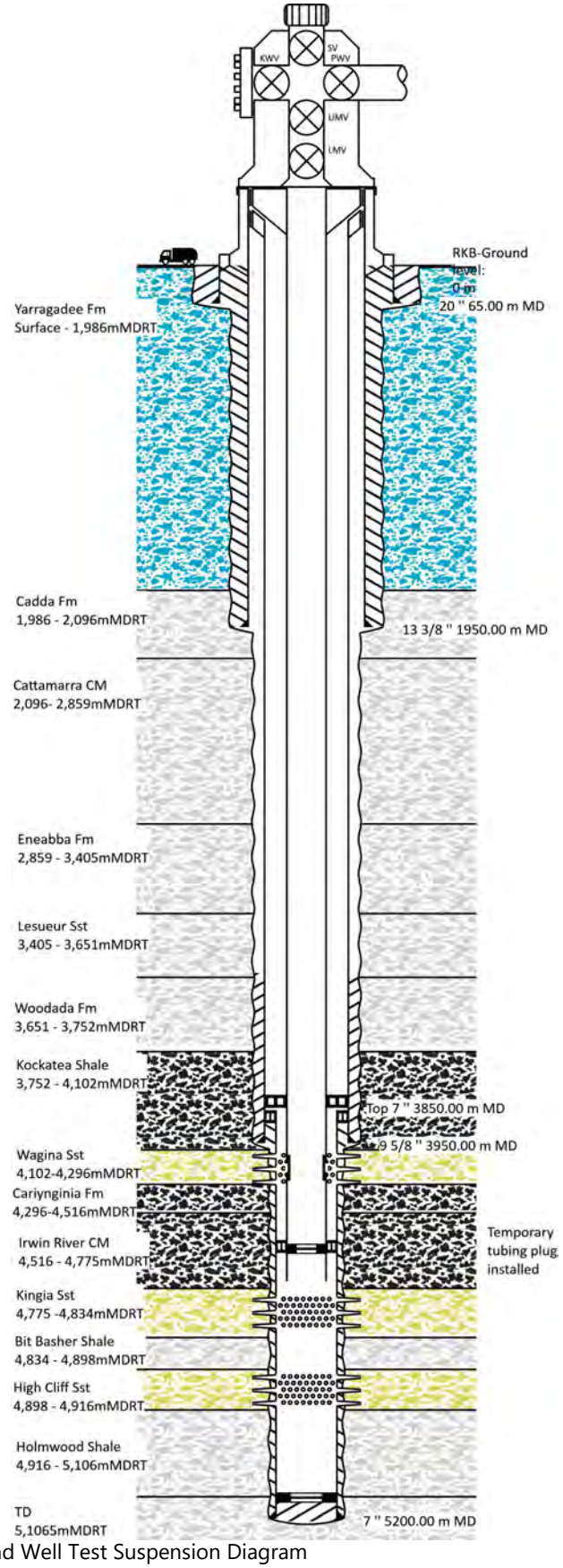


Figure 2-7 Post-Completion and Well Test Suspension Diagram

2.10 Well Site Decommissioning and Reinstatement

Should the installed site infrastructure no longer be required, then where appropriate, specific areas and infrastructure may be reinstated. The aim of reinstatement activities is to return the site back to a condition that can sustain the post activity land use (being agricultural uses).

The reinstatement activities that will be undertaken are:

- sampling and removal of remnant solid waste from sumps
- sampling and remediating contaminated soils
- removal of redundant infrastructure
- reinstating contours
- ripping of over compacted soils
- returning topsoil
- maintaining soil and erosion control measures (where required)
- weed management (as required)
- erecting fencing, signage and security (as necessary).

The well site will be managed under a care and maintenance regime provided in the Beharra Springs Petroleum Production Operations EP [CDN/ID 3677584] until the reinstated well site is handed over to the landowner. An overview of the site reinstatement activities and timing is provided as Table 2-6.

Table 2-6: Proposed Site Reinstatement Activities

Site Infrastructure	Timing for Reinstatement
VSP pit	Within 3 months of completing Drilling Operations
Mud sump	Muds removed within 18 months of completing Drilling Operations, sump infrastructure removed within 4 years unless the infrastructure is incorporated into future field operational or development plans
Turkey nest	Within 2 years of completing Drilling Operations unless the infrastructure is incorporated into future field operational or development plans
Well sites and access tracks	Within 12 months of decommissioning of well unless the infrastructure is incorporated into future field operational or development plans

The reinstatement objectives, completion criteria and measurement tool are detailed in Table 2-7. Reasonably foreseeable issues, thresholds and required actions are detailed in Table 2-8. Monitoring will continue 6-monthly.

Table 2-7: Reinstatement objectives, completion criteria and measurement tools

Reinstatement Objective	Completion Criteria	Measurement Tools
No construction related equipment or waste left on site	There should be no permanent markers (other than the well abandonment plaque), steel pegs or litter left on the rehabilitated area at any time following rehabilitation	Six-monthly disturbance footprint inspection record confirms there are no permanent markers or litter left on site
To ensure that no contaminated material remains in the project area	Validation soil sampling is undertaken in accordance with Section 2.7.6 of this EP to confirm there is no contamination at: • Refuelling areas • Chemical and hydrocarbon storage areas • Vertical flare stack • Locations of spills during activity And that sampling continues until all contaminated material has been removed.	Validation sample results confirm that all contaminated soil has been removed from site
To reinstate the land topography to integrate with the surrounding landscape	Natural contours will be re-instated to pre-disturbance conditions upon rehabilitation	Post rehabilitation report documents natural contours have been re-instated to pre-disturbance conditions in the disturbance footprint
	All areas to be rehabilitated will be ripped to a depth of approximately 50 cm to relieve compaction. The existing topsoil stockpiles will then be spread evenly over the area to be rehabilitated.	Post rehabilitation report contains photos of the prepared surface.
	There will be no active erosion rills greater than 10 m x 0.15 m at three years following rehabilitation Erosion patterns should be decreasing over time	Six-monthly disturbance footprint inspection records Stabilising agent is applied to further prevent erosion (if required)
To ensure post remediation weed load is no greater than pre-existing or comparable weed load consistent with adjacent land holding	No introduction or spread of declared weeds or Weeds of National Significance (WoNS).	Six-monthly disturbance footprint inspection records documents declared weed and WoNS weed loads

Table 2-8: Reasonably foreseeable issues, thresholds and required actions

Potential Impacts	Monitoring	Criteria / Threshold	Actions
Introduction of WoNS	Observations (six monthly) within the disturbance footprint to identify the presence of WoNS species	No evidence of new declared agricultural weeds and environmental weeds species, including both declared agricultural weeds and WoNS.	Where a new declared agricultural weeds or environmental weeds species is identified, weed management measures will be discussed with the landowner, Department of Primary Industries and Regional Development (DPIRD) and an appropriate program implemented.
Inadequate site reinstatement	Visual Inspection of disturbance footprint (post site reinstatement)	Landowner dissatisfaction	Where the land is insufficiently reinstated (in regard to landform contouring, the respread of stockpiled spoil and ripping over of compacted soils followed by respreading of topsoil) to enable pre land-use activities, to the landowners satisfaction.
Environmental pollution (litter / waste / disused equipment)	Visual Inspection of disturbance footprint	Litter / waste / disused equipment is present	Litter / waste / disused equipment to be removed from site.
Contamination of soil / groundwater	Desktop review of spill history within the Development Envelope (pre-site reinstatement) and Visual Inspection (pre-site reinstatement) of disturbance footprint and Pre- and post-activity groundwater monitoring (Section 5.8.4).	Staining is identified indicating location of historic spill and Groundwater monitoring results (Section 5.8.4).	Removal of contaminated soil / contaminated groundwater investigation plan / replacement with suitable soil is applicable and treatment (i.e. application of remedial fluid to improve soil / groundwater quality).

Further details regarding the decommissioning activities for specific site infrastructure is discussed in the following subsections.

2.10.1 VSP Pit

Once VSP logging is complete, at a suitable time thereafter the VSP pit will be drained to the mud sump, the steel liner removed, and the hole backfilled using spoil remaining from site construction.

2.10.2 Mud Sump

The water within the drilling mud sump will be allowed to evaporate and soil testing undertaken to determine appropriate method of disposal dependent on analysis. Based on average evaporations rates of the region, Beach anticipate the timing of sump remediation will be within 18 months of post drilling activities. All excavations will be backfilled and levelled to a unified platform around the remaining well head. Dependent upon the results, one or more of the following actions would be undertaken regarding the dried material left in the sump:

- excavation of the mud sump in part or whole, removing material for disposal within a licensed landfill facility in accordance with the Landfill Waste Classification and Waste Definitions 1996 (as amended) (DWER 2019)
- excavation of the mud sump for deeper burial of muds on site

- drill muds mixed with clean fill and cuttings spread out around the lease area to dilute component concentrations
- land farming of sump material with remedial agent (i.e. Amino or similar soil enhancing products) across either on site or offsite to assist in biodegradation and reduce component concentrations allowing sump material to remain onsite.

2.10.3 Turkey Nest

Where the only contents stored in the turkey nest is locally sourced bore or fresh water, any residual fluid will be drained from the turkey nest, the liner removed and the turkey nest backfilled using fill remaining from site construction or sourced from deconstruction of the well location.

2.10.4 Wellhead

For a scenario where the well is decommissioned (Section 2.6.3), the wellhead is to be removed, the casing strings cut off at ~1.5 m below ground level, the steel cellar liner removed and the cellar backfilled with stockpiled fill from the site. An abandonment plaque bead welded with the name of the well and the date will be set at least 2m from ground level.

2.10.5 Well Site and Access Tracks

The well site is located on private land, the following activities will occur in accordance with the applicable Land Access Agreements):

- removal of all drilling related equipment from site
- remediating mud sump materials
- removing sheeting material offsite for disposal (subject to Landfill Waste Classification)
- erected fencing removed
- reinstating contours
- re-establishing areas considered to be impacted by compaction
- respreading any stockpiled subsoil and then topsoil and stockpiled vegetation
- stabilising agent applied to prevent erosion
- collecting soil and water samples for analysis to compare with background (baseline) levels

2.10.6 Validation Soil Sampling

During reinstatement and rehabilitation activities, soil samples will be taken to validate no contamination events have occurred during the activity in accordance with the Drill Sump Remediation Procedure (CDN/ID 18987109).

Where samples return concentrations above ecological screening levels, an assessment by a contaminated land specialist will be undertaken to verify if the material is to be left in-situ, if it does not have the potential to present a risk of harm to human health, the environment or any environmental value. Where the assessment determines that contaminated soils are not suitable to be buried or spread in situ, the material will be removed to an appropriate waste disposal facility.

Where samples verify no contamination occurred, the gravel / bentonite ballast material used will be levelled, and the material spread over the areas to be reinstated. Pits and sumps will then be backfilled utilising fill remaining from site construction and the surrounding fire break cleared area.

The soil sampling characteristics are outlined in Table 2-4.

2.10.7 Groundwater Monitoring Bore

The monitoring bore will be sampled quarterly on 3 occasions after drilling activities or in accordance with a Monitoring Study under the Oil Spill Contingency Plan (OSCP).

Anomalous results will be investigated and any requirement for remedial action addressed in the form of a remediation plan. Quarterly monitoring will track the seasonal variability of groundwater parameters for the period of the monitoring program.

The water sampling parameters are outlined in Table 2-5.

Where the final sampling occasion confirms no contamination, the monitoring bore will be decommissioned in accordance with Chapter 18 of the Minimum Construction Requirements for Water Bores in Australia.

2.11 Supporting Operations

2.11.1 Accommodation

There will be two camps associated with each well site; a rig site camp (Rig Camp) and a main camp site (Main Camp). The Rig Camp and Main Camp will include:

- power supplied from diesel generator
- potable water sourced from offsite
- onsite ATU, as approved by the Shire of Three Springs under the *Health (Miscellaneous Provisions) Act 2011*.

Key drilling personnel required for immediate response to emergencies or to oversee critical operations will remain onsite at the rig site camp with beds for up to 8 persons. The rig site camp is provided by the drilling contractor and resides on the rig site where drilling operations are conducted. The rig site camp consists of two crew (four rooms each) sleepers, a utilities skid, a lunchroom, a training room, an ablutions block, a mud lab, service contractor office and three offices for key personnel.

The majority of the workforce (up to 60 personnel) will be accommodated at the Main Camp, located 400 m from the well site. Potable water will be supplied to storage tanks at each camp from mobile water tankers as required.

2.11.2 Toilet Block and Aerobic Treatment Unit

The camp providers will supply mobile ATUs at the rig site camp and Main Camp. The installed ATU will be capable of processing all wastewater generated on site and is typically sized to process daily wastewater volumes of up to 1500 litres/day (at capacity) and the disposal system involves surface irrigation of the treated wastewater. The sprinkler system will be located adjacent to the onsite camp in an area removed from daily operations.

The ATU involves primary and secondary treatment with a sprinkler system for treated liquids.

2.11.3 Water Extraction

Water licences (26D and 5C) have been obtained from the Department of Water (DoW). The water will be abstracted for drilling operations and also dust suppression during construction (if required). The water source aquifer is the Yarragadee. The Yarragadee is typically fresh to marginal near surface (down to 400 m) and suited to the activities proposed.

Water requirements for TNW-1 will be approximately 5.5 ML.

2.11.4 Electricity

All electricity is generated on site for the drilling rig and rig site ancillary facilities using diesel powered generators. Drilling operations are typically conducted on a 24-hour basis and portable lighting towers are additionally erected on site to ensure a safe working environment.

2.11.5 Fuel Storage and Refuelling

A vehicle-mounted diesel tank is utilised for refuelling during well-site construction and will be used to fuel civil machinery as required.

During drilling operations, diesel fuel will be delivered by mobile diesel tanker to the well site tank (capacity of up to 75,000 L) and to the Main Camp tank (capacity of up to 12,000 L). A skid-based mobile fuel cell which is transported by forklift will distribute diesel to smaller stationary tanks (generators and lighting towers). The ancillary fuel cell is self-bunded and all other on-site bulk hydrocarbon storage will be bunded to AS 1940:2004.

Fuel consumption during drilling operations is expected to average 7,500 L per day.

2.11.6 Waste Management

Separate waste skips are provided for the recycling of metals, waste oil, oil-associated products, batteries, rubber products (tyres etc.) and general waste products. Waste management / disposal requirements are described in Table 2-9. Records of waste removed from site are maintained.

Table 2-9: Waste Disposal Methods

Waste Product	Method of Disposal
General Waste (food, plastics, rubber, empty non-hazardous containers, timber (non-pallet waste) etc.)	Placed into general waste rubbish skips with lids and removed from site for disposal at appropriately licensed facility by waste contractor.
Hydrocarbon Waste (oily rags, empty hydrocarbon containers etc.)	Placed into hydrocarbon waste rubbish skips with lids and removed from site for disposal at appropriately licensed facility by waste contractor.
Hydrocarbon Liquid Waste	Waste oil, fuel, and hazardous liquid chemicals will be bunded in accordance with SDS requirements (to contain not less than 110% of the volume of the largest vessel and at least 25% of the total substance stored and removed from site for recycling / disposal at a licensed facility by a waste contractor.
Steel Waste (steel casing, drill line, non-hazardous metal drums etc.)	Stored in a centralized location on lease, as well as steel waste skip and removed from site for disposal at appropriately licensed facility by waste contractor.
Cuttings and Mud	Disposed to drill sump. At cessation of drilling operations, cuttings and mud is tested. Disposal options are based on presence of contaminants in comparison with acceptable regulatory limits to leave on site. If concentrations of contaminants exceed threshold levels for reuse on site, the material is to be disposed of to the appropriate class of landfill or treated until suitable for disposal to lower class landfill or reuse on site.
Excess returned down hole cement	Disposed to drill sump
Timber Waste (Wooden pallets etc.)	Recycled where practicable, also placed into timber rubbish skip bins and removed from site for disposal at appropriately licensed facility.
Sewage	Treated effluent wastewater is to be dispersed near site (Section 2.10.2) with sewage sludge stored in appropriate tanks and removed from site by a licensed waste contractor.
Contaminated Soil	Segregated and removed from site for disposal at appropriately licensed facility.

2.11.7 Chemical Disclosure

Regulated under regulation 15(9) of the PGER(E)R, the chemicals proposed for the Package 1 drilling program are disclosed within Appendix B. Chemical disclosure has been prepared in accordance with the Chemical Disclosure Guideline (DMP 2013); incorporating the Chemical Disclosure Reporting template provided for within the guideline.

The chemical disclosure tables cover the following 'down-hole' activities:

- drilling fluids
- products, additives, chemicals, and other substances (cement)

The proposed chemicals are based on previous drilling programs and may be subject to change, DMIRS will be notified of any variations prior to commencement via submission of a bridging document.

Contingent volumes are provided for within the Chemical Disclosure tables (Appendix B) as highlighted in grey. The Safety Data Sheets (SDSs) for the chemicals associated with the exploration drilling activities are provided for within Appendix B.

3 Description of the Environment

3.1 Physical Environment

Figure 3-1 presents photographs of the proposed TNW-1 well site location and Figure 3-2 presents photographs of the proposed camp location..



Figure 3-1 Proposed well site locationt



Figure 3-2 Proposed camp location

3.1.1 Regional Landform

The well site is located within the coastal highlands of the Mid West region of WA within the Lesueur Sandplain subregion of the Geraldton Sandplains Bioregion (Department of the Environment 2012). The Geraldton Sandplains Bioregion is composed mainly of proteaceous scrub-heaths, rich in endemics, on the sandy earths of an extensive, undulating, lateritic sandplain mantling Permian to Cretaceous strata (Department of the Environment 2012, Department of Conservation and Land Management 2002)

3.1.2 Climate

The regional climate is classified as subtropical with hot summers and mild winters, where the rainfall is winter dominant, marked as wet winters and dry summers (BOM 2016). Based on the nearest Bureau of Meteorology (BOM) weather station (Geraldton Town, located roughly 100 km north west of the well sites) the mean monthly minimum temperature recorded for region ranges from 10.5°C in July to 18.8°C in February and the mean monthly maximum temperature ranges from 19.8°C in July to 29.7°C in February (BOM 2022).

The average annual rainfall is 444.9 mm with the majority of rainfall occurring during the winter months (BOM 2022). A strong south-west sea breeze is a part of summer weather conditions. The winds during the winter months are more variable and influenced by the cold fronts coming in from the Indian Ocean.

3.1.3 Geology and Soils

The well is located within the sedimentary Perth Basin. This basin lies onshore and offshore, and extends for about 700 km along the southern portion of the west coast of Western Australia. The basin is bounded to the east by the

Darling Fault, which extends the full length of the basin. The onshore portion of the basin averages 65 km in width and extends from the southern coast to Geraldton in the north. The dominant feature in the northern section of the Perth Basin is the Dandaragan Trough, in which up to 20 km of sediments have been deposited.

The Beharra Springs-Mondarra-Yardarino trend forms a terrace along the western flank of the Dandaragan Trough, extending from the Allanooka Fault in the north to the Abrolhos Transfer Zone approximately 30 km south of well site.

Generally, soils within the Perth Basin are light and sandy and well drained. Beard (1967) described the soils as "calcareous sand soils of minimal development". The soils consist of calcareous and siliceous sand underlain by aeolianite, which is often exposed.

The well site is located within on broad soil-landscape system, as classified by DPIRD (2018), Mount Adams System (224Ma): described as gently undulating sandplain with low gravel ridges and occasional laterite breakaways.

3.1.4 Hydrology

3.1.4.1 Surface water

The Development Envelope does not intersect any Ramsar wetlands or Wetlands of National Significance. The closest Wetland of National Significance is located 250 km south of the TNW-1 well site.

The closest waterbody in the vicinity of the Development Envelope is the Arrowsmith River, located approximately 8 km south of the TNW-1 well site. The following information is provided by the Department of Water and Environmental Regulation (DWER) on the hydrology of the Arrowsmith River Catchment (DWER 2022).

The Arrowsmith River catchment lies between the Hill River to the south, and the Irwin River to the north. The headwaters of the Arrowsmith River are just west of the town of Three Springs and the river then flows west for 85 km. Approximately the upper third of the Arrowsmith River is a gaining river, meaning at least part of its surface flow is supplemented by groundwater. This area is an important source of groundwater for a variety of uses.

The Arrowsmith river is an internally draining river, and it terminates at Lake Arrowsmith about 10 km inland of Cliff Head on the coast. Average annual rainfall is about 500 mm near the coast, falling to about 375 mm further inland. Catchment land area is just over 1,600 km^2, most of which is used for non-irrigated cropping with some grazing, particularly in the upper catchment to the east. Much of the lower catchment, in the west, is conservation and minimal land use, and a large area of plantation forest (managed resources) lies in the centre of the catchment.

3.1.4.2 Groundwater Hydrology

The larger aquifers located beneath the Arrowsmith Surface catchment Management Zone are the Leederville-Parmelia and Yarragadee Aquifers and the smaller aquifers include the Cattamarra and Eneabba-Lesueur Aquifers which are located west of the catchment (Earth Tech Engineering 2002).

The main regional aquifer underlying the Development Envelope is the Yarragadee. The formation is multi-layered with groundwater occurring within beds of fine to course-grained sandstone confined between thick sequences of shale and siltstone. The water table ranges up to as much as 150 m below the surface. The water table comes to the ground surface in the Hill River valley where the aquifer is artesian around Hill River Spring. Springs, swamps and lakes such as Beharra Spring areas of evaporative discharge (Earth Tech Engineering 2002).

Groundwater salinity is lowest (500-700 mg/L) within the middle of the catchment and highest (1,000 - 1,500 mg/L) towards the east of the catchment along the boundary with the Urella Fault (Earth Tech Engineering 2002). Areas of higher salinity occur along the Arrowsmith River and the Irwin River due to recharge of brackish runoff water. Groundwater salinity is also known to vary within the different sandstone beds and there is a general trend of increasing salinity with depth (Johnson and Commander 2006).

The recharge for this aquifer occurs primarily to the west of the Dandaragan Scarp where the aquifer is unconfined and occurs by direct infiltration of rainfall, downward leakage from the Arrowsmith River and overlying formations. (Nidagal 1994) noted that most groundwater discharges from the Yarragadee Formation into the Tamala Limestone with minor discharge in the Cattamarra Coal Measures across the Beagle Fault. Groundwater movement of the aquifer and overlying superficial aquifer is towards the coast (Earth Tech Engineering 2002).

Although located ~16 km northwest from the Development Envelope, Beach have been regularly monitoring groundwater levels at the BSGF for a prolonged period of time. In the absence of location specific groundwater data for the TNW-1 well site, this information has been used to inform the groundwater quality of the Development Envelope. This will be validated through location specific monitoring as detailed in Section 5.8.4. The groundwater monitoring wells at the BSGF are installed in the superficial aquifer which is predominately sand. The most recent groundwater monitoring event conducted by Senversa (2017) show standing water levels ranging from 10.89 m below ground surface and 15.88 m below ground surface equivalent to an elevation of between 26.43 m and 26.84 m AHD. The inferred groundwater flow direction is to the west (Senversa 2017).

Groundwater chemistry is summarised below:

- electrical conductivity (EC) measurements ranged between 150.1 µS/cm (GW9) and 1,800 µS/cm (GW5), with an average of 609 µS/cm, suggesting the groundwater is typically fresh
- pH measurements ranged between 5.88 (GW5) and 6.57 (GW7), suggesting slightly acidic to neutral groundwater conditions
- dissolved oxygen (DO) concentrations ranged from 0.26 mg/L (GW6) up to 6.53 mg/L (GW9), indicating anoxic to aerobic conditions
- groundwater temperature was measured from 23.2°C (GW2) up to 25.8°C (GW11) (typically around 23°C) which is consistent with previous events
- redox potential was measured at -123 mV (GW11) up to 121mV (GW4), indicating the aquifer ranges from reducing to oxidising conditions. Similar to previous groundwater monitoring events, clearly reducing conditions (e.g. <0 mV redox) were observed at GW11.

3.1.5 Public Drinking Water Source Areas

There are no public drinking water source areas (PDWSA)s within 20 km of the well site. The closest PDWSA is the Arrowsmith Water Reserve, located ~22 km east.

3.1.6 Acid Sulphate Soils

The classification of acid sulphate soils (ASS) includes both actual acid sulphate soils (AASS) and potential acid sulphate soils (PASS). ASS are soils that are generating acidity, whereas PASS are soils that have the potential to generate acidity. ASS are soils containing naturally occurring, fine-grained metal sulphides typically pyrite (FeS_2), formed under saturated, anoxic / reducing conditions. They generally occur in marine or estuarine sediments, predominantly confined to coastal lowlands.

Within these sediments, most soils that present an environmental risk are generally confined to Holocene aged material (<10,000 years). Where these materials have oxidised, they commonly have a mottled appearance (orange and yellow discolouration) due to the presence of oxidised iron minerals. Although the soils described above represent typical conditions where ASS occurs, the presence of ASS materials is not limited to these soil types. In Western Australia, ASS materials have been identified in other soil types such as leached sands and silts. Accordingly, for areas where no data is available, the extent of ASS materials should be established through field investigations.

The DWER ASS Risk Maps for Geraldton determine the potential for acid sulphates at the site. The ASS risk mapping suggests that the area is not considered to present an ASS risk. This is supported by observations of site soils which did not identify any soils which might present an ASS risk.

The Atlas of Australian Acid Sulphate Soils provides an Australian wide dataset where mapping is classified with a nationally consistent legend that includes risk assessment criteria and correlations between Australian and International Soil Classification Systems (Fitzpatrick, Powell and Marvanek 2011). Geographic information system (GIS) analysis conducted with this dataset indicates that the regional area is not considered to present an ASS risk. Soil within the Development Envelope is classed as having an extremely low probability of occurrence.

3.2 Biological Environment

3.2.1 Conservation Areas

Significant conservation areas in the Perth Basin Region include:

- Recommended Red Book reserves
- Department of Biodiversity, Conservation and Attractions (DBCA) reserves
- Environmentally Sensitive Areas
- Riparian vegetation.

Red Book recommendations, released by the Environmental Protection Authority (EPA) between 1976 and 1991, were made on areas to be classed as conservation reserves. The tenures are part of a listing of Crown Land identified in 'Conservation Reserves for Western Australia' and identify different systems which the EPA considered to be of environmental significance and proposed conservation areas.

The DBCA manages more than 28 million hectares of national parks, marine parks, nature reserves and state forests in WA. DBCA manages these areas for the conservation of biodiversity in ecosystems within these areas.

Environmentally Sensitive Areas (ESAs) are declared under the Environmental Protection (Clearing of Native Vegetation) Regulations 2004 and cover:

- Declared World Heritage property sites
- an area that is registered on the Register of the National Estate
- a defined wetland and the area within 50 m of the wetland
- the area covered by vegetation within 50 m of rare flora
- the area covered by a threatened ecological community
- Bush Forever sites
- the areas covered by the following policies:
    - the Environmental Protection (Gnangara Mound Crown Land) Policy 1992
    - the Environmental Protection (Western Swamp Tortoise Habitat) Policy 2002

  - the areas covered by the lakes to which the Environmental Protection (Swan Coastal Plain Lakes) Policy 1992 applies

- Protected wetlands as defined in the Environmental Protection (South West Agricultural Zone Wetlands) Policy 1998
- areas of fringing native vegetation in the policy area as defined in the Environmental Protection (Swan and Canning Rivers) Policy 1997.

The well sites are not located within any conservation significant areas. The proximity of the Development Envelope to conservation significant areas is shown in Table 3-1 and depicted in Figure 3-2.

Table 3-1 Proximity to Conservation Significant Areas

Conservation Area	**Proximity (at closest)**
Unnamed nature reserve (WA_47436)	~12 km
Unnamed ESA	~2.5 km
Arrowsmith Lake Area (Red Book Reserve)	~11 km



Figure 3-3 Conservation Significant Areas

3.2.2 Groundwater Dependent Ecosystems

Groundwater Dependent Ecosystems (GDE) are defined as ecosystems that require access to groundwater to meet all or some of their water requirements so as to maintain the communities of plants and animals, ecological processes they support, and ecosystem services they provide (Clifton, Cossens and McAuley 2007). No known GDEs occur within the vicinity of the Development Envelope.

The Arrowsmith River, located 8 km south of the TNW-1 well site, is identified as an unclassified potential GDE (BoM 2021). The Arrowsmith River is mapped as being underlain by the Yarragadee and is characterised by consolidated sedimentary geology (BoM 2021).

The remnant vegetation within the area surrounding the Arrowsmith River is identified as potential terrestrial GDEs. The vegetation associated with this potential terrestrial GDE is described as "Shrublands; scrub-heath with scattered *Banksia* spp, *Eucalyptus todtiana* & *Xylomelum angustifolium* on deep sandy flats in the Geraldton Sandplain Region" (BoM 2021).

3.2.3 Vegetation

The Development Envelope is historically cleared agricultural land with some planted Tagasaste over a mixture of pasture and weeds. Tagasaste is a fodder crop planted to graze livestock. In this instance it is scattered and in poor condition (Figure 3-1 and Figure 3-2).

3.2.3.1 Weeds

Beach utilised the protected matters search tool (DAWE 2022) to identify potential weed species present within the Development Envelope. Table 3-2 presents a list of the introduced flora taxa identified as having the potential to occur, together with the ratings for each introduced taxon under the Environmental Weed Strategy for Western Australia (CALM 1999).

Table 3-2 Potential weed presence within the Development Envelope

Common Name	Scientific Name	Status
Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus	*Asparagus asparagoides*	Declared Pest Weeds of National Significance (WoNS)[1]
Buffel-grass, Black Buffel-grass	*Cenchrus ciliaris*	Environmental impact 'High' (CALM 1999)
African Boxthorn, Boxthorn	*Lycium ferocissimum*	WoNS Environmental impact 'High' (CALM 1999)
Athel Pine, Athel Tree, Tamarisk, Athel Tamarisk, Athel Tamarix, Desert Tamarisk, Flowering Cypress, Salt Cedar	*Tamarix aphylla*	WoNS Declared Pest

3.2.3.2 Dieback

The Development Envelope occurs at the northern limit of the area within WA where significant plant disease caused by *Phytophthora cinnamomi* is known to occur. The environmental conditions (i.e., rainfall) of the area significantly affect the pathogens ability to survive or flourish and spread over time. All land with an annual average rainfall of more than 400 mm and suitable soil composition is considered vulnerable to Phytophthora Dieback (DPaW 2015).

[1] Weeds of National Significance are weeds identified by Australian governments that are significant based on their invasiveness, potential for spread and environmental, social and economic impact

The vegetation within the Perth Basin Region has generally been regarded as having susceptible species particularly *Banksia spp*. and *Xanthorrhoea spp*. The Development Envelope is uninterpretable for Dieback as the land has been cleared of all indicator species. However, the environmental conditions such as low rainfall, sandy calcareous soils which provide good water drainage and unsuitable pH reduces the risk of dieback infestation in the Development Envelope.

3.2.4 Fauna

The protected matters search tool (DAWE 2022) identified a number of native species (protected under the EPBC Act) that are likely to occur or have habitat likely to occur within the region. As the Development Envelope is previously cleared agricultural land lacking fauna habitat, significant fauna is unlikely to be present.

A summary of conservation significant species identified by the protected matters search tool (DAWE 2022) that have the potential to occur within the Development Envelope are listed in Table 3-3.

A summary of introduced fauna identified by the protected matters search tool (DAWE 2022) that have the potential to occur within the Development Envelope are listed in Table 3-4.

Table 3-3: Significant fauna identified as having the potential to be present within the Development Envelope

Common Name	Scientific Name	EPBC Status	BC Status	JAMBA	CAMBA	ROKAMBA	CMS	TNW-1
Birds								
Curlew Sandpiper	*Calidris ferruginea*	Critically Endangered Migratory	Critically Endangered	✓	✓	✓	✓	✓
Carnaby's Cockatoo, Short-billed Black-Cockatoo	*Calyptorhynchus latirostris*	Endangered	Endangered					✓
Grey Falcon	*Falco hypoleucos*	Vulnerable	-					✓
Malleefowl	*Leipoa ocellata*	Vulnerable	Vulnerable					✓
Eastern Curlew, Far Eastern Curlew	*Numenius madagascariensis*	Critically Endangered Migratory	Critically Endangered	✓	✓	✓	✓	✓
Grey Wagtail	*Motacilla cinerea*	Migratory	-	✓	✓	✓		✓
Australian Painted Snipe	*Rostratula australis*	Endangered	Endangered					✓
Common Sandpiper	*Actitis hypoleucos*	Migratory	-	✓	✓	✓	✓	✓
Fork-tailed Swift	*Apus pacificus*	Migratory	-	✓	✓	✓		✓
Sharp-tailed Sandpiper	*Calidris acuminata*	Migratory	-	✓	✓	✓	✓	✓
Pectoral Sandpiper	*Calidris melanotos*	Migratory	-	✓		✓	✓	✓
Osprey	*Pandion haliaetus*	Migratory	-				✓	✓
Mammals								
Chuditch, Western Quoll	*Dasyurus geoffroii*	Vulnerable	Vulnerable					✓
Ghost Bat	*Macroderma gigas*	Vulnerable						✓
Reptiles								
Western Spiny-tailed Skink, Baudin Island Spiny-tailed Skink	*Egernia stokesii badia*	Endangered	Endangered					✓
Other								

Common Name	Scientific Name	EPBC Status	BC Status	JAMBA	CAMBA	ROKAMBA	CMS	TNW-1
Shield-backed Trapdoor Spider, Black Rugose, Trapdoor Spider	*Idiosoma nigrum*	Vulnerable	Endangered					✓

Table 3-4 Introduced fauna identified as having the potential to be present within the Development Envelope

Common Name	Scientific Name
Birds	
Rock Pigeon, Rock Dove, Domestic Pigeon	*Columba livia*
Laughing Turtle-dove, Laughing Dove	*Streptopelia senegalensis*
Mammals	
Domestic Dog	*Canis lupus familiaris*
Goat	*Capra hircus*
Cat, House Cat, Domestic Cat	*Felis catus*
House Mouse	*Mus musculus*
Rabbit, European Rabbit	*Oryctolagus cuniculus*
Pig	*Sus scrofa*
Red Fox, Fox	*Vulpes vulpes*

3.3 Heritage

3.3.1 Aboriginal Heritage

The Development Envelope does not intersect with any known Aboriginal Heritage sites or places (DPLH 2022).

Archaeological research suggests that past Aboriginal occupants remained close to the water in summer and moved away from the river along the swamps and drainage lines in winter, with a preference for camping on the sandy dunes (Corsini 2001). Rivers, lakes and wetlands were important hunting and gathering sources. The chain of lakes from Geraldton south to Mandurah and associated river systems were major highways that offered rich food sources, reliable drinking water and good habitation sites. Food sources included reed rhizomes, zamia palms, by-yu nuts, yams, fish, waterfowl, tortoises, frogs and crayfish (Corsini 2001). Results of earlier archaeological studies in the Geraldton region (Corsini 2001) conclude that most Aboriginal archaeological sites are adjacent to, or within, 1km of water. Large and extensive sites are normally positioned in high relief areas and in dune swales.

Extensive sites are found along the coast in association with adjacent offshore reefs and continuous artefact scatters are adjacent to major river systems. Such scatters are composed of quartz and granite, obtained from local rock outcrops and stream beds (Corsini 2001). While ethnohistoric sources suggest occupation was focused around river systems and wide alluvial valleys, there remains little archaeological evidence to support this information. Alternatively, the sites are located between river systems (not alongside them). Floodwaters may have redistributed many artefacts. Unstable sands, extensive horticulture and agriculture may have exposed and destroyed many Aboriginal archaeological artefacts (Corsini 2001).

A search of the Aboriginal Heritage Inquiry System DPLH (2022) identified the closest registered Aboriginal heritage site to be the Arrowsmith River (Place ID: 30068), located approximately 8 km south of the TNW-1 well site (Figure 3-4). No other known heritage places were identified within the vicinity of the Development Envelope.

An on-ground heritage survey was undertaken on 19/12/2022 and did not identify any aboriginal cultural heritage.

Heritage monitors will be in place for excavation site preparation works.

3.3.2 Native Title

A search of the National Native Title Tribunal (NNTT) database (NNTT 2022) indicated that the Development Envelope intersects with one registered Native Title claim; the Southern Yamatji claim (Tribunal file WC2017/002). This claim covers the entirety of EP320.

The Yamatji Nation Indigenous Land Use Agreement (ILUA) between the Yamatji Nation claimants and the State of Western Australia was authorised by all claim groups in December 2019 and executed on 9 February 2020 when the Federal Court also determined that the Yamatji Nation holds non-exclusive native title rights and interests over select parcels of land within the Agreement area. An Indigenous Land Use Agreement registered by Southern Yamatji came into effect on 27 October 2020.

The Development Envelope is on private land and is not subject to Native Title.

3.3.3 European Heritage

No World Heritage Sites or Commonwealth Heritage Sites occur within 20 km of the Development Envelope (DAWE 2020, DAWE 2022).

A search of the inHerit Western Australia database did not identify any Sites within the Development Envelope (Heritage Council 2022). The closest listed Site is the Green Grove Farmhouse Ruins (Heritage Place No. 12314), located ~20 km west of the Development Envelope.

3.4 Socio-Economic Environment

The Development Envelope is located in an agricultural dominated area with extensive existing oil and gas field development. It is located within the Shire of Three Springs, with the town of Dongara-Port Denison (located approximately 50 km to the northwest) the largest population centre in the vicinity of the Development Envelope.

The region is sparsely populated with limited settlement, transport and communications infrastructure. The region is relatively undeveloped, comprising of small coastal settlements that are economically dependent on fishing, agriculture, tourism, mining and natural gas production. The major land uses in the region are grazing of native pastures in the north and in the south a mixture of grazing and cropping of cereals. The bushland areas of the region support seasonal honey production and commercial wildflower harvesting. Land use in the immediate vicinity of the Development Envelope is mallee tree plantation for carbon sequestration.

Oil and gas exploration and production has occurred extensively in the area. Facilities that are in close proximity to the Development Envelope include:

- Triangle operated Arrowsmith Stabilisation Plant
- Beach operated Beharra Springs Production Facility
- Mitsui operated Xyris Production Facility
- Mitsui operated Dongara Production Facility (currently shut-in)
- RCMA Australia operated Jingemia Oil Production Facility (currently shut in)
- APA Group operated Mondarra Gas Storage Facility.

The residential receptors within the vicinity of the well sites are illustrated in Figure 3-5. An uninhabited residence is located 1.9 km from the proposed Development Envelope.

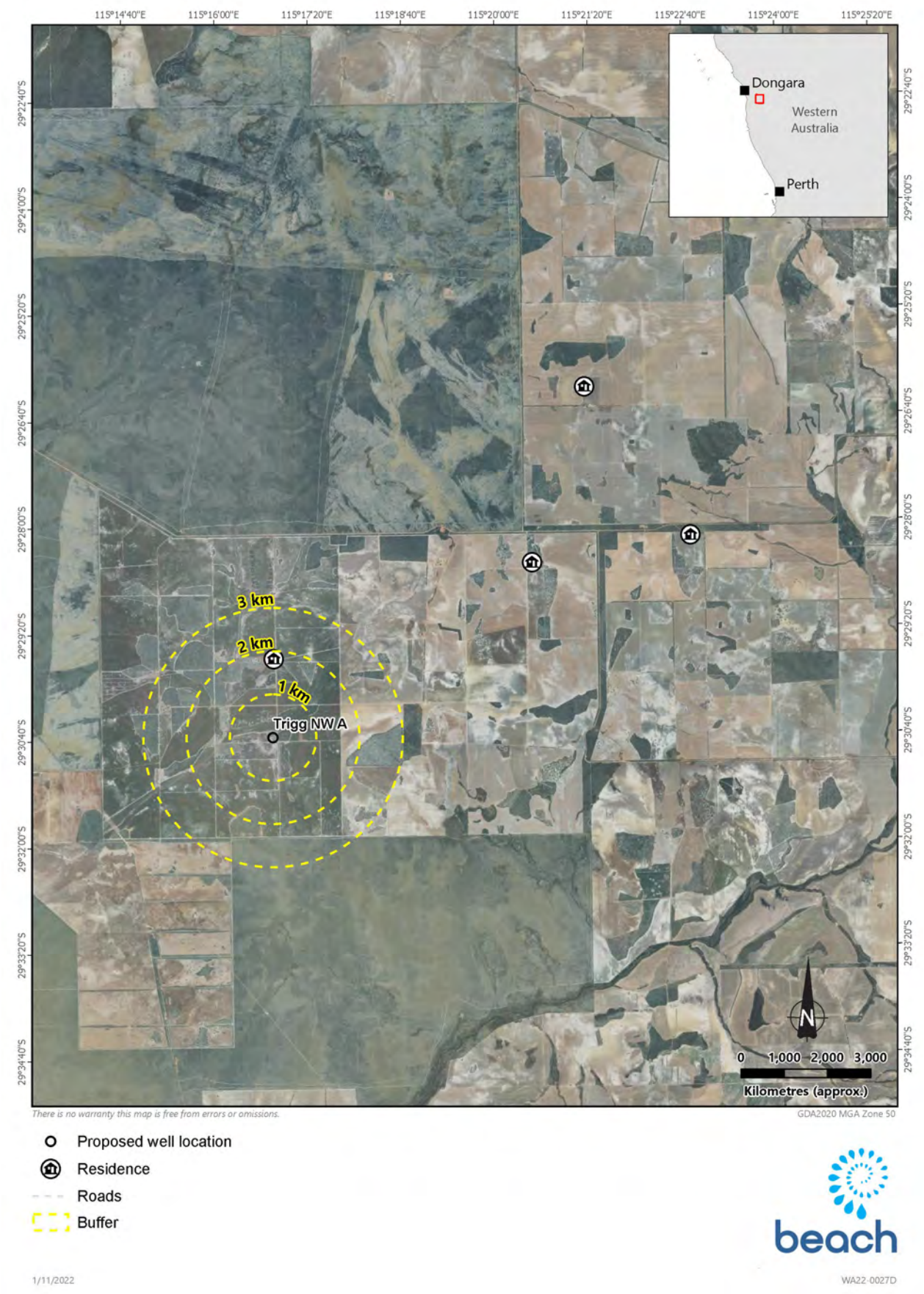


Figure 3-4 Residential receptors

4 Environmental Risk Assessment Methodology

In accordance with Regulation 14(3)(c) of the PGER(E)R, this Section provide the methodology used to identify and assess the environmental impacts and risks associated with the activities described in Section 2.

The risk assessment for this EP was undertaken in accordance with Beach Energy's Risk Management Standard (CDN/ID 18985348) using Beach Energy's Risk Matrix (Figure 4-1). This approach generally aligns with the processes outlined in ISO 31000:2018 Risk Management - Guidelines (ISO 2018) and Handbook 203:2012 Managing Environment-related Risk (Standards Australia/Standards New Zealand 2012).

The risk assessment process and evaluation involved numerous consultations with environmental, drilling, and engineering personnel.

4.1 Identification and Description of the Petroleum Activity

All components of the activity relevant to the scope of this EP were described and evaluated.

4.2 Identification of Particular Environmental Values

Within the environment that may be affected by the activity, the environment was described (Section 3) and the particular environmental values and sensitivities of specific locations identified. In accordance with the DMIRS *Draft Guideline for the Development of Petroleum, Geothermal and Pipeline Environment Plans in Western Australia* (DMIRS 2022), Beach Energy considers particular values and sensitivities to be:

- cultural and heritage sites
- flora and fauna protected under the EPBC Act and the BC Act
- marine and terrestrial protected areas (including declared/proposed National Parks, Nature Reserves, Conservation Parks etc.)
- areas of protected, rare, or endangered flora and fauna
- areas of significant habitat (e.g. wetlands)
- areas of temporal significance (including breeding grounds, migration routes, resting and aggregation areas)
- Public Drinking Water Source Areas, groundwater dependent ecosystems, local groundwater use, and other important wetlands and waterways.

The habitat and / or temporal area that supports areas of protected or rare and endangered flora or fauna, is considered to be the particular value or sensitivity.

4.3 Identification of Relevant Environmental Aspects

After describing the activity, an assessment was carried out to identify potential interactions between the activity and the receiving environment. The outcomes of stakeholder consultation also contributed to this scoping process.

Note: Potential interactions with safety, health, and assets are outside the scope of this EP.

The following environmental aspects, were categorised for use in the risk assessment of this activity:

- physical interaction - soil and vegetation
- noise emissions

- light emissions
- dust emissions
- atmospheric emissions
- extraction of groundwater
- socio-economic
- physical interaction - fauna
- fire
- accidental release of drilling fluids
- accidental release of waste
- accidental release of hydrocarbons or hazardous materials
- accidental release - loss of well control

4.4 Identification of Relevant Environmental Hazards / Risk Causes

The aspects identified were used in the scoping process to determine environmental hazards or risk causes associated with the activity that had the potential to cause environmental damage. The results of this assessment are included in Section 5. This information was then used to undertake the environmental risk assessment.

4.5 Evaluation of Impacts and Risk

4.5.1 Consequence

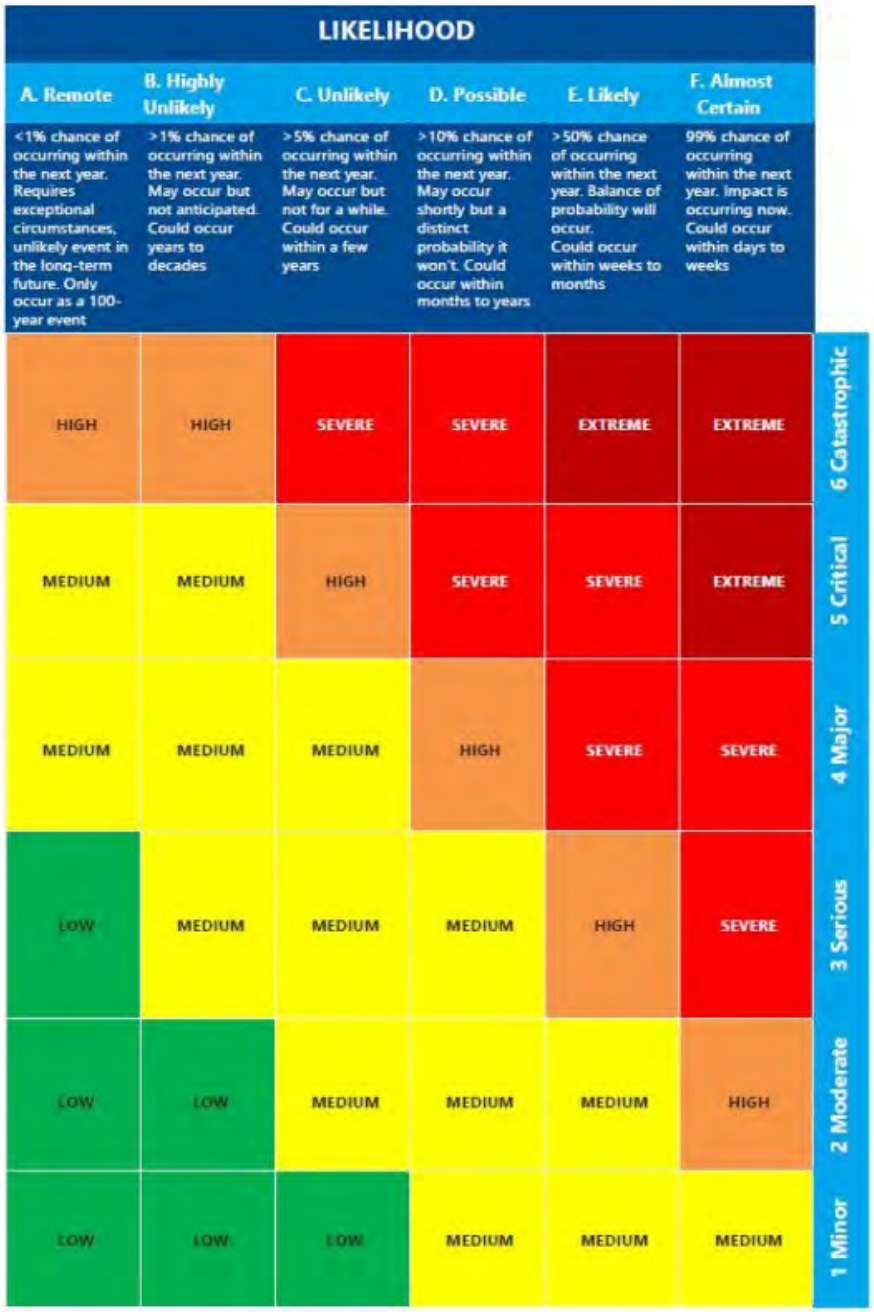
After identifying the potential hazards, the potential consequences were assessed and evaluated. Consequence is defined using the Beach Energy's Risk Matrix (Figure 4-1). The level of consequence is determined by the potential level of impact based on:

- the spatial scale or extent of potential hazards of the environmental aspect within the receiving environment
- the nature of the receiving environment (from Section 3) (within the spatial extent), including proximity to sensitive receptors, relative importance, and sensitivity or resilience to change
- the impact mechanisms (cause and effect) of the environmental hazard within the receiving environment (e.g. persistence, toxicity, mobility, bioaccumulation potential)
- the duration and frequency of potential effects and time for recovery
- the potential degree of change relative to the existing environment or to criteria of acceptability.

Table 4-1: Consequence Definitions to support the Beach Risk Matrix

Consequence Ranking	Natural environment	Reputation
Catastrophic – 6	Catastrophic release or spill; long term destruction of highly significant ecosystem; significant effects on	Multiple community fatalities; complete loss of social licence; prolonged negative national

Consequence Ranking	Natural environment	Reputation
	endangered species or habitats; irreversible or very long-term impact.	media; complete loss of items of cultural significance
Critical – 5	Significant release or spill; eradication or impairment of the ecosystem; significant impact on highly valued species or habitats; widespread long-term impact.	Community fatality; significant loss of social licence; negative national media for 2 or more days; significant damage to items of cultural significance.
Major – 4	Major release or spill; very serious environmental effects, such as displacement of species and partial impairment of ecosystem; major impact on highly valued species or habitats; widespread medium and some long-term impact.	Serious permanent injury to community member; serious damage to social licence; negative national media; major damage to items of cultural significance.
Serious – 3	Minor release or spill; serious short-term effect to ecosystem functions; serious impact on valued species or habitats; moderate effects on biological or physical environment.	Serious reversible injury to community member; serious damage to social licence; negative state media; serious damage to items of cultural significance.
Moderate – 2	Event contained within site; short term effects but not affecting ecosystem functions; some impact on valued species or habitats; minor short-term damage to biological and/or physical environment.	Moderate injury to community member; moderate impact to social licence; negative local media; moderate damage to items of cultural significance.
Minor – 1	Spill limited to release location; minor effects but not affecting ecosystem functions; no impact on values species or habitats; low-level impacts on biological and physical environment	Minor injury to community member; public concern restricted to local complaints; minor damage to items of cultural significance.



LIKELIHOOD						
A. Remote	B. Highly Unlikely	C. Unlikely	D. Possible	E. Likely	F. Almost Certain	
<1% chance of occurring within the next year. Requires exceptional circumstances, unlikely event in the long-term future. Only occur as a 100-year event	>1% chance of occurring within the next year. May occur but not anticipated. Could occur years to decades	>5% chance of occurring within the next year. May occur but not for a while. Could occur within a few years	>10% chance of occurring within the next year. May occur shortly but a distinct probability it won't. Could occur within months to years	>50% chance of occurring within the next year. Balance of probability will occur. Could occur within weeks to months	99% chance of occurring within the next year. Impact is occurring now. Could occur within days to weeks	
HIGH	HIGH	SEVERE	SEVERE	EXTREME	EXTREME	6 Catastrophic
MEDIUM	MEDIUM	HIGH	SEVERE	SEVERE	EXTREME	5 Critical
MEDIUM	MEDIUM	MEDIUM	HIGH	SEVERE	SEVERE	4 Major
LOW	MEDIUM	MEDIUM	MEDIUM	HIGH	SEVERE	3 Serious
LOW	LOW	MEDIUM	MEDIUM	MEDIUM	HIGH	2 Moderate
LOW	LOW	LOW	MEDIUM	MEDIUM	MEDIUM	1 Minor

Figure 4-1: Beach Energy Risk Matrix

4.5.2 Management Measures and ALARP

The process for identifying management measures depends on the ALARP decision context set for that particular hazard and aspect. Regardless of the process, management measures are assigned according to defined Environmental Performance Objectives, with the objective to eliminate, prevent, reduce, or mitigate consequences associated with each identified environmental impact and risk.

4.5.2.1 ALARP Decision Context

Beach Energy have adopted the ALARP principle which considers impact severity and several guiding factors in determining to which level management measure analysis and evaluation is required (Figure 4-2). These include:

- activity type

- risk and uncertainty
- stakeholder influence.

A Type A decision is made if the risk is relatively well understood, the potential impacts are low[2] , activities are well practiced, and there is no significant stakeholder interest. However, if good practice is not sufficiently well-defined, consideration is given to commonly utilised management measures for similar activities in similar environments.

A Type B decision is made if there is greater uncertainty or complexity around the activity and / or risk, the potential impact is moderate[3], and the risk generates several concerns *from* stakeholders. In this case, established good practice is not considered sufficient and further assessment is required to support the decision and ensure the risk is ALARP.

A Type C decision typically involves sufficient complexity, high potential impact, uncertainty, or stakeholder interest to require a precautionary approach. In this case, relevant good practice still has to be met, additional assessment is required, and the precautionary approach applied for those management measures that only have a marginal cost benefit[4].

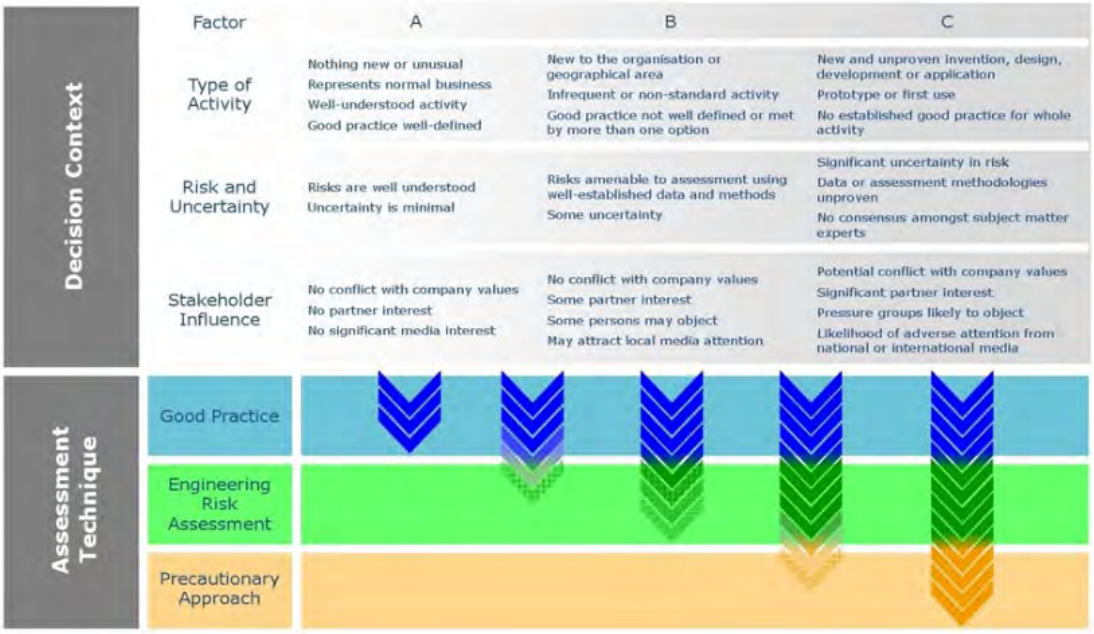


Figure 4-2: ALARP Decision Support Framework

[2] Specifically, Beach Energy regard potential impacts to be low where the consequence has been ranked as Serious or below (≤ 3) and the risk is evaluated to be Medium or Low.

[3] Specifically, Beach Energy regard potential impacts to be moderate where the consequence is Major or above (≥ 4) or the risk is evaluated to be High or above.

[4] Specifically, Beach Energy apply a Type C decision where potential impacts are as per note 2 above, but where additional complexity, uncertainty and stakeholder interest are present.

In accordance with the regulatory requirement to demonstrate that environmental impacts and risks are ALARP, Beach Energy has considered the above decision context in determining the level of assessment required and applied it to each aspect described in Section 5.

The assessment techniques considered (and described below) include:

- good practice,
- engineering risk assessment
- precautionary approach.

Good Practice

(OGUK 2014) defines 'Good Practice' as:

- the recognised risk management practices and measures that are used by competent organisations to manage well-understood hazards arising from their activities.

'Good Practice' can also be used as the generic term for those measures that are recognised as satisfying the law. For this EP, sources of good practice include:

- requirements from Commonwealth and State legislation and regulations
- relevant Commonwealth and State policies
- relevant Commonwealth and State guidance
- relevant industry standards
- relevant international conventions.

If the ALARP technique is determined to be 'Good Practice', further assessment ('Engineering Risk Assessment') is not required to identify additional management measures. However, additional management measures that provide a suitable environmental benefit for an insignificant cost are identified.

Engineering Risk Assessment

All potential impacts and risks that require further assessment are subject to an engineering risk assessment. Based on the various approaches recommended by OGUK (2014), Beach Energy believes the methodology most suited to this activity is a comparative assessment of risks, costs, and environmental benefit. A cost-benefit analysis should show the balance between the risk benefit (or environmental benefit) and the cost of implementing the identified measure, with differentiation required such that the benefit of the risk reduction measure can be seen and the reason for the benefit understood.

Precautionary Approach

(OGUK 2014) state that if the assessment, considering all available engineering and scientific evidence, is insufficient, inconclusive, or uncertain, then a precautionary approach to hazard management is needed. A precautionary approach means that uncertain analysis is replaced by conservative assumptions that result in management measures being more likely to be implemented.

That is, environmental considerations are expected to take precedence over economic considerations, meaning that a management measure that may reduce environmental impact is more likely to be implemented. In this decision context, the decision could have significant economic consequences to an organisation.

4.5.3 Likelihood

The likelihood (probability) of a defined consequence occurring was determined, taking into account confirmed management measures in place. The likelihood of a particular consequence occurring was identified using one of the six likelihood categories shown Figure 4-2.

Further definition around likelihood rankings to support the level determined is provided in Table 4-2.

Table 4-2: Likelihood Ratings

Level	Descriptor
A Remote	<1% chance of occurring within the next year. Occurrence requires exceptional circumstances. Exceptionally unlikely event in the long-term future. Only occur as a 100-year event
B Highly Unlikely	>1% chance of occurring within the next year. May occur but not anticipated. Could occur years to decades
C Unlikely	>5% chance of occurring within the next year. May occur but not for a while. Could occur within a few years
D Possible	>10% chance of occurring within the next year. May occur shortly but a distinct probability it won't. Could occur within months to years.
E Likely	>50% chance of occurring within the next year. Balance of probability will occur. Could occur within weeks to months.
F Almost Certain	99% chance of occurring within the next year. Impact is occurring now. Could occur within days to weeks.

4.5.4 Quantification of the Level of Risk

The Risk Matrix (Figure 4-2) was applied following the detailed evaluation of potential impacts and risks from the activities covered in this EP. This matrix uses consequence and likelihood rankings, which when combined, result in a risk level between Extreme risk and Low risk. Risk assessment outcomes are based solely on risk assessment to the environment (as defined under the PGER(E)R). Risk to company reputation, regulatory compliance, stakeholder expectations, or community relationships were considered but not risk assessed.

4.6 Risk Acceptance Criteria

The Beach Risk Management Standard (CDN/ID 18985348) specifies the following:

- risks assessed to have residual levels of Extreme are unacceptable and the associated activities must not be undertaken
- risks assessed to have residual levels of High or Severe require the consideration of additional control measures
- risks assessed to have residual levels of Medium and Low are acceptable.

In addition to this, Beach Energy have considered the principles of Ecological Sustainable Development when evaluating if the environmental risks associated with this activity are acceptable or not by evaluating if:

- the activity has the potential to result in serious or irreversible damage
- there is scientific uncertainty associated with this aspect
- there is the potential to affect biological diversity or ecological integrity.

4.7 Environmental Performance Objectives, Standards, and Measurement Criteria

Environmental performance objectives, performance standards, and measurement criteria were defined to address the potential environmental impacts and risks identified during the risk assessment in accordance with DMIRS (2018) *Guidance Note - Environmental Performance Objectives, Environmental Performance Standards and Measurement Criteria for Petroleum Environment Plans*.

Beach Energy is committed to conducting activities associated with the petroleum activity in an environmentally responsible manner and aims to implement good practice environmental management as part of a program of continual improvement to reduce potential impacts and risks to ALARP. Beach Energy defines environmental performance objectives, standards, and measurement criteria that relate to managing the identified environmental risks as:

- **Environmental Performance Objectives**: the level of performance in managing the potential environmental impacts and environmental risks from each petroleum activity
- **Environmental Performance Standards**: measurable statements of performance of a system, item of equipment, person, or procedure that are used to manage environmental impacts and risks for the duration of the petroleum activity
- **Measurement Criteria**: compliance and assurance statement or records that detail how Beach Energy enacts the outlined performance standard; these are used to determine whether the environmental performance objectives and standards have been met and whether the implementation strategy has been complied with. If no practicable quantitative target exists, a qualitative criterion is set.

5 Environmental Risk Assessment and Management

To meet the requirements of Regulation 14(3) and (4) of the PGER(E)R, this section evaluates the impacts and risks associated with the activity appropriate to the nature and scale of each impact and risk and details the management measures that are used to reduce the risks to ALARP and an acceptable level. Additionally, Environmental Performance Objectives, Environmental Performance Standards, and Measurement Criteria have been developed and are described in the following sections.

The environmental impact and risk register is attached as Appendix C.

5.1 Physical Interaction – Soil and Vegetation

Source	The following activities were identified as having the potential to result in an interaction with soil and vegetation: • site preparation operations • well site decommissioning and reinstatement • supporting operations.		
Hazard		**Consequence**	**Likelihood**	**Inherent Risk**
During interaction with soil and vegetation on-site, there is the potential for:			
Spread of invasive species (weeds) / Introduction of new WoNS		Moderate – 2	Possible - D	Medium
Damage to heritage sites / artefacts		Serious – 3	Highly Unlikely - B	Medium
Unintentional clearing of native vegetation		Serious – 3	Remote - A	Low
Inadequate site reinstatement		Moderate – 2	Possible - D	Medium
ALARP Decision Context Justification			
The pathways for the hazards associated with physical interaction with soil and vegetation are well understood with civil earth works common for onshore oil and gas activities in WA. Management measures for these hazards are also well understood and implemented by the industry. Beach has evaluated the worst-case potential consequence / risk associated with this aspect to be Serious (3) / Medium with no management measures in place. As such, Beach believes ALARP Decision Context Type A should apply in accordance with Section 4.5.2.1			A
Management Measure	**Source of Good Practice Management Measure**		
Construction fill verified as having low weed risk	All soil and vegetation materials brought to the Development Envelope are subject to a risk assessment and method of extraction verifies product as being low risk of containing weeds.		
Soil stockpiling	Topsoil and subsoil removed during site preparation operations will be separately stockpiled adjacent to the well site and brushed with any cleared vegetation. Soil stockpiles will be a maximum of 2 m high and battered (sloped) to prevent erosion. Stockpiled soil will be reinstated in accordance with Section 2.9.		
Weed and hygiene management requirements	In accordance with the Department of the Environment's Arrive Clean, Leave Clean guidance (Commonwealth of Australia, 2015), it is considered good industry practice to follow a weed and hygiene management protocol. Beach will ensure machinery used during civil works are subject to a clean down prior to arriving to ensure that no soil or plant root material remain on the machinery.		
Baseline weed survey	A pre-inspection is undertaken to identify if any WoNS described in Section 3.2.3.2 are present within the Development Envelope prior to the start of the Activity.		
Heritage Survey	The findings and recommendations of the heritage survey undertaken at least 3 months prior to commencing the proposal will be implemented.		
Heritage monitors during excavation	Representatives of the claimant group / heritage monitors are engaged to observe soil disturbance activities (i.e., where the topsoil is stripped from the well site).		
Heritage artefact identification procedure	Beach will ensure that the YSRC Site Discovery Procedure (YSCR 2021) is followed to enable appropriate management where heritage artefacts / skeletal remains are uncovered during activities.		

Consultation with Southern Yamatji	Beach is required to ensure the activity is undertaken in compliance with relevant obligations in the Aboriginal Heritage Survey Agreement, in consultation with the Southern Yamatji Native Title Claimant group.
Complaints management system	Beach will maintain a consultation register and will track and close out complaints raised by relevant stakeholders.
Land Access Agreement	As required under Section 20 of the PGERA, Beach are required to have a land-use agreement in place for the Development Envelope. Specifically, the affected owners lease agreement addresses restoration of the owner's land; and details the degree of repair that will be undertaken prior to handover. Given that the Development Envelope comprises a highly previously disturbed agricultural area, Beach believes that requirements to reinstate the land are adequately addressed.

Residual Consequence Evaluation

Spread of non-indigenous species (weeds) / Introduction of new WoNS

As described in Section 3.2.3.2, a number of weed species have been identified as having the potential to be present within the Development Envelope. Specifically, three WoNS have been identified as having the potential to occur within the Development Envelope, as per Table 3-4. WoNS weed species are identified based on their invasiveness, potential for spread and environmental, social and economic impact. There are no indicator taxa present to determine the presence of Dieback pathogens and no way of knowing if it is introduced or spread.

Given the limited potential impact of Dieback in the Development Envelope, WoNS will remain the focus for this hazard.

The movement of equipment and vehicles in and out of the Development Envelope has the potential to spread weeds. Through this movement, weeds may be spread into or out of the Development Envelope.

No significant impact is expected if a WoNS weed species is spread within the Development Envelope, as the Development Envelope consists of previously cleared, heavily degraded agricultural land, with weed species already present. If a WoNS weed species is spread outside of the Development Envelope, a disruption to local ecosystem function or biodiversity effects may occur. However, the area surrounding the Development Envelope is heavily degraded, weed species are already present, and habitats are already disturbed consisting of cleared land and access tracks. As such, the spreading of non-indigenous species is not expected to result in any additional lasting environmental impact.

The spread of non-indigenous species would be contained within site with minor short-term damage to area of limited significance and short-term effects but not affecting ecosystem functions indicates a Moderate (2) consequence rating.

Damage to heritage sites / artefacts

As described in Section 3.3, a review of the Aboriginal Heritage Inquiry System indicated that no Aboriginal heritage sites are known to occur within the Development Envelope. The closest registered Aboriginal heritage site is the Arrowsmith River (Place ID: 30068), located approximately 8km south of the well site.

The ground and vegetation disturbance covered by this EP are limited to within the Development Envelope. In addition, ground disturbance activities associated with this EP are limited previously disturbed agricultural areas, thus no heritage sites are expected to be encountered during the activity.

If heritage material is encountered during the activities associated with this EP, there is the potential for damage to occur to items of cultural significance. As such Beach have ranked the consequence severity as Significant (3).

Unintentional clearing of native vegetation

No 'native vegetation' is planned to be cleared under this EP (regulation 4 of the Environmental Protection (Clearing of Native Vegetation) Regulations 2004. The Development Envelope is not located within any conservation significant areas; the closest is an un-named environmentally sensitive area approximately 2.5 km south of the TNW-1 well site.

Within the Operational Area associated with the TNW-1 Development Envelope, there are isolated paddock trees, outside of the disturbance footprint. This vegetation will not be cleared under this activity.

Any event resulting in unintentional clearing is expected to be small in extent, with limited but non-permanent environmental impact. An unplanned disturbance to vegetation is expected to be an event external to the facilities that has a localised but non-permanent impact, and as such, Beach have ranked this consequence severity as a Serious (3).

Inadequate site reinstatement

As described in Section 3.4, the Development Envelope is located in an agricultural area. Specifically, the risk of inadequate site reinstatement is a social risk, is that the land is returned to the landowner in state that affects their functions, interests, or activities.

Based upon the nature of the activity and the area potentially affected, Beach believes that the potential consequence associated with this risk is Moderate (2) in that it is rectifiable and would only result in a limited community impact or interest.

Residual Likelihood and Risk Level Summary

Hazard	Consequence	Likelihood	Residual Risk

Spread of invasive species (weeds) / Introduction of new WoNS	Moderate – 2	B – Highly Unlikely^	Low
Damage to heritage sites / artefacts	Serious – 3	A – Remote	Low
Unintentional clearing of native vegetation	Serious – 3	A – Remote	Low
Inadequate site reinstatement	Moderate – 2	C - Unlikely	Medium

^Given that activities covered within this EP only occur in areas that have predominantly previously been disturbed, the likelihood of causing any significant environmental impacts is low. With the identified control measures in place, the likelihood of causing an impact as a result of this aspect is considered to be Highly Unlikely (B).

Determination of Acceptability

The level of potential risk for this aspect is considered acceptable by Beach. Having regard to the principles of Ecologically Sustainable Development for this aspect:

- the activity does not have the potential to result in serious or irreversible damage
- there is little scientific uncertainty associated with this aspect, and where uncertainty is present management measures have been identified to ensure the uncertainty is appropriately managed
- this aspect is not evaluated as having the potential to affect biological diversity or ecological integrity.

Consequently, the potential impacts and risks associated with physical interaction - soil and vegetation are considered acceptable.

Environmental Performance Objective	Environmental Performance Standard	Measurement Criteria	Responsibility	Record
Prevent, minimize and manage impacts to native vegetation, heritage sites, heritage artefacts and landowners from activities causing ground and vegetation disturbance	**Construction fill verified as having low weed risk** Construction fill such as gravel, limestone marl, soil or sand will be verified to have a low weed risk.	Site specific risk assessment document verifies construction fill is low risk prior to use.	Project Manager	Site Specific Risk Assessment Document
	Soil Stockpiling Topsoil and subsoil removed during site preparation operations will be stockpiled separately and brushed with any cleared vegetation, battered (sloped) and to maximum height of 2 m.	Routine site inspections confirm that soil stockpiles are separated and battered to a maximum height of 2 m.	Site Supervisor	HSE Audit
	Soil Stockpiling The reinstatement of topsoil and subsoil will be undertaken in accordance with the LAA.	Pre-disturbance and post disturbance / pre-handover landowner engagement records confirm that the site has been reinstated in accordance with the Landowner access agreement and landowner expectations.	Project Manager	HSE Audit
	Baseline weed survey Beach will ensure that the disturbance footprint is inspected for WoNS described in Section 3.2.3.2 prior to the start of the Activity.	Records confirm the disturbance footprint has been inspected for relevant WoNS prior to the start of the Activity.	Project Manager	Baseline Weed Survey Inspection Checklist
	Weed hygiene management requirements Beach will ensure machinery used during construction of the well site subgrade are subject to a clean down prior to arriving to ensure that no soil or plant root material are imported on the machinery.	Records confirm civil works contractors has implemented the required weed hygiene management requirements	Project Manager	Weed Hygiene Inspection Checklist

	Heritage Survey Beach will ensure a heritage survey is undertaken at least 3 months prior to commencing the proposal.	Audit confirms that findings and recommendations of Heritage Report have been implemented by Beach	Community & Aboriginal Affairs Manager	HSE Audit
	Heritage monitors during disturbance of the topsoil During the removal / stripping of topsoil, claimant group representatives will be onsite to observe disturbance activities.	Daily reports confirm claimant group representatives were onsite to observe disturbance activities.	Project Manager	Daily Reports
	Heritage Site Discovery Procedure During the removal / stripping of topsoil or digging of excavations, in the event that heritage material is identified the following will be implemented: • all work in the immediate vicinity of the materials will cease • the area be demarcated and no further works will occur in the area until assessment by Police (if remains), Traditional Owners and Beach • the materials/remains shall not be moved or further disturbed until assessment by Police (if remains), Traditional Owners and Beach • no further works within the demarcated area shall be undertaken until all parties have been consulted and agreement has been reached on a plan forward work may continue at a distance of not less than 5 m from the demarcated site.	Incident records confirm that in the event heritage material is uncovered, the Heritage Site Discovery Procedures were followed to protect the material.	Community & Aboriginal Affairs Manager	Incident Reports
	Complaints management system Beach will record all complaints including the following information: • the details of complaints received • any action taken in response to the complaint.	Monthly review of the complaints records verifies that any complaints have been appropriately managed and closed out.	Community & Aboriginal Affairs Manager	Complaints Register
	Land Access Agreement • Upon completion of the activities, Beach will reinstate the site in accordance with the Land Access Agreement. Specifically, Beach will conduct a pre-disturbance engagement with the landowner and following completion of the activity,	Pre-disturbance and post disturbance / pre-handover landowner engagement records confirm that the site has been reinstated in accordance with the Landowner access agreement and landowner expectations.	Community & Aboriginal Affairs Manager	Stakeholder Engagement Register

	Beach will conduct a post disturbance / pre-handover engagement with the landowner to document that the site has been reinstated to a standard required by the Land holder.			

5.2 Noise Emissions

Source	The following activities were identified as having the potential to result in the generation of noise emissions: • site preparation operations • drilling operations • well testing • all activities (including vehicle, machinery, equipment and generator use). Noise generated from the activities is expected to be the most significant during well testing activities. On the basis that well testing has the highest source levels and subsequently provides the highest potential impact, this has been the focus in the consequence and risk assessment below.

Hazard	**Consequence**	**Likelihood**	**Inherent Risk**
The generation of noise emissions may increase ambient noise levels that could cause a:			
Disturbance to sensitive fauna or local landowners	Minor - 1	Unlikely - C	Low

ALARP Decision Context Justification	
The risks associated with noise emissions are well managed via existing good practice management measures which are well understood and implemented by the industry. Based upon the proposed activity and its location, Beach have evaluated the worst-case potential consequence / risk associated with this aspect to be Minor (1) / Low with no management measures in place. As such, Beach believes ALARP Decision Context Type A should apply in accordance with Section 4.5.2.1	A

Management Measure	**Source of Good Practice Management Measure**
Complaints management system	Beach will maintain a consultation register and will track and close out complaints raised by relevant stakeholders.
Daylight operational hours (excluding drilling and well testing)	Beach will restrict site preparation, mobilisation, demobilisation, decommissioning and rehabilitation activities to daylight hours only.
Vertical Stack Flare-Size	The Vertical Stack Flare pipe and tip size is designed to reduce noise when conducting well testing and flaring activities.

Residual Consequence Evaluation

Disturbance to sensitive fauna or local landowners

Noise generated from activities are expected to be the most significant during well testing activities, and as such is the focus of this assessment. Noise emissions have the potential to result in disturbance to sensitive fauna or impacts to local landowners through auditory disturbance.

Noise monitoring studies have indicated that for an average well construction site, noise emissions are approximately 65 dBA @ 150 m from the drilling activity's location (Department of Environmental and Radiological Health Sciences 2016).

As per Section 3.4, the well site is situated on privately own agricultural land and remotely located from residential developments, local tourist attractions and main roads. There are no fixed sensitive receptors or sensitive users within close proximity, with the closest (uninhabited) residential receptor approximately 2 km away (Figure 3-5).

Under the Environmental Protection (Noise) Regulations 1997, the following outdoor noise levels have been assigned for sensitive receptors within the vicinity of the Development Envelope (Table 5-7).

Table 5-1 Assigned Outdoor Noise Levels

Premises Receiving Noise	**Time of Day**	**Assigned Level (dB)**

		LA_{10}	LA_1	LA_{max}
Sensitive receptors (nearest residences)	0700 - 1900 hours Monday to Saturday	45	55	65
	0900 - 1900 hours Sunday and Public Holidays	40	50	65
	1900 - 2200 hours all days	40	50	55
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays	35	45	55
Industrial boundary	All times	65	80	90

For the purposes of this risk assessment, the assumed noise levels during well testing are 90 dB] based on modelling undertaken by Zeeco at flow rate of 60 MMSCF/D..

At a distance of 1000 m (1 km), the expected noise level is 55 dB]. As the closest (uninhabited) residential property is located approximately 2 km away, the noise level experienced by landowners is expected to be below all assigned noise levels for sensitive receptors (Table 5-1).

The vertical flare is a large diameter pipe which reduces velocity through the tip and resulting noise.

No threatened or vulnerable fauna species that are known to be sensitive to noise emissions or have noise emissions documented as a key threat to their species were identified as potentially occurring within the Development Envelope (Section 3.2.4).

Disturbance to sensitive fauna or local landowners results as a minor consequence, local response with no lasting effects and low level impacts on biological and physical environment to an area of low significance Beach has identified the consequence rating to be Minor -1.

Residual Likelihood and Risk Level Summary

Hazard	Consequence	Likelihood	Residual Risk
Disturbance to sensitive fauna or local landowners	Minor - 1	Highly Unlikely – B^	Low

^Given the nature of these activities, the distance from sensitive receptors and lack of sensitive fauna, it is considered unlikely that these activities would result in a minor disturbance to fauna or stakeholders in the region. As such, it is considered Highly Unlikely (B) for these emissions to result in a Minor impact to sensitive receptors.

Determination of Acceptability

The level of potential risk for this aspect is considered acceptable by Beach. Having regard to the principles of Ecologically Sustainable Development for this aspect:

- the activity does not have the potential to result in serious or irreversible damage
- there is little scientific uncertainty associated with this aspect, and where uncertainty is present management measures have been identified to ensure the uncertainty is appropriately managed
- this aspect is not evaluated as having the potential to affect biological diversity or ecological integrity.

Consequently, the potential impacts and risks associated with noise emissions are considered acceptable.

Environmental Performance Objective	Environmental Performance Standard	Measurement Criteria	Responsibility	Record
Minimise and manage impacts associated with noise emissions	**Complaints management system** Beach will record all complaints including the following information: • the details of complaints received • any action taken in response to the complaint.	Annual environmental performance report verifies: • any noise emission complaints have been appropriately managed with relevant details recorded.	HSE Representative	Annual Environment Report
	Daylight operational hours Site preparation, mobilisation, demobilisation, decommissioning and rehabilitation will be	Records confirm that site preparation, mobilisation, demobilisation, decommissioning and rehabilitation) will be undertaken during daylight hours.	Project Manager	Daily Operations Records

	undertaken during daylight hours.			

5.3 Light Emissions

Source	The following activities were identified as having the potential to result in light emissions: • drilling operations • well testing (Vertical Stack Flare & Lighting Towers) • supporting operations.		
Hazard	**Consequence**	**Likelihood**	**Inherent Risk**
The generation of light emissions could result in:			
Disturbance to sensitive fauna or local landowners	Moderate – 2	Possible – D	Medium
ALARP Decision Context Justification			
The risks associated with light emissions are well managed via existing good practice management measures which are well understood and implemented by the industry. Based upon the proposed activity and its location, Beach have evaluated the worst-case potential consequence / risks associated with this aspect to be Minor (1) / Low with no management measures in place. As such, Beach believes ALARP Decision Context Type A should apply in accordance with Section 4.5.2.1			A
Management Measure	**Source of Good Practice Management Measure**		
Complaints management system	Beach will maintain a consultation register and will track and close out complaints raised by relevant stakeholders.		
Daylight operational hours (excluding drilling and well testing)	Beach will restrict site preparation, mobilisation, demobilisation, decommissioning and rehabilitation activities to daylight hours only.		
Residual Consequence Evaluation			
Disturbance to sensitive fauna or local landowners The potential receptors sensitive to light emissions include light sensitive fauna and local community residence's where light pollution can impact on amenity of the location. As per Section 3.4, the well is situated on privately owned agricultural land and remotely located from residential developments, local tourist attractions and main roads. There are no fixed sensitive receptors or sensitive users within close proximity, with the closest (uninhabited) residential receptor approximately 2 km away. No protected fauna that are known to be sensitive to light emissions or have light emissions documented as a key threat to their species were identified as potentially occurring within proximity of the Development Envelope. The potential for disturbance to sensitive fauna or local landowners is limited to local public concern, with no lasting effects and low level impacts on biological and physical environment to an area of low significance. As such, Beach has ranked this consequence as Minor – 1.			
Residual Likelihood and Risk Level Summary			
Hazard	**Consequence**	**Likelihood**	**Residual Risk**
Disturbance to sensitive fauna or local landowners	Moderate – 2	Unlikely – C	Medium
^Given the nature of these activities, the distance from sensitive receptors and lack of sensitive fauna, it is considered unlikely that these activities would result in a minor disturbance to fauna or stakeholders in the region. As such, it is considered Highly Unlikely (B) for these emissions to result in a Minor impact to sensitive receptors.			
Determination of Acceptability			
The level of potential risk for this aspect is considered acceptable by Beach. Having regard to the principles of Ecologically Sustainable Development for this aspect: • the activity does not have the potential to result in serious or irreversible damage • there is little scientific uncertainty associated with this aspect, and where uncertainty is present management measures have been identified to ensure the uncertainty is appropriately managed • this aspect is not evaluated as having the potential to affect biological diversity or ecological integrity. Consequently, the potential impacts and risks associated with light emissions are considered acceptable.			

Environmental Performance Objective	Environmental Performance Standard	Measurement Criteria	Responsibility	Record
Minimise and manage impacts associated with light emissions.	**Complaints management system** Beach will record all complaints including the following information: • the details of complaints received • any action taken in response to the complaint.	Annual environmental performance report verifies: • any light emission complaints have been appropriately managed with relevant details recorded.	HSE Representative	Annual Environmental Report
	Daylight operational hours Site preparation, mobilisation, demobilisation, decommissioning and rehabilitation will be undertaken during daylight hours.	Records confirm that site preparation, mobilisation, demobilisation, decommissioning and rehabilitation) will be undertaken during daylight hours.	Project Manager	Daily Operations Records

5.4 Dust Emissions

Source	The following activities were identified as having the potential to result in dust emissions: • site preparation operations • well site decommissioning and reinstatement • supporting operations.

Hazard	**Consequence**	**Likelihood**	**Inherent Risk**
The generation of dust emissions could result in:			
Disturbance to local landowners and impacts to vegetation.	Minor – 1	Possible - D	Low

ALARP Decision Context Justification	
The risks associated with dust generation are well managed via existing good practice management measures which are well understood and implemented by the industry. Based upon the proposed activity and its location, Beach have evaluated the worst-case potential consequence / risks associated with this aspect to be Minor (1) / Low with no management measures in place. As such, Beach believes ALARP Decision Context Type A should apply in accordance with Section 4.5.2.1	A

Management Measure	**Source of Good Practice Management Measure**
Complaints management system	Beach will maintain a consultation register and will track and close out complaints raised by relevant stakeholders.
Speed limits	By reducing speed limits where limits are not set by law, the amount of dust produced by vehicle movement is expected to be reduced. Speed limits to be adhered to at all times, as per signage or instructions in the induction, on designated access tracks.

Residual Consequence Evaluation

Disturbance to local landowners and impacts to vegetation.

Dust emissions generated by the activities covered in this EP have the potential to extend outside the disturbance footprint, potentially impacting local landowners and vegetation.

As per Section 3.4, both wells are situated on privately owned agricultural land and remotely located from residential developments, local tourist attractions and main roads. The closest resident is approximately 1 km away from the Development Envelope. As discussed in Section 3.2.3, the Development Envelope consists of previously cleared agricultural land. No sensitive flora species have been identified to be present within the Development Envelope.

Dust can cause reduced air quality, acute and chronic health effects, as well as amenity impacts due to reduced visibility and settling on surfaces causing soiling and staining (DEC 2011). Using a dust risk assessment tool (DEC 2011), which considered the soil type,

wind speeds and location context, the risks associated with dust caused by the activities described in this EP were classed as negligible, with no provisions or contingency arrangements required.

A long-term monitoring program that investigated impacts of dust on vegetation for a significant development in the Pilbara over a 5 year period, where significantly higher volumes of vehicles (heavy and light) and earthworks were present, determined that no adverse impacts occurred to plant health or vegetation communities as a result of construction dust loads (Chevron Australia 2015).

Given that all activities occur within the Development Envelope, and the Development Envelope is approximately 2 km from the closest residential receptor and away from native vegetation, the dust generated is not expected to cause a significant impact to local landowners or vegetation.

As such, Beach has ranked this consequence as Minor – 1.

Residual Likelihood and Risk Level Summary

Hazard	Consequence	Likelihood	Residual Risk
Disturbance to local landowners and impacts to vegetation.	Minor – 1	Highly Unlikely - B^	Low

^Given the nature of these activities, the distance from sensitive receptors and lack of sensitive flora, it is considered highly unlikely that these activities would result in a minor disturbance to flora or stakeholders in the region. As such, it is considered Highly Unlikely (B) for those emissions to result in a Minor impact to sensitive receptors.

Determination of Acceptability

The level of potential risk for this aspect is considered acceptable by Beach. Having regard to the principles of Ecologically Sustainable Development for this aspect:

- the activity does not have the potential to result in serious or irreversible damage
- there is little scientific uncertainty associated with this aspect, and where uncertainty is present management measures have been identified to ensure the uncertainty is appropriately managed
- this aspect is not evaluated as having the potential to affect biological diversity or ecological integrity.

Consequently, the potential impacts and risks associated with dust emissions are considered acceptable.

Environmental Performance Objective	Environmental Performance Standard	Measurement Criteria	Responsibility	Record
Minimise and manage impacts associated with dust emissions	**Complaints management system** Beach will record all complaints including the following information: • the details of complaints received • any action taken in response to the complaint.	Annual environmental performance report verifies: • any dust emission complaints have been appropriately managed with relevant details recorded.	HSE Representative	Annual Environmental Report
	Speed limits Personnel and contractors will be made aware of speed limits along the access tracks via inclusion in Beach's induction.	Induction records of personnel and contractors completing the induction prior to arriving on site.	HSE Representative	Induction Register

5.5 Atmospheric Emissions

Source	The following activities were identified as having the potential to result in atmospheric emissions: • site preparation operations • drilling operations • well testing • well suspension • well site decommissioning and reinstatement • supporting operations.

Hazard	Consequence	Likelihood	Inherent Risk

The generation of atmospheric emissions (including Greenhouse Gas [GHG] emissions) may result in a reduction of air quality that could cause:			
Disturbance to sensitive fauna or impacts to local landowners.	Minor – 1	Highly Unlikely - B	Low
ALARP Decision Context Justification			
The risks associated with atmospheric emissions are well managed via existing good practice management measures which are well understood and implemented by the industry. Based upon the proposed activity and its location, Beach have evaluated the worst-case potential consequence / risks associated with this aspect to be Minor (1) / Low with no management measures in place. As such, Beach believes ALARP Decision Context Type A should apply in accordance with Section 4.5.2.1			A

Management Measure	**Source of Good Practice Management Measure**
Pilot flame is used during flaring to keep flame alive	By ensuring that cold venting is prevented during well testing flaring operations, methane emissions associated with this activity are significantly reduced. Cold venting results in the release of methane, carbon dioxide, volatile organic compounds, sulphur compounds and gas impurities to the atmosphere, whereas flaring causes these gases to oxidise and form carbon dioxide, which has a global warming potential 21 times lower than methane.
Complaints management system	Beach will maintain a consultation register and will track and close out complaints raised by relevant stakeholders.
Planned emissions are monitored and reported	In accordance with Regulation 15 of the PGER(E)R, Beach is required to monitor and record the atmospheric emissions associated with these activities.

Residual Consequence Evaluation

Disturbance to sensitive fauna or impacts to local landowners

Upon release, atmospheric emissions rapidly disperse as they rise through the atmosphere, limiting the extent of any potential impact to the immediate vicinity of the release location. Atmospheric emissions associated with the combustion of diesel for fuel may be relatively continuous during activities covered within this EP.

The potential receptors sensitive to air emissions include local landowners and fauna. As per Section 3.4, the Development Envelope is remotely located from residential developments, local tourist attractions and main roads. Consequently, there are limited sensitive socio-economic receptors (if any) that are expected to be exposed to atmospheric emissions associated with this activity. No protected fauna that are known to be sensitive to atmospheric emissions or have atmospheric emissions documented as a key threat to their species were identified as potentially occurring within proximity of the Development Envelope.

Any environmental impacts experienced from atmospheric emissions are limited to the area directly surrounding the well sites. Given the distance from any sensitive receptors and the understanding that upon release, these emissions rapidly disperse as they rise through the atmosphere, any impacts to fauna or local landowners would be extremely limited in extent and duration. Any effects would be expected to rapidly return to normal upon completion of the activity.

As such, Beach has ranked this consequence as Minor – 1.

Residual Likelihood and Risk Level Summary

Hazard	**Consequence**	**Likelihood**	**Residual Risk**
Disturbance to sensitive fauna or impacts to local landowners.	Minor – 1	Rare – A^	Low

^Given the nature of these activities, the distance from sensitive receptors and lack of sensitive fauna, and the rapid dilution of atmospheric emissions, it is considered unlikely that these activities would result in a minor disturbance to fauna or stakeholders in the region. As such, it is considered Rare (A) for these emissions to result in a Minor impact to sensitive receptors.

Determination of Acceptability

The level of potential risk for this aspect is considered acceptable by Beach. Having regard to the principles of Ecologically Sustainable Development for this aspect:

- the activity does not have the potential to result in serious or irreversible damage
- there is little scientific uncertainty associated with this aspect, and where uncertainty is present management measures have been identified to ensure the uncertainty is appropriately managed
- this aspect is not evaluated as having the potential to affect biological diversity or ecological integrity.

Consequently, the potential impacts and risks associated with atmospheric emissions are considered acceptable.

Environmental Performance Objective	Environmental Performance Standard	Measurement Criteria	Responsibility	Record
Minimise and mange impacts associated with atmospheric emissions.	**Pilot flame is used during flaring to keep flame alive** Beach Energy will ensure a pilot flame is used during well testing (flaring) to keep the flame alive and avoid cold venting during well testing.	Records confirm availability and usage of pilot during well test operations.	Project Manager	Well test records
	Complaints management system Beach will record all complaints including the following information: • the details of complaints received • any action taken in response to the complaint.	Annual environmental performance report verifies: • any atmospheric emission complaints have been appropriately managed with relevant details recorded.	Environmental Advisor	Annual Environmental Report
	Planned emissions are monitored and reported Beach will report on the volumes of atmospheric emissions in accordance with Section 6.10.3.	Quarterly emissions report to DMIRS include volumes of atmospheric emissions for the quarter.	Environmental Advisor	Quarterly Emissions & Discharges Report

5.6 Extraction of Groundwater

Source	The following activities were identified as having the potential to require the extraction of groundwater: • site preparation operations • drilling operations.		
Hazard	**Consequence**	**Likelihood**	**Inherent Risk**
Extraction of groundwater has the potential to result in:			
Drawdown of groundwater	Minor – 1	Highly Unlikely - B	Low
ALARP Decision Context Justification			
The risks associated with extraction of groundwater are well managed via existing good practice management measures which are well understood and implemented by the industry. Beach has evaluated the worst-case potential consequence / risk associated with this aspect to be Minor (1) / Low with no management measures in place. As such, Beach believes ALARP Decision Context Type A should apply in accordance with Section 4.5.2.1			A
Management Measure	**Source of Good Practice Management Measure**		
Ground water licences	In accordance with the *Rights in Water and Irrigation Act 1914*, as the proposed abstraction is within a proclaimed groundwater area (DoW 2009) all water production must be licensed prior to take.		
Meter calibration and monitoring	As described in the Department of Water - Measuring the taking of water guidelines (DoW 2016), Clause 46 of Schedule 1 to the *Rights in Water and Irrigation Act 1914* expressly contemplates licensees being subject to metering because it is recognised as an accurate and reliable measuring technique.		
Residual Consequence Evaluation			
Drawdown of groundwater Drawdown of shallow groundwater reserves associated with water extraction has the potential to result in a change to local hydrology which may be relied on by the surrounding vegetation communities. Depending on the nature of the geological formation on which they lie, water systems have the potential to be affected by the drawdown of groundwater. As per Section 3.1.4.1, the Arrowsmith River is the nearest surface water sensitivity, located 8 km south of the TNW-1 well site. While base flow of the Arrowsmith River is in some areas maintained by groundwater discharge from the Yarragadee, DoW (2017) and			

Nidagal (1994) indicate that in the location of the Development Envelope, the river recharges the aquifer. Consequently, the Arrowsmith River is not expected to be significantly impacted by small changes in groundwater levels in the Yarragadee Aquifer given it is recharged through the surface waters of the river.

The total water consumption is expected to be ~5,500 m^3 (Section 2.11.3). Analysis of groundwater extraction from the Yarragadee aquifer was undertaken to evaluate the potential change in water levels, based on the Theis equation. This analysis indicates that after 10 days of extraction, the maximum drawdown expected at a radius of 100 m and 500 m is 0.324 m and 0.168 m respectively. Once extraction has been completed, the drawdown impacts are expected to return to ambient conditions.

Drawdown is expected to result in no lasting effects with low level impacts on biological and physical environment to an area of low significance.

As such, Beach has ranked this consequence as Minor - 1.

Residual Likelihood and Risk Level Summary

Hazard	Consequence	Likelihood	Residual Risk
Drawdown of groundwater	Minor – 1	Highly Unlikely - B	Low

Given the distance from sensitive receptors and the limited extraction requirements for this activity, it is considered highly unlikely that these activities would result in a minor disturbance to the identified receptors. As such, the potential impacts evaluated above are considered Highly Unlikely (B) to occur.

Determination of Acceptability

The level of potential risk for this aspect is considered acceptable by Beach. Having regard to the principles of Ecologically Sustainable Development for this aspect:

- the activity does not have the potential to result in serious or irreversible damage
- there is little scientific uncertainty associated with this aspect, and where uncertainty is present management measures have been identified to ensure the uncertainty is appropriately managed
- this aspect is not evaluated as having the potential to affect biological diversity or ecological integrity.

Consequently, the potential impacts and risks associated with the extraction of groundwater are considered acceptable.

Environmental Performance Objective	Environmental Performance Standard	Measurement Criteria	Responsibility	Record
Minimise and manage impacts from groundwater drawdown associated with water extraction.	**Ground water licences** A *Rights in Water and Irrigation Act 1914* (RIWI Act) 26D licence will be in place prior to constructing any groundwater abstraction bore.	Records confirm a 26D licence is in place prior to constructing any groundwater abstraction bore	Environmental Advisor	26D Licence
	Ground water licences A *Rights in Water and Irrigation Act 1914* (RIWI Act) 5C licence will be in place prior to extracting any groundwater.	Records confirm a 5C licence is in place prior to the extraction of any water.	Environmental Advisor	5C Licence
	Ground water licences Groundwater extraction volumes will be monitored in accordance with any 5C abstraction licence conditions.	Records confirm water abstraction volumes are monitored in accordance with 5C licence conditions.	Environmental Advisor	Water Monitoring Records
	Meter calibration and monitoring Meters will be installed and calibrated in accordance with the Department of Water and Environmental Regulation 5C licence.	Records confirm water monitoring meters are installed and calibrated in accordance with the 5C licence.	Environmental Advisor	Water Monitoring Records

5.7 Socio-Economic

Source	All activities associated with this EP were identified as having the potential to impact on the interests, functions and activities of relevant stakeholders.		
Hazard	**Consequence**	**Likelihood**	**Inherent Risk**
Impact to the interests, functions and activities of relevant stakeholders has the potential to result in:			
Disruption to stakeholders	Minor – 1	Unlikely - C	Low
Third Party Interference	Minor – 1	Unlikely – C	Low
ALARP Decision Context Justification			
The risks associated with onshore exploration drilling activities are well understood and actively managed by the industry. How onshore exploration drilling activities potential impact stakeholders is well understood and managed through a variety of measures including stakeholder engagement, land access agreements and mechanisms for complaints to be raised with Beach Energy. Beach has evaluated the worst-case potential consequence / risk associated with this aspect to be Minor (1) / Low with no management measures in place. As such, Beach believes ALARP Decision Context Type A should apply in accordance with Section 4.5.2.1			A
Management Measure	**Source of Good Practice Management Measure**		
Land Access Agreement	As required under Section 20 of the PGERA, Beach are required to have a land-use agreement in place for the Development Envelope. this agreement clearly details how Beach will conduct activities on landowners' land.		
Complaints management system	Beach will engage with stakeholders and maintain a consultation register which will include the tracking and close out of complaints raised by relevant stakeholders.		
All non-fixed equipment taken offsite at demobilisation	All non-fixed equipment is taken offsite at demobilisation unless brought onsite under supervision/securely locked		
Speed Limits	Personnel to drive to conditions and strictly adhere to speed limits		
Induction	All personnel (i.e., employees, contractors and subcontractors) will be instructed (via site-specific inductions) on landowner/stakeholder sensitivities of the surrounding area		
Residual Consequence Evaluation			
Disruption to stakeholders Activities conducted by Beach have the potential to disrupt stakeholders. These can be local impacts through damage to landowner property (fences, access roads etc), exclusion to land during important seasons, or wider through, for example, change to ambient light levels, noise emissions and generation of dust. Based upon the magnitude of these activities, and associated emissions and discharges, Beach believe that potential disruptions would be limited to public concern restricted to local complaints and minor damage to existing infrastructure. As such, Beach has ranked this consequence as Minor - 1.			
Residual Likelihood and Risk Level Summary			
Hazard	**Consequence**	**Likelihood**	**Residual Risk**
Disruption to stakeholders	Minor – 1	Highly Unlikely - B	Low
Third Party Interference	Minor – 1	Highly Unlikely – B	Low
Given the distance from sensitive receptors, the limited nature of physical disturbance to the environment, and based upon the emissions and discharges from the activity (which are evaluated throughout this EP) it is considered highly unlikely that these activities would result in a minor disturbance to the identified receptors with the identified control measures in place. As such, the potential impacts evaluated above are considered Highly Unlikely (B) to occur.			
Determination of Acceptability			

The level of potential risk for this aspect is considered acceptable by Beach. Having regard to the principles of Ecologically Sustainable Development for this aspect:

- the activity does not have the potential to result in serious or irreversible damage
- there is little scientific uncertainty associated with this aspect, and where uncertainty is present management measures have been identified to ensure the uncertainty is appropriately managed
- this aspect is not evaluated as having the potential to affect biological diversity or ecological integrity.

Consequently, the potential impacts and risks associated with the disruption to stakeholders are considered acceptable.

Environmental Performance Objective	Environmental Performance Standard	Measurement Criteria	Responsibility	Record
Minimise disruption to relevant stakeholders.	**Land Access Agreement** A land access agreement will be in place prior to any activities commencing.	A land access agreement will be in place.	Community & Aboriginal Affairs Manager	Land access agreement
	Complaints management system (via BeachConnect) Beach will record all stakeholder environmental complaints including the following information: • the details of complaints received • any action taken in response to the complaint.	Monthly review of the complaints records verifies that any complaints have been appropriately managed and closed out.	Community & Aboriginal Affairs Manager	Complaints Register
	Induction Induction of personnel outlines: • landowner/stakeholder sensitivities of the surrounding area • speed limits and personnel to drive to conditions and strictly adhere to speed limits sign posted and outlined in the induction	All personnel (i.e., employees, contractors and subcontractors) will be inducted on landowner/stakeholder sensitivities of the surrounding area and speed limits	HSE Representative	Induction Register
No third party interference	**All non-fixed equipment taken offsite at demobilisation** All non-fixed equipment is taken offsite at demobilisation unless brought onsite under supervision/securely locked	Inspection confirms all equipment on site is fixed or securely locked.	Drilling Superintendent	Inspection Record

5.8 Unplanned Events

5.8.1 Physical Interaction – Fauna

Source	The following activities were identified as having the potential to result in in physical interaction with fauna: • site preparation operations • drilling operations • well testing • well site decommissioning and reinstatement • support operations.		
Hazard	**Consequence**	**Likelihood**	**Inherent Risk**
Physical interaction with fauna has the potential to result in:			
Death or injury to fauna	Moderate - 2	Possible - D	Medium
ALARP Decision Context Justification			

Entrapment and fauna strike are the two common sources of fauna interaction during operation of oil and gas facilities in the Perth Basin. However, as these pathways are well understood, the management measures for preventing/reducing these interactions from happening are well understood. These risks are well managed via existing good practice management measures which are well understood and implemented by the industry. Based upon the proposed activity and its location, Beach have evaluated the worst-case potential impacts and risks associated with this aspect to be Moderate (2) / Medium with no management measures in place. As such, Beach believes ALARP Decision Context Type A should apply in accordance with Section 4.5.2.1	A

Management Measure	**Source of Good Practice Management Measure**
Fauna exclusion and egress	As detailed in the Fauna Egress Matting and Ramps guidance (DMP 2012) the implementation of fauna exclusion and egress management measures where lined ponds / fauna traps are present are considered good practice to reduce likelihood of entrapment, whilst providing means of egress if the initial exclusionary barriers fail. Mud sump, turkey nest and VSP pit are to be fenced to prevent ingress of fauna. Potential fauna traps (including the mud sump and turkey nest) will be constructed with a means of fauna egress.
Site inspections	It is a generally accepted good industry practice to conduct routine inspections of areas that are considered to be a potential fauna trap throughout operations. Areas considered to be potential fauna traps are to be inspected for the presence of trapped fauna and remove / relocate trapped fauna by appropriately trained personnel (Table 6-4).
Speed limits	By reducing speed limits where limits are not set by law, the number of fauna strike incidents are expected to be reduced. Speed limits to be adhered to at all times as signposted or instructed in the induction.

Residual Consequence Evaluation

Death or injury to fauna

The potential for interaction with fauna is limited to within the Development Envelope (approximately 30.4 ha).

As described in Section 3.2.4, fauna species have the potential to be present within or adjacent to the Development Envelope however no significant habitat for fauna is present within the area itself, thus it is likely that only mobile fauna have the potential to be encountered.

Fauna receptors sensitive to physical interaction, with the potential to occur within the Development Envelope, include the chuditch, malleefowl and Carnaby's black-cockatoo. The Chuditch National Recovery Plan (DEC 2012), Malleefowl Species Profile (DPaW 2016) and Carnaby Cockatoo Recovery Plan (DPaW 2013) all identify fauna strike as a key threat to these species.

It is known that fauna mortalities caused by road traffic do not exert significant pressure on fauna at a population level (Department of Main Roads 2000), thus any unplanned incidents of injury or fatality caused as a part of this activity are expected to result in impacts at an individual level only and not have population effects.

Based upon the nature of the activities covered under this EP, the relatively small Development Envelope and the limited duration of the activity, any fauna incidents (if any) are expected to be low in numbers. The potential consequence has been identified as having a potential minor impact which is not expected to affect the ecosystem function.

As such, Beach has ranked this consequence as Moderate - 2.

Residual Likelihood and Risk Level Summary

Hazard	**Consequence**	**Likelihood**	**Residual Risk**
Death or injury to fauna	Moderate - 2	Unlikely - C^	Low

^Given the nature of these activities, fauna is expected to be encountered throughout the program. However, with management measures in place, and noting the scale and scope of the activity, the potential impacts evaluated above are considered Unlikely (C) to occur.

Determination of Acceptability

The level of potential risk for this aspect is considered acceptable by Beach. Having regard to the principles of Ecologically Sustainable Development for this aspect:

- the activity does not have the potential to result in serious or irreversible damage
- there is little scientific uncertainty associated with this aspect, and where uncertainty is present management measures have been identified to ensure the uncertainty is appropriately managed
- this aspect is not evaluated as having the potential to affect biological diversity or ecological integrity.

Consequently, the potential impacts and risks associated with physical interaction – fauna are considered acceptable.

Environmental Performance Objective	Environmental Performance Standard	Measurement Criteria	Responsibility	Record
Fauna protection measures are implemented to prevent fauna fatalities	**Fauna exclusion and egress** The mud sump, turkey nest and VSP pit will be fenced with 0.9 m high Cyclone ring lock standard fencing and with small animal mesh attached to the base of the fence to help prevent ingress of small animals.	Pre-spud audit verifies fauna exclusion fencing is in place prior to commencing drilling activities.	HSE Representative	Pre-Spud Inspection
	Fauna exclusion and egress Fauna egress (such as matting, rope, cargo netting or wood acting as a ramp) will be installed in the turkey nest and mud sump for the entirety of this activity.	Pre-spud audit verifies fauna egress measures are in place prior to commencing drilling activities.	HSE Representative	Pre-Spud Inspection
	Site inspections During drilling and well testing operations, all excavations (e.g. mud sump and turkey nest) will be inspected for fauna ingress routinely throughout operations.	Records of daily operational inspections during drilling and well testing operations confirm presence or absence of fauna ingress and any associated actions.	HSE Representative	Daily Operational Inspection
No fauna deaths attributed to vehicle strikes from this activity	**Speed limits** Vehicle speed limit signage will be installed along the access track and well sites during drilling activities.	Pre-spud audit verifies speed signage is in place along the access track and wellsite prior to commencing drilling activities.	HSE Representative	Pre-Spud Inspection

5.8.2 Fire

Source	The following activities were identified as having the potential to result in fire events: • site preparation operations • drilling operations • well testing • supporting operations.		
Hazard	**Consequence**	**Likelihood**	**Inherent Risk**
In the event of a fire, there is the potential for:			
Habitat and vegetation loss and / or fauna injury / fatality.	Major - 4	Unlikely - C	Medium
ALARP Decision Context Justification			
The risk of fire is well understood for these types of activities, as they are commonplace for onshore oil and gas activities in WA. The risk is well managed via existing good practice management measures and are well understood and implemented by the industry. Based upon the proposed activity and location, Beach has evaluated the worst-case potential consequence / risk associated with this aspect to be Major (4) / Medium with no management measures in place. Although there is little uncertainty associated with this aspect and the inherent risk ranking was medium given fire was identified as having the potential to cause a major environmental impact, the ALARP decision context for this aspect was determined as B, in accordance with Section 4.5.2.1.			B
Management Measure	**Source of Good Practice Management Measure**		
Gas flaring exemption	As per the requirements of the Bush Fires Act 1954, a gas flaring exemption (25A exemption) will be in place for gas flaring during well testing where this activity is to be undertaken during the restricted bush fire season.		
Bush Fires Regulations 1954	In accordance with the Bush Fires Regulations 1954, other hot work activities and off-road activities are prescribed activities and can occur during Total Fire Ban (TFBs) where the requirements of the regulations are implemented including notifications to be sent and maintenance of fire-fighting equipment on-site.		

Permit to Work (PTW)	Hot works are managed via the PTW system which ensures that any fire risks are considered and managed accordingly prior to the hot works being undertaken
Emergency Response Plan (ERP)	Regulation 46 of the Work Health and Safety (Petroleum and Geothermal Energy Operations) Regulations 2022, require that an ERP is in place for the activity and includes the requirements for training drills to be conducted and response equipment to be onsite.
Fire breaks	It is industry best practice and required by shires to ensure clearances between vegetation and the industrial activities are maintained to reduce the risk of causing a fire outside of the site.

Additional Management Measures Considered (Decision Context B and C)

Management Measure	Benefit	Cost	Selected for use?
Only conduct hot work activities outside the prohibited burning period. Under the *Bushfire Act 1954*, the minister and Fire and Emergency Services Commissioner proclaim prohibited and restricted burning periods (which for the purpose of 2021/2022 – the prohibited period is between 1 November – 28 February). Thus, consideration of working around these periods has been considered	The benefit of only conducting hot work activities outside of the restrictive burning period is that the likelihood of a fire event occurring, then getting out of control is reduced as the weather conditions are not favourable for such events. With the existing control measures in place, the likelihood of such an event occurring is considered Unlikely (C) given the standard requirements for managing these activities in accordance with the regulations. The implementation of this control measure is not expected to reduce the likelihood further. Thus, the level of environmental benefit is considered minimal.	Hot work needs to be undertaken during these periods to meet construction schedule, and therefore preventing hot works is likely to significantly delay the project schedule and interrupt operations. With the existing control measures in place, this control measure was not deemed to have a tangible risk reduction benefit, and noting the financial costs of delaying this project, implementing the control measure was deemed to be grossly disproportionate to the level of benefit achieved.	No
Subscribe to local fire notifications to identify TFB days. The Shire of Three Springs has implemented a system of advising farmers / businesses of imposing Harvesters, Vehicles and Internal Combustion Engines Bans, via a mobile phone SMS (text message). If a ban has been imposed, registered phones are sent a text message advising details.	The benefit of subscribing to local fire notification services is it provides real time notification and enables appropriate site awareness and scheduling of high-risk activities (such as hot works) to be reconsidered / reviewed. Given the nature of activities covered under this EP and with the existing control measures in place, the likelihood of such an event occurring is considered Unlikely (C). The implementation of this control measure is not expected to reduce the likelihood further. Thus, the level of environmental benefit is considered minimal.	There is no additional cost (financial or other) to the project associated with implementing this management measure. Given there is no cost to the project of implementing this control, although the benefit is minimal, the cost is not considered grossly disproportionate to the level of benefit achieved. Thus, has been selected for use.	Yes

Residual Consequence Evaluation

Habitat and vegetation loss and / or fauna injury / fatality

If a large fire started and was unable to be controlled, it has the potential to spread beyond the ignition site. If environmental conditions are favourable, fire events may travel quickly and damage a large area.

In the event of a fire, environmental values and sensitivities potentially at risk include vegetation and fauna, including species protected under the BC Act and EPBC Act, as described in Section 3.2.

Although a large fire has the potential to cause a significant impact to the environment in the short-term, recovery is expected, with many grassland and woodlands expected to recover rapidly after a fire (DPaW 2013).

Although local fauna communities are expected to alter immediately after a fire event (Radford and Fairman 2015), studies into conservation significant fauna suggest they are resilient to fire events due to physiological and behavioural adaptations thus are expected to return to normal over longer periods of time (Hing, et al. 2017).

Based upon the potential for a widespread impact with serious environmental effects with some long-term impacts,, Beach has ranked this consequence as Major - 4.

Residual Likelihood and Risk Level Summary

Hazard	Consequence	Likelihood	Residual Risk
Habitat and vegetation loss and / or fauna injury / fatality.	Major - 4	Highly Unlikely - B^	Medium

^Given the nature of these activities and with the management measures in place; the risk of starting a fire which results in major environmental impacts are considered to be Highly Unlikely (B) to occur

Determination of Acceptability

The level of potential risk for this aspect is considered acceptable by Beach. Having regard to the principles of Ecologically Sustainable Development for this aspect:

- the activity does not have the potential to result in serious or irreversible damage
- there is little scientific uncertainty associated with this aspect, and where uncertainty is present management measures have been identified to ensure the uncertainty is appropriately managed
- this aspect is not evaluated as having the potential to affect biological diversity or ecological integrity.

Consequently, the potential impacts and risks associated with physical interaction - soil and vegetation are considered acceptable.

Environmental Performance Objective	Environmental Performance Standard	Measurement Criteria	Responsibility	Record
No fire events onsite	**Bush Fires Act 1954** Beach will comply with the Bush Fires Act 1954 and specifically will: • apply for a 25A exemption notice for prohibited (and flaring) activities during the restricted burning period • notify DFES of conducting prescribed activities during TFB days • maintain firefighting equipment onsite during operations.	Records confirm that Beach has: • a 25A exemption notice for prohibited (and flaring) activities during the restricted burning period • notified DFES of conducting prescribed activities during TFB days • maintained firefighting equipment onsite during operations.	HSE Representative	Fire Notification Records and HSE Audit
	PTW All hot work activities undertaken in accordance with the relevant PTW (or equivalent) system.	Incident management system shows no non-compliance with issued hot work permit conditions that would initiate a bushfire.	HSE Representative	Incident Reports
	Fire breaks Firebreaks will be established and maintained in accordance with the conditions of exemption notices which requires compliance with the Shire of Three Springs' firebreak notice.	Records verify firebreaks have been maintained in accordance with the Shire of Three Springs' firebreak notices.	Project Manager	HSE Inspection Checklist

	Subscription to local fire notifications to identify total fire ban days Beach will subscribe to the Shire of Three Springs' local fire notifications and comply with advice during activities such as vehicle movement bans / complete restrictions.	Records confirm Beach has subscribed to the Shire of Three Springs' local fire notifications, and that advices complied with during initial construction activities.	HSE Representative	Fire Notification Records
	Subscription to local fire notifications to identify total fire ban days In the event of a total fire-ban, Beach will review scheduling of high-risk activities (hot works) and where the activity is not time critical reschedule these activities to occur outside of this ban	Daily report (or similar record) verifies that in the event of a total fire-ban, Beach has reviewed scheduling of high-risk activities (hot works) and where hot works are not time critical – that they are rescheduled outside of a total fire-ban day.	HSE Representative	HSE Inspection Checklist
Minimise and manage potential impacts from a fire event	**ERP** Beach will have an ERP in place that covers the well sites for the duration of the activities covered under this EP. Specifically: • Beach will maintain emergency equipment availability on site (such as fire extinguishers and other fire-fighting equipment) in accordance with the ERP • Beach will conduct a fire emergency response drill annually.	Weekly HSE inspection checklist verifies that emergency equipment (such as fire extinguishers and other firefighting equipment) are available and maintained in accordance with the ERP.	HSE Representative	HSE Inspection Checklist
		Emergency Exercise Drill Reports verify the emergency response drills were conducted.	HSE Representative	HSE Drill Records

5.8.3 Accidental Release of Waste

Source	The following activities were identified as having the potential to result in the generation, management and requirement for disposal of waste: • All activities. The types of waste expected to range from putrescible food waste, process equipment waste to hydrocarbon and contaminated waste. If this waste is not managed appropriately, there is the potential for an accidental release of wastes to the surrounding environment.		
Hazard	**Consequence**	**Likelihood**	**Inherent Risk**
An accidental release of solid or liquid waste has the potential to result in:			
Environmental pollution and fauna attraction and / or injury or death (from ingestion)	Moderate – 2	Unlikely - C	Medium
ALARP Decision Context Justification			
The management of waste is a well-practiced activity with standard management measures implemented across the industry. There is a good understanding of the release pathways, and consequently the management measures required to manage these pathways. Although there is not a specifically legislated / method for managing waste, general accepted practices are consistently implemented by the onshore oil and gas industry. Beach has evaluated the worst-case potential consequence / risk associated with this aspect to be Moderate (2) / Medium with no management measures in place. As such, Beach believes ALARP Decision Context Type A should apply in accordance with Section 4.5.2.1.			A

Management Measure	Source of Good Practice Management Measure
Appropriate rubbish receptacles and waste segregation	Although no specific industry guidance is available for waste management, it is generally considered best industry practice to segregate waste and store in receptacles that reduce the potential for fauna attraction and pollution events occurring. Specifically: • Waste storage is available to enable hydrocarbon contaminated materials to be segregated from general waste • Waste with the potential to be wind-blown or fauna attractant will be stored in a manner (covered) to avoid fauna scavenging and windblown litter.
Appropriately licensed waste contractor	Ensuring that an appropriately licensed contractor will remove solid wastes from location will reduce the risk of accidental release events given they will be experienced in transfer and transport of this waste from site. These contractors will also ensure that waste is disposed of at a licensed facility.
Waste register	Beach maintains a waste register and requires that waste produced onsite is logged in the register as soon as practical following storage or disposal.

Residual Consequence Evaluation

Environmental pollution and fauna attraction and / or injury or death (from ingestion)

Terrestrial fauna most at risk from ingestion or entanglement from litter and / or solid waste include mammals and birds.

Ingestion or entanglement has the potential to limit feeding / foraging behaviours as well as toxicity effects (where hazardous waste is released) and thus can result in fauna deaths. If waste is not managed appropriately, it may attract terrestrial fauna to site and result in the increased potential for interaction with fauna.

Given the restricted exposure period and limited quantity of waste generated from this activity, it is expected that any potential impacts would be localised, with windblown waste having the potential to extend outside the Development Envelope. Any unplanned incidents of injury or fatality caused by waste as a part of this activity are expected to result in impacts at an individual level only and not have population effects.

As such, Beach has ranked this consequence as Moderate - 2.

Residual Likelihood and Risk Level Summary

Hazard	Consequence	Likelihood	Residual Risk
Environmental pollution and fauna attraction and / or injury or death (from ingestion)	Moderate – 2	Highly Unlikely - B^	Low

^Given the duration of these activities and the limited volumes of waste that are anticipated to be generated, with the management measures in place the potential associated impacts evaluated above are considered Highly Unlikely (B) to occur.

Determination of Acceptability

The level of potential risk for this aspect is considered acceptable by Beach. Having regard to the principles of Ecologically Sustainable Development for this aspect:

- the activity does not have the potential to result in serious or irreversible damage
- there is little scientific uncertainty associated with this aspect, and where uncertainty is present management measures have been identified to ensure the uncertainty is appropriately managed
- this aspect is not evaluated as having the potential to affect biological diversity or ecological integrity.

Consequently, the potential impacts and risks associated with the accidental release of waste are considered acceptable.

Environmental Performance Objective	Environmental Performance Standard	Measurement Criteria	Responsibility	Record
Minimise impacts to environment by appropriately managing waste generated from the activity	**Reduce Waste** Equipment not used (drill pipe) for TNW-1 well will be utilised for other wells in Beach's campaign where possible.	Audit verifies: • redundant equipment from wells is being utilised were practicable.	HSE Representative	HSE Audit
	Appropriate waste receptacles and waste segregation Waste receptacles will be available around the well site to ensure waste is segregated as per **Table 2-9**.	Weekly HSE inspection verifies: • a waste receptacle is available for each type of waste generated as per Table 2-9.	HSE Representative	HSE Inspection Checklist

	Appropriate rubbish bins and waste segregation Waste receptacles that comprise putrescible waste, hydrocarbon contaminated waste or general waste will have lids.	Weekly HSE inspection verifies: • waste receptacles that comprise putrescible waste or general waste have lids • no evidence of site waste in the surrounding environment • no evidence of vertebrate fauna accessing waste receptacles	HSE Representative	HSE Inspection Checklist
	Appropriately licensed waste contractor All waste will be removed from site by an appropriately licensed contractor and disposed of at a licensed waste facility	Beach Energy's waste register, and contractor documentation verify all solid waste is removed from site by an appropriately licensed contractor and disposed of at a licensed waste facility	HSE Representative	Waster Register
	Waste register A waste register will be maintained for the duration of this EP and includes: • date • waste description (including container type) • waste volume • disposal end location • vehicle registration • disposal company & representative • drill site representative • disposal docket number.	Records confirm the waste register is maintained and includes waste type and volume for each waste disposal record and other details required on the waste register.	HSE Representative	Waste Register

5.8.4 Accidental Release of Hydrocarbons or Hazardous Materials (excluding Loss of well control [LOWC])

Source	The following activities were identified as having the potential to result in a hydrocarbon / chemical spill event: • all activities (specifically, refuelling of equipment, use and transport; an accidental release of liquid waste; and the installation, replacement and / or relocation of chemical storage). The credible spill scenarios associated with this activity include: • accidental loss of hazardous material (less than 1.5 m^3) – this covers the majority of chemicals, hydrocarbons and other hazardous materials on site (including liquid wastes). These materials are expected to be contained within bulky, drums tins or other containers • accidental loss of hydrocarbons (based upon a full release of the well site diesel tank, in the order of 75 m^3).			
Hazard		**Consequence**	**Likelihood**	**Inherent Risk**
An accidental release of hydrocarbon / chemicals has the potential to result in:				
Contamination of soil / groundwater		Serious - 3	Unlikely - C	Medium
ALARP Decision Context Justification				
The pathways for accidental releases during exploration drilling activities are well understood given the activity is common place in Western Australia. Management measures for preventing and managing these types of events are well established and implemented by the industry. Beach has evaluated the worst-case potential consequence / risk associated with this aspect to be Serious (3) / Medium with no management measures in place. As such, Beach believes ALARP Decision Context Type A should apply in accordance with Section 4.5.2.1				A

Management Measure	Source of Good Practice Management Measure
Spill protection during refuelling	It is standard industry practice for contractors to have and implement a refuelling procedure. Refuelling procedures include the requirement for refuelling in a designated area and using drip trays. For the purpose of this EP, Beach Energy will ensure that, in accordance with the contractors refuelling process, refuelling will only be undertaken on the well site hardstand, and drip trays will be utilised during this activity.
Chemical and hazardous liquid material storage	Australian Standards (AS 3833[2007]) recommends that: • secondary containment for hazardous materials, chemicals and hydrocarbons comprise a volume that equals 110% of the largest container within the contained area or 25% percent of the combined tank volumes • tanks that are double skinned (such as the mobile diesel tank).
Solid (dry) chemical storage requirements	Although there is limited guidance regarding the correct methods for storage of solid (dry) chemicals, it is standard industry practice to have these elevated off the ground and covered (where material is not stored in plastic containers or wrapped in plastic wrap) to prevent release to the environment during rain events.
Dangerous goods storage requirements	The management of dangerous goods is subject to various legislative requirements, and Australian Standards. Although large quantities of Dangerous Goods are not expected for this activity, any Dangerous Goods on site will be stored in accordance with the relevant requirements.
Soil samples	It is standard industry practice to take baseline soil samples prior to construction activities to enable a record of soil quality to be taken and enable reinstatement to be undertaken allowing comparison between pre and post impact samples. Soil sample will be conducted as per the parameters listed in Section 2.9.6. These parameters are considered suitable to indicate the initial post impact sampling requirements as it will indicate if there has been any contamination and furthermore detailed sampling can be implemented. Although the indicative analytes planned for post event sampling have been identified, this is likely to be amended once the spill material has been identified and expected constituents identified from the SDS. This flexibility ensures that an adaptive monitoring approach is implemented for the program such that impacts and risks can be reduced to ALARP. Where major spill event has occurred, additional soil sampling will be implemented as per the requirements outlined in the Oil Spill Contingency Plan (OSCP).
Monitoring of groundwater	As per the Guideline for Groundwater Monitoring in the Onshore Petroleum and Geothermal Industry (DMP 2016a), where petroleum activities (such as exploration drilling) pose low risks to groundwater, they are required to conduct water quality monitoring to verify that water quality is unaffected by the activity. Beach Energy will ensure that at least two suitable baseline samples are taken no more than 6 months prior to commencing the exploration drilling activity. Following drilling activities, three post activity samples will be taken quarterly following the commencement of drilling activities. If the post activity samples do not identify any change that is attributable to the drilling activity, groundwater sampling requirements under this EP will be terminated. Beach Energy plan to sample the following parameters: • Standing Water Level • Physical parameters: pH value, Dissolved Oxygen, Electrical Conductivity, Total Dissolved Solids, Total Hardness, Total Alkalinity (field measured) • Petroleum Hydrocarbons: BTEXN, C6-C40 TRH), ethane and methane. It should be noted that parameters used to identify changes in water quality associated with this drilling program are pH (for top hole section fluids) and TDS (associated with drilling fluids utilised in other hole sections). Where a major spill event such as this has occurred, and advice from the HSE Representative is that there is the potential for groundwater contamination, Beach Energy will conduct additional monitoring of groundwater at specified periods to understand if groundwater contamination has occurred. Quarterly monitoring will track the seasonal variability of groundwater parameters for the period of the monitoring program.
Spill kits	As required by Regulation 15(10) of the PGER(E)R, an OSCP must be in force for the activity to support management and recovery arrangements in the event of a spill event occurring. To support the first strike / immediate response actions in the event of a spill as directed by the OSCP, spill kits will be made available onsite.

OSCP	As required by Regulation 15(10) of the PGER(E)R, an OSCP must be in force for the activity to support management and recovery arrangements in the event of a spill event occurring. Beach will implement any oil spill response in accordance with the OSCP Beach Energy Perth Basin Oil Spill Contingency Plan [CDN/ID: 18993973].
ERP	Regulation 46 of the Work Health and Safety (Petroleum and Geothermal Energy Operations) Regulations require that an ERP is in place for the activity and includes the requirements for training drills to be conducted and response equipment to be onsite.

Residual Consequence Evaluation

Contamination of soil / groundwater

Based upon the activities covered under this EP, the worst-case scenario resulting from a failure during refuelling is expected to be a loss of 75 m^3 of diesel. Type II hydrocarbons such as diesel have a low viscosity and thus upon release are expected to start spreading over and soaking into the soils surrounding the hardstand area, which are comprised of well-drained quartz sands.

Based upon Grimaz et al. (no date) it is anticipated that a large release of 75 m^3 could result in an area in the order of 18,893 m^2 (or 2 ha) and 0.5 m penetration depth being contaminated where site containment and recovery was not in place.

Based upon Beach's understanding that the superficial aquifer is expected to be present at a depth of ~10 m (Section 3.1.4.2) below the ground, contamination of groundwater is not expected based on the expected penetration depth (0.5 m). As per Section 3.1.4.1, the Arrowsmith River is the nearest surface water sensitivity, located 8 km south of the well site.

Beach has evaluated any potential groundwater and soil impacts from spill scenarios as having potential moderate effects on biological or physical environment and serious effect to ecosystem functions.

As such, Beach has ranked this consequence as Serious – 3.

Residual Likelihood and Risk Level Summary

Hazard	Consequence	Likelihood	Residual Risk
Contamination of soil / groundwater	Serious - 3	Highly Unlikely - B^	Medium

^Given the types of spill events associated with this activity, the management measures in place, and the nature of this activity, the potential associated impacts evaluated above are considered Highly Unlikely (B) to occur

Determination of Acceptability

The level of potential risk for this aspect is considered acceptable by Beach. Having regard to the principles of Ecologically Sustainable Development for this aspect:

- the activity does not have the potential to result in serious or irreversible damage
- there is little scientific uncertainty associated with this aspect, and where uncertainty is present management measures have been identified to ensure the uncertainty is appropriately managed
- this aspect is not evaluated as having the potential to affect biological diversity or ecological integrity.

Consequently, the potential impacts and risks associated with accidental release of hydrocarbons or hazardous materials are considered acceptable.

Environmental Performance Objective	Environmental Performance Standard	Measurement Criteria	Responsibility	Record
No spill event outside of containment	**Spill protection during refuelling** Beach Energy will ensure that all refuelling on-site utilises drip trays and secondary containment during site preparation operations or is conducted on hardstand areas during drilling activities.	Weekly HSE inspection verifies: • refuelling activities are conducted utilising drip trays and comprises of either secondary containment (during site preparation operations), or being conducted on hardstand areas (during drilling activities).	HSE Representative	HSE Inspection Checklist
	Chemical and hazardous liquid material storage	Records confirm liquid storage areas that comprise hazardous	HSE Representative	HSE Audit

	All liquid storage areas that contain hazardous materials, chemicals or hydrocarbons will meet the bunding requirements of AS3833[2007] specifically: • secondary containment for hazardous materials, chemicals and hydrocarbons comprise a volume that equals 110% of the largest container within the contained area or 25% percent of the combined tank volumes • tanks that are double skinned (such as the mobile diesel tank).	materials, chemicals or hydrocarbons meet the identified requirements		
	Solid (dry) chemical storage requirements All solid (dry) chemicals will be stored in a manner to ensure that they are elevated off the ground and covered to prevent release to the environment during rain events.	Weekly HSE Inspection confirms stored solid (dry) chemicals are elevated off the ground / on pallets and covered to prevent release to the environment during rain events.	HSE Representative	HSE Inspection Checklist
	Dangerous goods storage requirements Where Dangerous Goods are required onsite, they will be stored in accordance with the relevant regulation and standards. Specifically stored in accordance with the Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007.	Weekly HSE Inspections verify that all Dangerous Goods are stored in accordance with the Dangerous Goods Requirements.	HSE Representative	HSE Inspection Checklist
Minimise and manage potential impacts from a hazardous material, hydrocarbon or chemical spill event	**Soil samples** Beach will collect baseline soil samples within the disturbance footprint (well sites) prior to construction activities occurring and validation samples taken post decommissioning of the well site.	Lab records confirm baseline and validation soil samples have been collected within the disturbance footprint prior to construction activities and post decommissioning.	Environmental Advisor	Soil Monitoring Records
	Monitoring of groundwater Beach will complete collection and analyses of groundwater samples twice prior to commencing and quarterly three times following drilling**.**	Water analysis report verifies baseline groundwater quality testing was undertaken prior to commencing and upon completing the drilling program.	Environmental Advisor	Water Analysis Report
	Soil samples In the event of a significant spill event, a remedial action plan will be developed aided by a soil and groundwater monitoring program implemented at frequencies outlined in OSCP.	Remedial Action Plan supported by: • Lab records confirm soil and groundwater samples have been collected as required per the detailed triggered events. • Contaminated Sites Specialist (as required)	Environmental Advisor	Remedial Action Plan

	Spill kits Fully equipped spill containment and clean-up kits are onsite and maintained for the duration of major site operations.	Weekly HSE inspection confirms spill kits are in place and maintained during major site operations.	HSE Representative	HSE Inspection Checklist
	OSCP In the event of an accidental release event, Beach will implement the OSCP.	Incident reports confirm that in the event of an accidental release, Beach has implemented a response in accordance with the OSCP.	HSE Representative	Incident Reports
	OSCP At least one training exercise (regarding oil spills) will be undertaken in accordance with the OSCP to ensure personnel on-site are familiar with emergency response actions in the event of a large spill event at each well site.	Records confirm an oil spill exercise has been undertaken at least once during drilling activities	Drilling Superintendent	HSE Drill Records

5.8.5 Accidental Release of Drilling Fluids

Source	The following activities were identified as having the potential to result in an accidental release of drilling fluids to the environment: • drilling operations. • well suspension The area potentially exposed by this release is expected to be comparable to a large diesel spill event described in Section 5.8.4.

Hazard	**Consequence**	**Likelihood**	**Inherent Risk**
An accidental release of drilling fluid has the potential to result in:			
Surface spill resulting in contamination of soil / groundwater	Moderate -2	Unlikely - C	Medium
Subsurface spill resulting in contamination of useable groundwater aquifer	Moderate -2	Unlikely - C	Medium
ALARP Decision Context Justification			
The risk of soil and groundwater contamination from these activities is well understood with onshore exploration drilling undertaken regularly. The management measures for preventing and managing this risk are also well understood and an inherent part of well design during early planning stages and activity execution. Based upon the proposed activity and its location, Beach Energy have evaluated the worst case potential impact associated with this aspect to be Moderate (2) / Medium with no management measures in place. As such, Beach believes ALARP Decision Context Type A should apply in accordance with Section 4.5.2.1			A

Management Measure	**Source of Good Practice Management Measure**
Rig Inspection	Beach will implement an assurance program to verify that the selected rig and associated equipment can meet the specified requirements. Specifically, a pre-start rig inspection is undertaken that includes inspection of the mud system.
Surface casing cemented across all useable freshwater aquifers	The guidelines for the protection of surface and groundwater resources during exploration drilling (DMPR 2002) requires the contamination of groundwater resources to be managed via the installation of casing which is secured / sealed via the use of a sealing material such as cement. Beach have designed the well such that surface casing is to be cemented across useable freshwater aquifers isolating them from other deeper saline aquifers. This is documented in the Well Management Plan (WMP), which is regulated by DMIRS.

Bund construction	As per the Department of Water's Water Quality Protection Note 26 (DoW 2013), evaporation ponds used to contain wastewater or solids that may leach contaminants for short-term containment, require synthetic membranes and need to meet specific requirements, which include: • all synthetic fluid containment liners should have a coefficient of permeability of less than 2 x 10^{-10} m/s; and • a minimum thickness of 0.75 mm.
Chemical disclosure	In accordance with Regulation 15(9) of the PGER(E)R 2012, chemicals or substances must be disclosed in an EP if they are: a. in, or added to, any treatment fluids to be used for the purposes of drilling or hydraulic fracturing undertaken in the course of the activity; or b. otherwise introduced into a well, reservoir or subsurface formation in the course of the activity. In addition to this, all chemicals that are to be used down hole under this EP are included on the Australian Inventory of Chemical Substances (AICS) or are otherwise approved for use in Australia. Specifically, these are included as Appendix B to this EP.
Low toxicity drilling fluid	Beach plan to use a low-toxicity water based KCl / PHPA / Polymer mud system that if lost to the environment is not expected to result in environmental impacts.
Site will be manned 24 hour a day	It is standard industry practice during the drilling activity, to man the site 24 hours per day. By ensuring personnel are onsite 24 hours per day, the risk of a prolonged drilling fluid release is minimised.
Monitoring of groundwater	As per the Guideline for Groundwater Monitoring in the Onshore Petroleum and Geothermal Industry (DMP 2016a), where petroleum activities (such as exploration drilling) pose low risks to groundwater, they are required to conduct water quality monitoring to verify that water quality is unaffected by the activity. Beach Energy will ensure that at least two suitable baseline samples are taken no more than 6 months prior to commencing the exploration drilling activity. Following drilling activities, three post activity samples will be taken quarterly following the commencement of drilling activities. If the post activity samples do not identify any change that is attributable to the drilling activity, groundwater sampling requirements under this EP will be terminated. Beach Energy plan to sample the following parameters: • Standing Water Level • Physical parameters: pH value, Dissolved Oxygen, Electrical Conductivity, Total Dissolved Solids, Total Hardness, Total Alkalinity (field measured) • Petroleum Hydrocarbons: BTEXN, C6-C40 TRH), ethane and methane. It should be noted that parameters used to identify changes in water quality associated with this drilling program are pH (for top hole section fluids) and TDS (associated with drilling fluids utilised in other hole sections). Where a major spill event such as this has occurred, and advice from the HSE Representative is that there is the potential for groundwater contamination, Beach Energy will conduct additional monitoring of groundwater at specified periods to understand if groundwater contamination has occurred. Quarterly monitoring will track the seasonal variability of groundwater parameters for the period of the monitoring program.
Fugitive discharges are monitoring and reported	In accordance with Regulation 15 of the PGER(E)R, Beach will monitor and record volumes of fluids lost downhole associated with these activities.
OSCP	As required by Regulation 15 of the PGER(E)R, an OSCP must be in force for the activity to support management and recovery arrangements in the event of a spill event occurring. Beach will implement any oil spill response in accordance with Beach Energy Perth Basin Oil Spill Contingency Plan [CDN/ID: 18993973].
Residual Consequence Evaluation	
Surface spill resulting in contamination of soil / groundwater Even in the event of a large drilling fluid spill, it is expected that the majority of fluids lost would be confined to the hardstand area resulting in no environmental impacts. As this type of event is expected to be contained to site, and as vegetation surrounding the wellsite doesn't comprise rare flora or important vegetation communities, any impacts are expected to be limited to minor short-term damage to area of limited significance. As such Beach Energy ranked this consequence to be Moderate - 2.	
Subsurface spill resulting in contamination of useable groundwater aquifer	

During drilling activities, a small amount of the drilling fluid and associated chemical additives is lost to the environment down hole as fugitive discharges (filtrate loss). There is also a risk that during drilling, fluid returns may be lost to the formation where porous / cavernous geological formations are intersected and where the casing has not yet been installed and cemented in place.

The most sensitive well sections are those that are drilled through the upper Yarragadee (Section 3.1.4.2). As the exploration program is located a significant distance away from any dwellings that utilise the potential freshwater aquifer and due to the nature of the fluid systems proposed for utilisation, any losses would be expected to result in no more than a minor short-term damage to an area of limited significance in the near vicinity of the activity.

As such Beach Energy ranked this consequence to be Moderate - 2.

Residual Likelihood and Risk Level Summary

Hazard	Consequence	Likelihood	Residual Risk
Surface spill resulting in contamination of soil / groundwater	Moderate -2	Highly Unlikely – B	Low
Subsurface spill resulting in contamination of useable groundwater aquifer	Moderate -2	Highly Unlikely - B^	Low

^Given the nature of these activities, loss of drill fluids down hole are expected, however, with the management measures in place, and the inert nature of the fluids planned to be used, the likelihood of potential impacts evaluated above occurring is considered Highly Unlikely (B).

Determination of Acceptability

The level of potential risk for this aspect is considered acceptable by Beach. Having regard to the principles of Ecologically Sustainable Development for this aspect:

- The activity does not have the potential to result in serious or irreversible damage
- There is little scientific uncertainty associated with this aspect, and where uncertainty is present management measures have been identified to ensure the uncertainty is appropriately managed
- This aspect is not evaluated as having the potential to affect biological diversity or ecological integrity.

Consequently, the potential impacts and risks associated with planned discharges are considered acceptable.

Environmental Performance Objective	Environmental Performance Standard	Measurement Criteria	Responsibility	Record
Minimise and mange impacts to groundwaters, soil and vegetation from accidental releases of drilling fluids during exploration drilling activities	**Rig Inspection** Beach will conduct a pre-spud inspection of the drilling rig including the mud system to verify the integrity of the system prior to use.	Pre-spud inspection records confirm a pre-spud inspection has been undertaken to verify the integrity of the system prior to use.	Drilling Superintendent	Pre-Spud Inspection
	Well Management Plan A DMIRS approved WMP will be in place and well operations undertaken in accordance with it.	End of well report confirms well was drilled in accordance with the WMP.	Project Manager	End of Well Report
	Bund construction Beach Energy will ensure the mud sump liner meets the Department of Water - Water Quality Protection Note 26 requirements; specifically: • the liner will have a coefficient of permeability of less than 2 x 10^{-10} m/s; • the liner will have a minimum thickness of 0.75 mm.	Procurement records confirm liners have a coefficient of permeability of less than 2 x 10^{-10} m/s and a minimum thickness of 0.75 mm.	Drilling Superintendent	Procurement Register
	Chemical disclosure All chemicals required for use down-hole will be disclosed to DMIRS prior to use.	Records verify no unknown or unauthorised chemicals are utilised down hole in the well.	Environmental Advisor	Chemical Disclosure and HSE Audit

	Low toxicity drilling fluid Beach Energy will use a low-toxicity water based KCl / PHPA / polymer mud system.	Records confirm Beach Energy has used a low-toxicity water based KCl / PHPA / polymer mud system.	Project Manager	Chemical Disclosure and HSE Audit
	Site will be manned 24 hour a day The well sites will be manned 24 hours a day during drilling and active well testing activities.	Daily drill report confirms the well sites are manned 24 hours a day during drilling activities.	Drilling Superintendent	Daily Drill Reports
	Monitoring of groundwater Beach will complete collection and analyses of groundwater samples twice prior to commencing and three times quarterly following drilling.	Water analysis report verifies baseline groundwater quality testing was undertaken prior to commencing and upon completing the drilling program.	Environmental Advisor	Water Analysis Report
	Fugitive discharges are monitoring and reported In accordance with the PGER(E)R, Beach will report on the volumes of drilling fluid lost down hole during the exploration drilling program in accordance with Section 6.10.	Quarterly emissions report to DMIRS include volumes of drilling fluid lost down hole for the quarter.	HSE Representative	Quarterly Emissions & Discharges Report
	OSCP In the event of a surface release of drilling fluids, Beach will implement the OSCP.	Incident reports confirm that in the event of a surface release of drilling fluids, Beach has implemented a response in accordance with the OSCP.	HSE Representative	Incident Reports

5.8.6 Accidental Release of Hydrocarbons (LOWC)

Source	A LOWC is considered a credible but unlikely event for this activity. Although the activity proposed is an exploration well activity, Beach know a considerable amount about the target formations given the history of exploration and operation activities within the region. If successful, the TNW-1 well is likely to encounter gas similar in composition to the Waitsia gas field with the same Kingia formation being targeted and with the Waitsia field being <20 kms to the north of the TNW-1 well. Gas produced from the Waitsia field includes very low concentrations of condensate and water of condensate (water that is entrained in the condensate). In the extremely unlikely event of a well blowout the liquid associated with the large gas release would be a light spray in order of <100 L/day condensate and <15 m3/day water. . In the event of a worst case LOWC event, Beach believes that Blow Out Control Specialists can be in Perth and on site within 48 hours and relevant specialist equipment available on site with 14 days of the first phone call. As such it is reasonable to estimate that the well could be controlled within 4 weeks based upon local access to specialist well control expertise and equipment. Assuming a 4 week LOWC cold venting period an estimated total of 2.8 m^3 of condensate could potentially be released to the environment. With the anticipated very minor volume of condensate produced with the gas, and as the most likely direction of gas flow is vertical, the liquid hydrocarbon component is expected to volatise / disperse via a mist and vaporise into the atmosphere resulting in little to no interaction with the environment surrounding the well sites.		
Hazard		**Consequence**	**Likelihood**	**Inherent Risk**
A LOWC event during this activity has the potential to result in:				
Reduction of air quality, resulting in disturbance to sensitive fauna or impacts to local landowners		Major - 4	Unlikely - C	Medium

Contamination of soil / groundwater	Major - 4	Unlikely - C	Medium
ALARP Decision Context Justification			
The risks, impacts and prevention measures for a LOWC event during exploration drilling activities are well understood given the activity is common place in Western Australia. Management measures for preventing and managing these types of events are well established and implemented by the industry. Beach has evaluated the worst-case potential consequence / risk associated with this aspect to be Major (4) / Medium with no management measures in place. In accordance with Section 4.5.2.1, Beach have applied ALARP Decision Context B.			B

Management Measure	Source of Good Practice Management Measure
Well Management Plan (WMP)	As required by Regulation 10 of the PGER (Resource Management and Administration) Regulations, a new well is required to have a WMP in place to ensure the well is designed and managed in accordance with sound engineering principles and industry best practice, including identification of risks. The WMP specifically describes and addresses well integrity risks and includes the requirements for the operator to manage these accordingly. Although additional well integrity control measures have been identified for this activity, they are specifically addressed in the WMP which is provided to DMIRS for acceptance under the PGER(Resource Management and Administration) Regulations. In accordance with PGER(E) Regulation 39, Beach Energy has not duplicated this information in this EP.
HSE Management Plan / bridging document	As required by the Work Health and Safety (Petroleum and Geothermal Resources) Regulations, a new well is required to have a Safety Management System (SMS) in place which ensures major accident events are identified, evaluated and managed, which includes a loss of well control event. Beach Energy will ensure an SMS is developed and implemented under the Work Health and Safety (Petroleum and Geothermal Resources) Regulations 2022.
Soil samples	It is standard industry practice to take baseline soil samples prior to construction activities to enable a record of soil quality to be taken and enable reinstatement to be undertaken allowing comparison between pre and post impact samples. Soil sample will be conducted as per the parameters listed in Section 2.4.5. These parameters are considered suitable to indicate the initial post impact sampling requirements as it will indicate if there has been any contamination and further more detailed sampling can be implemented. Although the indicative analytes planned for post event sampling have been identified, this is likely to be amended once the spill material has been identified and expected constituents identified from the SDS. This flexibility ensures that an adaptive monitoring approach is implemented for the program such that impacts and risks can be reduced to ALARP. Where major spill event has occurred, additional soil sampling will be implemented as per the requirements outlined in the OSCP.
Monitoring of groundwater	As per the Guideline for Groundwater Monitoring in the Onshore Petroleum and Geothermal Industry (DMP 2016a), where petroleum activities (such as exploration drilling) pose low risks to groundwater, they are required to conduct water quality monitoring to verify that water quality is unaffected by the activity. Beach Energy will ensure that at least two suitable baseline samples are taken no more than 6 months prior to commencing the exploration drilling activity. Following drilling activities, three post activity samples will be taken quarterly following the commencement of drilling activities. If the post activity samples do not identify any change that is attributable to the drilling activity, groundwater sampling requirements under this EP will be terminated. Beach Energy plan to sample the following parameters: • Standing Water Level • Physical parameters: pH value, Dissolved Oxygen, Electrical Conductivity, Total Dissolved Solids, Total Hardness, Total Alkalinity (field measured) • Petroleum Hydrocarbons: BTEXN, C6-C40 TRH), ethane and methane. It should be noted that parameters used to identify changes in water quality associated with this drilling program are pH (for top hole section fluids) and TDS (associated with drilling fluids utilised in other hole sections). Where a major spill event such as this has occurred, and advice from the HSE Representative is that there is the potential for groundwater contamination, Beach Energy will conduct additional monitoring of groundwater at specified periods to understand if groundwater contamination has occurred.

	Quarterly monitoring will track the seasonal variability of groundwater parameters for the period of the monitoring program.
Blow out control equipment and expertise	By ensuring Beach Energy has access to specialist blow out control equipment and expertise, the duration of a LOWC event can be minimised. It is expected Well Control Specialist will be on site within 48 hours of call out and the relevant specialist blow out control equipment available on site within 14 days of the first phone call.
Spill kits	As required by Regulation 15 of the PGER(E)R, an OSCP must be in force for the activity to support management and recovery arrangements in the event of a spill event occurring. To support the first strike / immediate response actions in the event of a spill as directed by the OSCP, spill kits will be made available onsite.
OSCP	As required by Regulation 15 of the PGER(E)R, an OSCP must be in force for the activity to support management and recovery arrangements in the event of a spill event occurring. Beach will implement any oil spill response in accordance with Beach Energy Perth Basin Oil Spill Contingency Plan [CDN/ID: 18993973].
ERP	Regulation 15(10)(a)(ii) of the PGER(E)R requires Beach to include emergency response arrangements to be implemented if an oil spill occurs as a requirement in their OSCP. Regulation 46 of the Work Health and Safety (Petroleum and Geothermal Resources) Regulations 2022. Regulations requires that an ERP is in place for the activity and includes the requirements for training drills to be conducted and response equipment to be onsite.

Residual Consequence Evaluation

Reduction of air quality, resulting in disturbance to sensitive fauna or impacts to local landowners

As described above, a LOWC has the potential to result in an unplanned release for a period of up to 4 weeks and given the most likely direction of gas flow is vertical and as gas is expected to rise rapidly, impacts arising from atmospheric emissions are not expected to be significant. However, given the potential to result in an unplanned offsite release which is an immediately reportable event, Beach has ranked this consequence as Major - 4.

Contamination of soil / groundwater

As described above, a LOWC has the potential to result in an unplanned release for a period of up to 4 weeks and with an anticipated very small volume of condensate produced with the gas, and as the most likely direction of gas flow is vertical, the liquid hydrocarbon component is expected to volatise / disperse via a mist and vaporise into the atmosphere. Therefore, impacts arising from contamination of soil and groundwater are not expected to be significant. However, given the potential to result in an unplanned offsite release which is an immediately reportable event, Beach has ranked this consequence as Major - 4.

Residual Likelihood and Risk Level Summary

Hazard	Consequence	Likelihood	Residual Risk
Reduction of air quality, resulting in disturbance to sensitive fauna or impacts to local landowners	Major - 4	Highly Unlikely – B^	Medium
Contamination of soil / groundwater	Major - 4	Highly Unlikely - B	Medium

^Given the management measures in place, and the nature of this activity, the potential associated impacts are evaluated as Highly Unlikely (B) to occur.

Determination of Acceptability

The level of potential risk for this aspect is considered acceptable by Beach. Having regard to the principles of Ecologically Sustainable Development for this aspect:

- although the activity has the potential to result in a Major (4) consequence, it is not expected to result in serious or irreversible damage and the likelihood of this impact occurring is with the management measures in place is Highly Unlikely (B)
- there is little scientific uncertainty associated with this aspect, and where uncertainty is present management measures have been identified to ensure the uncertainty is appropriately managed
- this aspect is not evaluated as having the potential to affect biological diversity or ecological integrity.

Consequently, the potential impacts and risks associated with a LOWC event are considered acceptable.

Environmental Performance Objective	Environmental Performance Standard	Measurement Criteria	Responsibility	Record
No impacts to soil / groundwater from a spill event	**WMP** Beach will ensure a WMP is in place and accepted by DMIRS prior to well spud that details the well	DMIRS acceptance letter verifies that a WMP is in place and accepted prior to well spud.	Project Manager	DMIRS Acceptance Letter

	control equipment, process and responsibilities being implemented.			
	Soil & Groundwater samples In the event of a significant spill event, a remedial action plan will be implemented.	Remedial Action Plan supported by: • Lab records confirm soil and groundwater samples have been collected as required per the detailed triggered events. • Contaminated Sites Specialist (as required)	Environmental Advisor	Remedial Action Plan
Minimise environmental impacts by responding effectively to a LOWC event	**Blow out control equipment and expertise** Beach Energy will have access to blow out control expertise and equipment prior to well spud.	Records confirm Beach Energy has access to blow out well control expertise and equipment prior to well spud as detailed in the OSCP.	Project Manager	MOU with Well Control Contractor
	Spill kits Fully equipped spill containment and clean-up kits are onsite and maintained for the duration of major site operations.	Weekly HSE Inspection confirms spill kits are in place and maintained during drilling operations.	HSE Representative	HSE Inspection Checklist
	OSCP In the event of an accidental release event, Beach will implement the OSCP.	Incident reports confirm that in the event of an accidental release, Beach has implemented a response in accordance with the OSCP.	HSE Representative	Incident Reports
	ERP Training exercises will be undertaken in accordance with the ERP and OSCP to ensure personnel on-site are familiar with emergency response actions in the event of a large spill event.	Records confirm emergency spill exercise has been undertaken.	HSE Representative	HSE Drill Records

6 Implementation Strategy

6.1 Operational Excellence Management System

The Beach Energy company-wide Operational Excellence Management System (OEMS) defines the minimum acceptable standards and performance expectations that must be met by all personnel performing work within the Company's Jurisdiction and by all core business processes. The OEMS covers the health, safety and environment expectations in all core areas of the business.

The Company performs its activities according to the relevant requirements of the OEMS and is comprised of four tiers of documentation as follows:

- Health & Safety, Environment and Risk Management Policies - defines the strategic objectives for the effective control of and continuing improvement to health, safety, and environmental issues throughout operations.
- OEMS Elements – The OEMS is comprised of 11 Elements [1] which interpret, support and detail the intent and performance requirements of the Policies and form the basis for development and application of the OEMS Standards implemented throughout the organisation. The OEMS Elements are listed in Table 6-1.
- OEMS Standards – The 30 OEMS Standards detail minimum requirements, the responsibilities and the business guidance that is needed to implement the Policies and inform ongoing development of site specific processes and procedures. A Standard is either implemented as the guiding document or (where further information about the implementation process is required at a Divisional or Business level) or a regional or site specific procedure is developed to detail application of the Standard. The OEMS Standards as they relate to each of the OEMS Elements are also listed in Table 6-1. It should be noted, that as the OEMS encompasses business requirements outside of health and safety requirements, this document refers to the relevant standards specific to HSE topics. It should be noted, that not all the OEMS Standards are explicitly relied upon for control of HSE risks as they are intended to cover some core business processes.
- Asset level procedures.

Beach has in place a Well Engineering and Construction Management System (WECS) that ensures Beach well activities are fit for purpose with operational risks managed to a level that is as low as reasonably practicable. It also ensures that changes are made in a controlled manner, that appropriate standards are adhered to, and that a sufficiently resourced and competent organisation is in place.

An OEMS Manual (CDN/ID 18985300) has been developed that links these tiers of documentation and site-specific procedures that are in place to manage potential impacts and risks for the activity to ALARP.

Specific components of the OEMS relevant to the environmental management of identified potential impacts and risk events include:

- Element 10 Environment and Community
- Element 8 Risk Management and Hazard Control, Standard 8.1 Risk Management
- Element 3 Information Management and Legal

Table 6-1 Beach OEMS Architecture

Element Name	Element	Standard	Std #
Partners, Leadership and Authority	1	Leadership Standard (Internal Communication, Goals, Objectives & Behaviours, etc.)	1.1
		Technical Authority Standard	1.2
		Joint Venture Management Standard	1.3
Financial Management and Business Planning	2	Integrated Planning Standard	2.1
		Phase Gate Standard	2.2
		Hydrocarbon Resource Estimation and reporting Standard	2.3
		Finance Management Standard	2.4
Information Management and Legal	3	Regulatory Compliance Standard	3.1
		Document Management Standard	3.2
		Information Management Standard	3.3
People, Capability and Health	4	Training and Competency Standard	4.1
		Health Management Standard	4.2
Contracts and Procurement	5	Contracts and Procurement Standard	5.1
		Transport and Logistics Standard	5.2
Asset Management	6	Asset Management Standard	6.1
		Maintenance Management Standard	6.2
		Well Integrity Management Standard	6.3
		Well Construction Management Standard	6.4
		Project Management Standard	6.5
Operational Control	7	Operational Integrity Standard	7.1
		Process Safety Standard	7.2
		Management of Change Standard	7.3
Risk Management and Hazard Control	8	Risk Management Standard	8.1
		Safe Systems of Work	8.2
		Emergency and Security Management Standard	8.3
Incident Management	9	Incident Management Standard	9.1
Environment and Community	10	Environment Management Standard	10.1
		Community Engagement Standard	10.2
Assurance and Reporting	11	Sustainability Standard	11.1
		Assurance and Reporting Standard	11.2

6.2 Health, Safety and Environment Policy

The Health & Safety and Environment and Risk Management (HSE) Policies are provided in Appendix A and define the way in which the Company conducts its business 'in an environmentally responsible and sustainable manner'. The Policies provide for understanding and managing risk, and continuous learning. The Policies are approved by the Board and signed by the Beach Energy CEO.

6.3 Chain of Command

To meet the requirements of Regulation 15(4) of the PGER(E)R, a clear chain of command for the implementation of the petroleum activity is outlined in Figure 6-1.

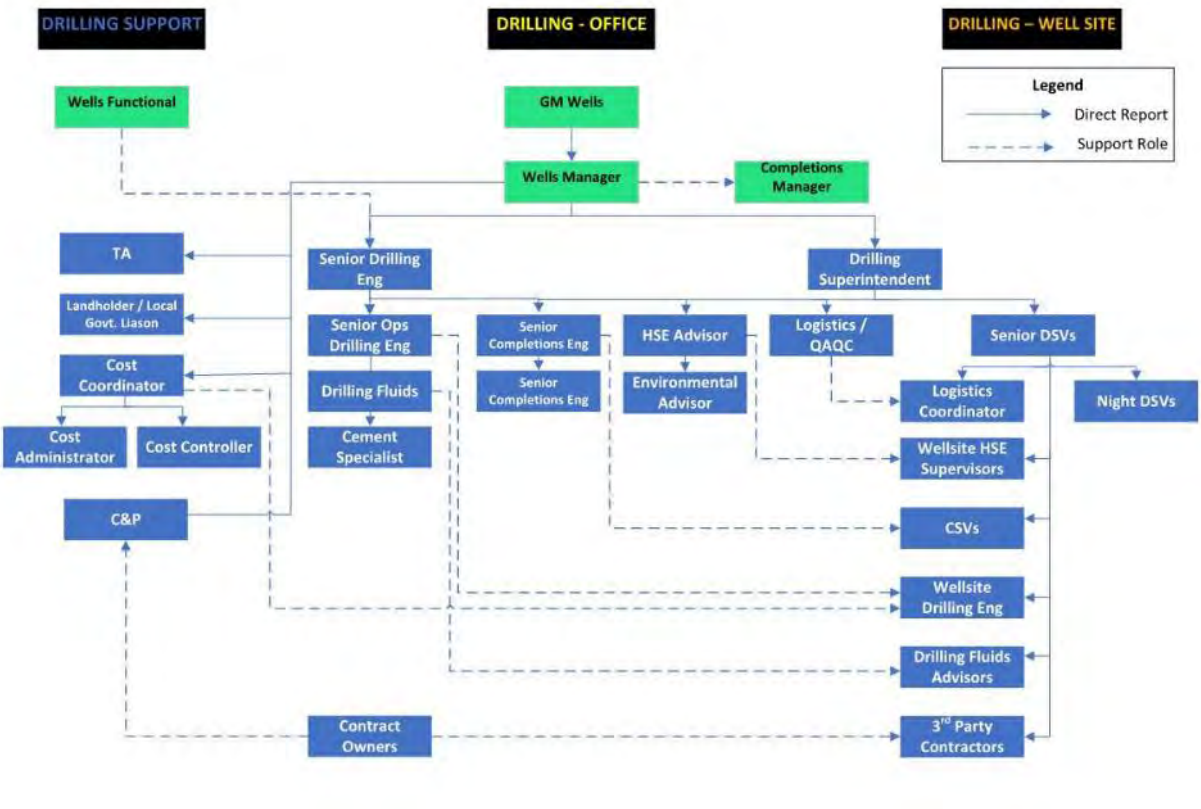


Figure 6-1 Project Organisational Chart

6.4 Roles and Responsibilities

Key roles and responsibilities are described in Table 6-2.

Table 6-2 Key Roles and Responsibilities

Role	Responsibility
Drilling Manager	Overall responsibility for the safe and environmentally acceptable management of the operation
Project Manager	Ensure that: • this EP is in place and implemented in accordance with Section 5.8.6 • the management measures and environmental performance standards documented in Section 5 are implemented • all assigned responsibilities in Section 5 are implemented • all reporting requirements in accordance with Section 6.9.1 are met • this role's training requirements (per Section 6.5) are met.
Drilling Superintendent	Ensure that: • all assigned responsibilities in Section 5 are implemented • this EP is in place and implemented in accordance with Section 5.8.6 • this role's training requirements (per Section 6.5) are met • all environmental incidents are reported to the Project Manager immediately

Role	Responsibility
HSE Representative	Ensure that: • all assigned responsibilities in Section 5 are implemented • training and inductions are provided as documented in Section 6.5 • all site inspections and audits are conducted as documented in Section 6.7 • the EP is reviewed in accordance with Section 6.7 • all records are maintained in accordance with Section 6.8
Well Site Managers	Ensure that: • all assigned responsibilities in Section 5 are implemented • this role's training requirements (per Section 6.5) are met.
Environmental Advisor	Ensure that: • Provide oversight and support to management personnel on Environmental functions • Undertake environmental audits and reporting
Community & Aboriginal Affairs Manager	Ensure that: • Land access arrangements are in place prior to Project personnel requiring land access • Stakeholder concerns are passed on to the relevant Functional Manager, and any issues requiring stakeholder consultation are communicated to relevant stakeholders • Stakeholder issues arising are adequately addressed in a timely manner, and provide (where requested) active assistance in facilitating such resolution • Routine liaison occurs between the Project operations and landholders, agree any necessary rehabilitation measures on completion of the Project and obtain close-out reports and forms of release from the landholders

6.5 Training and Competency

Training and competency requirements are mandated through OEMS Standard 4.1 Training and Competency.

Beach Energy's induction program provides the primary training tool for informing personnel of their responsibilities under this EP and will be implemented prior to personnel attending the well sites.

The induction program includes training to ensure that all personnel entering the area are aware of the relevant environmental sensitivities and their environmental responsibilities allowing them to carry out their work in an environmentally acceptable manner. It includes (but is not limited to) referencing matters related to: flora and fauna, heritage, weed hygiene, waste management, spill response, chemical storage and handling and vehicle access to site.

Records are maintained of all training and assessment provided to individuals and of any qualifications or certificates held. Relevant information is recorded in the Learning Management System.

The Drilling Manager Onshore has the overall responsibility for ensuring systems are in place to define requirements for personnel (including contractor) HSE competencies to carry out their work.

Given the number of specialist service providers required to complete an exploration drilling activity, each Service Provider is responsible for ensuring their personnel are suitably trained and certified for the operation of the various equipment items and materials being utilised for the Drilling Campaign. A training and certification register will be maintained by each Service Provider identifying the completed training for all their personnel. The Service Provider's Site Supervisor will monitor the competence of equipment operators and other personnel on the job and assist with on-the-job guidance and training where any deficiencies may be observed.

Each respective Service Provider participating in the project shall be responsible for:

- conducting a training needs analysis to identify the training & competency requirements of each position held

- maintaining a training matrix to record training and competencies achieved.

The OSCP will be tested at least once per well site.

6.6 Management of Change

All project changes are subject to a management of change evaluation. OEMS Management of Change describes how these changes are systematically managed to ensure adverse risks associated with the modification and introduction of new plant, equipment and operational changes are minimised.

This process is followed to document and assess the impact of changes to activities described in Section 2. Changes are assessed to determine if there is potential for new or increased environmental impact or risk not already provided for in this EP. Specifically, these changes are considered with relation to Regulation 18 of the PGER(E)R which details specific triggers for resubmission of this EP.

If the identified changes do not trigger Regulation 18 of the PGER(E)R, this EP can be revised, and changes recorded within it without resubmission to DMIRS.

6.7 Audit and Inspections

6.7.1 Audits and inspections

Environmental performance will be reviewed in several ways in line with OEMS Standard 11.2 Assurance. These reviews are undertaken to ensure that:

- environmental performance standards to achieve the environmental performance objectives are being implemented, reviewed and where necessary amended
- potential non-compliances and opportunities for continuous improvement are identified
- all environmental monitoring requirements have been met.

An annual audit to determine compliance of the activity against the EP's environmental performance objectives and standards will be undertaken. The results of this audit and the EP review will form part of the annual environmental report submitted to the DMIRS (refer Section 6.10.2).

Audits may focus on in-field activities or administrative processes depending on the activities being undertaken around the time of audit but is scheduled such that audit outcomes provide sufficient demonstration that environmental performance objectives and standards have been met and the activity implemented in accordance with this Implementation Strategy. A record of audits and the audit outcomes is maintained, and actions arising from internal audits are tracked until closure.

In addition to audits, HSE inspections are undertaken in accordance with this EP. Specifically, a weekly HSE inspection is conducted during drilling activities to ensure that management measures are being implemented and to identify instances of non-compliance or unplanned events. Daily documented operational inspections are also undertaken and in the event that a spill or leak has occurred it is expected that it would be identified during this inspection, which would then be reported and thus mitigation actions could be implemented. This daily inspection will also provide for the inspection of fauna ingress during drilling and well testing operations.

6.7.2 Management of Non-Conformance

Any non-compliance with the environmental performance objective and standards outlined in this EP will be subject to follow-up action/s will be assigned as appropriate.

The findings and recommendations of inspections and audits will be documented and distributed to relevant personnel for comments. Any opportunities for improvement or non-conformances noted will be communicated to the personnel at the time of the audit to ensure adequate time to implement corrective actions.

Tracking of non-conformances and audit actions will be undertaken using the incident management system. Specifically, at the time of writing this EP, Beach Energy utilise the CMO incident and action management system for tracking and close-out of non-conformances and actions.

Where required, non-conformances are communicated to site personnel during daily toolbox meetings before each shift. Beach will carry forward any non-conformances identified for consideration in future activities to assist with continuous improvement in environmental management controls and performance objectives.

All personnel have the authority to stop work at any time. Operations will be suspended if there is a non-conformance that increases the risk of significant negative impacts to the environment and the General Manager Operations (or other authorised person) is not satisfied that measures are in place to avoid a repeat of the incident. Operations may also be stopped where there is a legitimate risk of a HSE incident or a breach of the EP or legislative commitments occurring because of site practices or conditions.

6.7.3 Revision of the EP

This EP is a controlled document. Update of the EP will be in accordance with Beach's document control procedures. All regulator accepted revisions of the EP and OSCP will be issued as a major revision.

The PGER(E)R requires that a revision of the EP is submitted for approval:

- before the commencement of (Regulation 18(1)):
    - any new activity or
    - any significant modification of, significant change in, or significant new stage of, an existing activity that is not provided for in the EP
- before or as soon as practicable after (Regulation 18(2)):
    - a change in the instrument holder for, or operator of the activity or
    - the occurrence of any (or series of) new or significant increase in an existing environmental impact or risk.
- at the direction of the Minister (Regulation 19)
- at least 14 days before the end of each 5-year period (Regulation 20).

The most appropriate form for a revision (e.g. revised EP, bridging document or written notification) will be chosen based on consultation with key regulatory stakeholders (e.g. DMIRS) and DMIRS guidance.

6.7.4 Review of the EP

In addition to the minimum regulatory review period, it may be determined that an internal review of the EP is necessary when one of the following occurs and the criteria for submission of a revised EP to the Regulators are not triggered (e.g. administrative changes). These reviews may occur due to:

- changes to hazards and/or controls identified in the annual revision of the Environmental Risk Register
- revision of the OSCP results in changes that need to be reflected in the EP

- annual environmental performance reporting identifies issues in the EP that require review and/or updating
- implementation of corrective actions to address internal or external audit findings
- an environmental incident and subsequent investigation identifies issues in the EP that require review and/or updating
- a modification of the activity is proposed that is not significant but needs to be documented in the EP
- changes identified through the MOC process, such as hazards or controls, organisational changes affecting personnel in safety critical roles or HSE management systems
- changes to any of the legislation relevant to operations
- publication of any new relevant information or data that relates to any identified or potential impact and or risk relevant to the scope of the EP.

The HSE team provides advice to the Drilling Manager Onshore on the material impact of the items listed above and whether or not a review of the EP should be undertaken. The scope of a review will be determined by the factors that trigger the review and an appropriate team will be selected by the Drilling Manager Onshore to conduct the review. The team may consist of representatives from the Community, Engineering, HSE, Operations, or Supply Chain teams as required by the scope.

Where a revision to the EP is determined to not trigger a resubmission to the regulator, the changes will be recorded and the document updated to the next minor revision to reflect the amendment.

6.8 Record Keeping

Minimum storage and management requirements for record keeping are addressed by OEMS Element 3 Information Management and Legal Requirements, Standard 3.2 Document Management and Standard 3.3 Information Management. Specifically, the OEMS manual requires any record associated with the revision of this EP, reportable incidents and audit reports are managed in alignment with legal, regulatory and stakeholder requirements.

In addition to these records, those associated with an environmental performance objective, standard or measurement criteria (as described in Section 5 of this EP) will also be maintained for at least 5 years.

6.9 Environmental Emergency Planning and Response

The management of emergency and security events is addressed by OEMS Standard 8.3 Emergency and Security Management. An ERP will be developed for this activity by the drilling contractor. In the event of an environmental emergency, the response will follow the procedures set out in this ERP.

6.9.1 OSCP

In accordance with the PGER(E)R 12, Beach will develop for assessment a separate OSCP [CDN/ID: 18993973] for implementation with this EP and the Perth Basin drilling campaign.

The OSCP outlines the response structure and considers the four key aspects of prevention, preparedness, response and recovery. The spill scenarios identified in this EP and equipment and contacts available to respond to spills are described in the OSCP.

6.10 Reporting

This section outlines internal and external reporting to be undertaken for this activity. All written reports to the DMIRS are to be copied to the following email address in addition to the relevant DMIRS officer.

- petroleum.environment@dmirs.wa.gov.au

6.10.1 Pre-start and Cessation Notification

Beach Energy will inform DMIRS of the start of site preparation date prior to commencement of mobilisation of plant to site and provide notification of the completion date within 10 days demobilisation at the completion of drilling.

6.10.2 Annual Environment Report

Beach Energy will submit an Annual Environmental Report (AER) to detail the level of environmental performance over the duration of activities covered under this EP. Based upon the date this EP is accepted, the AER is to be submitted within three months of the 1-year period. The AER is to be submitted to DMIRS via email to petroleum.environment@DMIRS.wa.gov.au. The AER will contain:

- a detailed summary of the activities undertaken during the reporting period
- a statement of compliance for each objective and standard in the EP including justification based on the performance measurement criteria
- a review of audits undertaken, including the findings and corrective actions
- a review of any incidents that occurred (recordable and reportable) and lessons learned
- details of any clearing and/or decommissioning and rehabilitation undertaken during the reporting period
- a review of all emissions and discharges, and any trends or anomalies
- a review of all chemicals and other substances used
- details of methodology and results of any biological or environmental monitoring undertaken, and a discussion of any trends or anomalies identified
- details of any new or increased environmental impacts or risks identified during the reporting period
- details of all training and exercises undertaken
- details of consultation undertaken through the period.

6.10.3 Emissions and Discharge Reporting

In accordance with Regulation 34 of the PGER(E) Regulations, Beach Energy monitors and report to DMIRS, every three months, all emissions and discharges to land, air, groundwater, sub-surface or inland waters environment that occur during the course of the Project. The quarterly report is to be submitted to DMIRS via email to petroleum.environment@DMIRS.wa.gov.au.

The following emissions and discharges have been identified as originating from activities described within this EP:

- drilling fluid losses
- combustion emissions from diesel
- waste (solid)
- waste (liquid).

- Well test gas (Flared)
- Well test gas (Vented)
- Liquid (Water produced and disposed)
- Liquid (Condensate produced & disposed)
- Chemicals instream (hydrate management)

For the purposes of the PGER(E)R Table 6-3 provides a summary of the emission and discharge monitoring equipment, and the calibration / testing frequency for this equipment.

Table 6-3 Emissions and Discharges Monitoring Requirements

Emission / Discharge	Constituent	Monitoring Details	Calibration / testing frequency of monitoring equipment
Drilling fluid losses	Volume of drilling fluid	Fluid reconciliation verifies total volume of fluid (versus that recovered) over the course of the drilling program	N/A
Combustion emissions from diesel	Volume of diesel used on-site	Records of diesel consumption quantifies volume of diesel used	N/A
Waste (solid)	Volume of solid waste generated	Waste disposal receipt / certificate will detail amount / volumetric estimates as appropriate for the waste type	N/A
Waste (liquid)	Volume of liquid waste generated	Waste disposal receipt /certificate will detail amount / volumetric estimates as appropriate for the waste type	N/A
Gas flared (emergency)	Volume of gas flared	Engineering Calculation	N/A
Leaks or Spills	Volume of Release	Site Inspection – Physical Measurement	N/A
Gas flared (well tested)	Volume of gas flared	Metered	Annual
Gas cold vented (accidental & tank vented)	Volume of gas cold vented	Engineered Calculation	N/A
Liquids produced	Volume of liquids (Condensate & Water)	Metered	Annual & onsite
Chemicals-well stream to flare	Volume by injection	Metered	Annual & Onsite

6.10.4 Incidents

OEMS Element 9 Incident Management and Standard 9.1 – Incident Management address the systems and protocols for managing, recording and investigating incidents.

Triggers for external reporting of incidents specific to the activity are described in Table 6-4 below. These triggers are also included in Beach's procedure (Regulatory Notification CDN/ID 13852562) which provides detailed guidance on the triggers for and responsibilities of reporting incidents externally.

Table 6-4 Incident Reporting

Recordable Incident Reporting - Regulation 30	
Legislative definition of 'recordable incident': '**Recordable incident**, for an activity, means a breach of an environmental performance objective or environmental performance standard, in the environment plan that applies to the activity, that is not a reportable incident' Recordable incidents are breaches of environmental performance objectives and standards described in Section 5.	
Reporting Requirements	**Report to**
Written notification to DMIRS by the 15th of each month As a minimum, the written incident report must describe: • the incidents and all material facts and circumstances concerning the incidents • any actions taken to avoid or mitigate any adverse environmental impacts • any corrective actions already taken, or that may be taken, to prevent a repeat of similar incidents. If no recordable incidents occur during the reporting month, a 'nil report' will be submitted.	Email: petroleum.environment@dmirs.wa.gov.au
Reportable Incident Reporting - Regulations 28 and 29	
Legislative definition of 'reportable incident': '**Reportable incident**, for an activity means an incident relating to an activity that has caused, or has the potential to cause an adverse environmental impact; and under the environmental risk assessment process the environmental impact is categorised as moderate or more serious than moderate.' The 'Guideline for the Development of Petroleum and Geothermal Environment Plans in Western Australia' (DMIRS 2022), states that the operator must define the consequence levels that imply a 'moderate or more serious than moderate' consequence regardless of the terminology used by the operator to describe consequence categories in the Environmental Risk Assessment. Accordingly, Beach Energy has defined a reportable incidents or event as an unplanned event that has the potential to result in a consequence of Serious (3) or a risk of High or greater. Therefore, the following incidents are considered to be reportable events under this EP (not planned activities): • damage to heritage sites / artefacts • fire event as a result of this activity • accidental release of hazardous materials / hydrocarbons in excess of 500 L • accidental release of hydrocarbons caused by a LOWC event. In accordance with PGER(E)R, where an environmental incident arises that is not previously evaluated by this EP, which has the potential to cause an adverse environmental impact; and under the environmental risk assessment process the environmental impact is categorised as moderate or more serious than moderate, the incident is considered as a reportable incident and reported accordingly.	
Reporting Requirements	**Report to**
Verbal or written notification must be undertaken within two hours of the incident or as soon as practicable (written is preferred). This information is required: • the incident and all material facts and circumstances known at the time, • any actions taken to avoid or mitigate any adverse environmental impacts. Verbal notifications must be followed by a written report as soon as practicable, and not later than 3 days following the incident. At a minimum, the written incident report will include:	Preferred method: Email: petroleum.environment@dmirs.wa.gov.au Alternative method: Phone: (08) 9222 3727 DMIRS submissions portal: http://www.dmp.wa.gov.au/Environment/Environment-reports-and-6133.aspx

• the incident and all material facts and circumstances, • actions taken to avoid or mitigate any adverse environmental impacts, • any corrective actions already taken, or that may be taken, to prevent a recurrence. If the initial notification of the reportable incident was verbal, this information must be included in the written report.	
Other Regulatory Reporting Requirements	
Death or injury to individual(s) from an EPBC Act Listed Species as a result of the petroleum activities. Report injury to or mortality of EPBC Act Listed threatened or migratory species as a result of the petroleum activities.	Department of the Environment and Energy (or equivalent): Phone: +61 2 6274 1111 Email: protected.species@environment.gov.au
In the event that local wildlife has been affected by a hydrocarbon spill (either injury or death), the DBCA Wildcare Helpline must be immediately consulted for advice on the management of affected fauna.	DBCA Wildcare Helpline Phone: 9474 9055
Non-life threatening pollution emergencies are to be reported as soon as possible. Pollution emergencies include discharges of hazardous materials or incidents which threaten public health or the environment.	Call DWER 24 hour Pollution Watch hotline 1300 784 782. After calling or emailing to notify the incident, fill in Section 72 Waste Discharge Notification form and attach to an email along with map of discharge point and send the completed form and map asap to pollutionwatch@dwer.wa.gov.au S72 Form takes precedence over Form N1 template in Licence document.

Fauna Injury Response Reporting

Agencies to call for a response to native fauna injury.

Agency	Location	Contact
DBCA	Jurien Bay	08 9688 6000
Wildcare	Greenough	08 9474 9055
GG Wildlife Rescue	Greenough	0401 272 608
Dongara Veterinary Hospital	Dongara	08 9927 1329
Dongara Shire Ranger	Dongara	08 9927 0000

7 Consultation

Minimising and mitigating the potential environmental impacts associated with the drilling activities is assisted by the engagement of key stakeholders to ensure all issues are identified and addressed.

Beach Energy's Project stakeholder strategy is to ensure that there is appropriate and timely consultation with relevant authorities and interested organisations and individuals in line with the requirements of the PGER(E)R and industry best practice.

7.1 Stakeholder Identification

In accordance with Regulation 17 of PGER(E)R, Beach completed a scoping exercise to determine which authorities, persons and organisations were considered to be relevant.

Given the isolated location of the well sites, limited stakeholders were identified but include:

- CO2 Australia
- government agencies (DMIRS, DWER)
- local government (Shire of Three Springs)
- Woodside
- local stakeholders
- Sothern Yamatji people (Traditional Land Owners).

7.2 Stakeholder Log

In accordance with Regulation 15(11) the implementation strategy must provide for appropriate consultation with relevant authorities and other relevant interested persons or organisations.

Table 7-1 provides a summary of the consultation undertaken specific to activities covered under this EP. Beach will continue to consult with relevant stakeholders throughout the course of this EP and until completion the EP activities.

Table 7-1 Stakeholder Consultation Undertaken

Stakeholder	Date	Consultation Type	Summary of Consultation	Outcome
Yamatji Southern Regional Corporation	4/03/2022	Email - Outgoing	Introductory email to Richard Riordan at YSRC. Discussed YPSHA progress from Beach. Also mentioned Beach's plans for drilling campaign for Q3 or Q4 FY23 and Beach's interest in discussing Cultural Heritage Management Procedures, Cultural Heritage Surveys and opportunities for local Aboriginal procurement	Plans to meet with YSRC
Yamatji Southern Regional Corporation	15/03/2022	Online Meeting	Met with Richard Riordan on Teams and ran through presentation of Beach's planned activities in the Perth Basin. Discussed YPSHA progress, and process for issuing Activity Notifications to trigger Heritage Surveys.	Continue to progress YPSHA review.
DMIRS	29/03/2022	Meeting	Preliminary briefing with DMIRS Executive Director on plans to drill 3 wells & 3 options in the Perth Basin	

Stakeholder	Date	Consultation Type	Summary of Consultation	Outcome
Yamatji Southern Regional Corporation	19/04/2022	Email - Outgoing	Follow up email to check progress of YPSHA.	NA
Shire of Irwin	21/04/2022	In Person	Meeting with Shire of Irwin Office. Gave presentation on Beach Energy's upcoming activities including Drilling Campaign & Zemira 3D Seismic Survey.	Council interested in visit to Beharra Springs during drilling campaign.
Shire of Three Springs	21/04/2022	In Person	Meeting with Shire of Three Springs Office. Gave presentation on Beach Energy's upcoming activities including Drilling Campaign & Zemira 3D Seismic Survey.	Council interested in receiving bi-monthly updates
DMIRS	21/04/2022	Meeting	Meeting to discuss clearing permit requirements. Beach also sought clarification from DMIRS on whether Appraisal wells are considered to be exploration activities and exempt from requiring a CP.	Beach need to apply for a Purpose CP for non-exploration wells. Need to decide if going to amend existing CP or apply for new permit.
Shire of Mingenew	24/05/2022	In Person	Meeting with Shire of Mingenew Office. Gave presentation on Beach Energy's upcoming activities including Drilling Campaign & Zemira 3D Seismic Survey.	CEO keen to see Beach provide emplyment and housing employees locally during projects
Yamatji Southern Regional Corporation	26/05/2022	Email - Incoming	YSRC comment that some coded definitions in YPSHA wont work under new Act. Further advice that any new YPSHA may require replacement on transition day of new ACHA.	Beach keen to progress YPSHA and will manage transition process when that happens.
DFES Gerraldton	26/05/2022	In Person	Met with DFES in Geraldton with Beach HSE Advisor to brief about upcoming operations.	Beach to contact DFES again closer to activity commencement.
Yamatji Southern Regional Corporation	8/06/2022	In Person	Beach met with YSRC Heritage Manager in Geraldton. Discussed YPSHA progress, new Act and process for issuing Activity Notifications. Received advice on engaging with Southern Yamatji groups and involvement in Heritage Surveys.	YSRC to provide feedback on YPSHA and provide example of Activity Notification.
Yamatji Southern Regional Corporation	9/06/2022	In Person	Beach met with YSRC Interim-CEO Luka Grey and Business Development Manager Michelle McComb at an Aboriginal Business Forum event in Geraldton. Briefly discussed planned activities, and desire to engage with operations tours.	Beach to arrange tour of operations at suitable time in the future.
Yamatji Southern Regional Corporation	9/06/2022	Email - Incoming	YSRC Heritage Manager sent through YPSHA with YSRC comments and Deed of Variation in relation to pre-Conclusive Registration tenure.	Beach to review and provide feedback to YSRC.
DWER	21/06/2022	Email – Incoming	Acknowledgement of successful application for a groundwater licence application for EP320 drilling campaign. Request for further information from DWER.	Beach provided further information
DMIRS	22/06/22	Meeting	Meeting between Beach and DMIRS regarding six well drilling campaign. Beach provided an update on their progress and asked some	Beach to submit first EP early July.

Stakeholder	Date	Consultation Type	Summary of Consultation	Outcome
			questions. DMIRS shared some practical advice.	
DWER	22/06/2022	Email – Incoming	Request for payment for 26D and 5C groundwater licence applications.	Beach made BPoint payment.
Yamatji Southern Regional Corporation	07/07/2022	Email - outgoing	Beach legal reviewed YPSHA seeking YSRC clarification on areas of YPSHA	Seeking response on Beach energy's questions
Yamatji Southern Regional Corporation	12/07/2022	Email - outgoing	Sent activity notice	As per YPSHA requirements
Yamatji Southern Regional Corporation	26/07/2022	Email - incoming	YSRC response to activity notice, advising us that activity notice has been provided to cultural committee and awaiting response	Awaiting response from Southern Yamatji cultural authority
Southern Yamatji Regional Corporation	03/08/2022	Email - outgoing	Requesting update on activity notice	Awaiting response re survey date
DMIRS	08/08/2022	Email – Outgoing	Beach provided the Notification of Operator for the 2023 Drilling Campaign to DMIRS.	The submission was acknowledged by DMIRS.
DWER	09/08/2022	Email – Incoming	Groundwater Licence 26D to drill CAW207681.	
Southern Yamatji Regional Corporation	16/08/2022	Phone - outgoing	Requesting update on Trigg surveys	Awaiting response on proposed survey dates
DMIRS	23/08/2022	Email – Incoming	Inquiry into scope of Environment Plan (inclusion of TNW 1) with reference to Notification of Operator.	Beach confirmed that TNW-1 was no longer in the scope of the EP320 EP.
Southern Yamatji Regional Corporation	25/08/2022	Phone - outgoing	Seeking update on Trigg surveys	Awaiting YSRC response
Southern Yamatji Reginal corporation	25/08/2022	Phone – Incoming	YSRC will follow up with heritage consultant	Dates to be confimed
DWER	31/08/2022	Email – Incoming	Groundwater Licence Assessment pending drilling information submission from Groundwater Licence 26D to drill CAW207681.	
Southern Yamatji Regional Corporation	5/09/2022	Phone – outgoing	Seeking update on Trigg survey dates	Awaiting YSRC response
Southern Yamatji Corporation	5/09/2022	Phone – Incoming	YSRC meeting with heritage consultant will provide survey update	
Southern Yamatji Regional Corporation	27/09/2022	Email - outgoing	Activity notice amendment to include TNW-1.	Awaiting YSRC confirming amended notice
Mallee Land Company (MLC) / Woodside	27/09/2022	Meeting	Meeting to discuss drilling exploration plans eg. top hole locations for the TNW-1 well, total footprint and development options. Beach to provide response to queries raised.	

Stakeholder	Date	Consultation Type	Summary of Consultation	Outcome
Mallee Land Co / Woodside	30/09/2022	Email	Email to MLC and Woodside regarding suitability of alternative well site outside of mallee	
Mallee Land Co / Woodside	7/10/2022	Email	Maps delineating alternate proposed well site sent to MLC and Woodside	
Mallee Land Co	13/10/2022	Meeting	Meeting to discuss new proposed site, importance of avoiding disturbance to mallee area, drill path, ground water impacts, site, site conditions and native vegetation,	Beach follow-up email 13/10/2022 in response to queries raised in meeting
Mallee Land Co	20/10/2022	Meeting	Meeting with Landholder. Confirmed that proposed well site moved slightly north to avoid native vegetation, seeking early access for Cultural Heritage survey,	Beach email 21/10/2022 to MLC and Woodside with status update
Southern Yamatji Regional Corporation	21/10/2022	Email - outgoing	Updated activity notice sent	
Mallee Land Co	25/10/2022	Email	Email providing further information re Cultural Heritage Survey and request for early access 5/11/2022 and draft short term access agreement	
Mallee Land Co	25/10/12022	Email	Activity Notice sent to Landholder	
Mallee Land Co	26/10/2022	Email	Land Access and Compensation Agreement (LACA) to Landholder	
Mallee Land Co	10/11/2022	Email	Access for Cultural Heritage survey	
Shire of Three Springs	15/11/2022	Phone Call	Development Application for Trigg will be passed on to CEO	
Mallee Land Co	18/11/2022	Email	Short Terms Agreement for access	Agreement signed and access granted
Mallee Land Co and Woodside	22/11/2022	Email	Draft Environmental Plans forwarded to landholder and Woodside	Provided for information
Southern Yamatji Regional Corporation	19/12/2022	Site Visit	Heritage Survey completed. No cultural heritage identified in surveyed area.	
Mallee Land Co	2/12/2022	Email	Updated draft LACA to landholder	For review
Mallee Land Co	6/12/2022	Email	Notice of access	Advising of intent to access for survey
Mallee Land Co	12/12/2022	Phone	Meeting between landholder and valuer regarding compensation for land access	Sharing information regarding land and rates
Shire of Three Springs	13/12/2022	Meeting	Update meeting on Beach drilling campaign. Shire of Chittering is processing planning applications.	
Mallee Land Co	22/12/2022	Email	Project update to landholder	Providing update on pending activities and timeframes
Mallee Land Co	9/2/2023	Meeting	Meeting between landholder and Beach staff to provide detail on fire protection/management	Landholder satisfied with info provided. Will seek direction from internal stakeholders

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Appendix A Beach Energy Corporate Environment Policy

Environment Policy

Objective

Beach is committed to conducting operations in an environmentally responsible and sustainable manner.

Strategy

To achieve this, Beach will:

- Comply with relevant environmental laws, regulations, and the Beach Health, Safety and Environment Management System which is the method by which Beach identifies and manages environmental risk.
- Establish environmental objectives and targets, and implement programs to achieve them that will support continuous improvement;
- Identify, assess and control environmental impacts of our operations by proactive management of activities and mitigation of impacts;
- Ensure that incidents, near misses, concerns and complaints are reported, investigated and lessons learnt are implemented;
- Inform all employees and contractors of their environmental responsibilities including consultation and distribution of appropriate environmental management guidelines, regulations and publications for all relevant activities;
- Efficiently use natural resources and energy, and engage with stakeholders on environmental issues; and
- Publicly report on our environmental performance.

Application

This policy applies to all personnel associated with Beach activities.



Matt Kay
Managing Director and CEO
December 2019

Document status

Version	Date reviewed	Prepared by	Reviewed by	Endorsed by	Date of and final approval by
1.0	2015	HSE Manager	HSE Committee	Risk Management Committee	Board 1 March 2015
2.0	October 2017	HSE Manager	HSE Committee	Risk Management Committee	Board 26 October 2017
3.0	September 2019	Head of Environment	Risk Mgmt Committee	RCGS Commitee	Board 13 Dec 2019

Amendment record

Version	Clause	Description of amendment
October 2017	Multiple	Minor amendments to wording
September 2019	Multiple	Branding, and changes to obligations

Appendix B Chemical Disclosure

1. **Drilling Fluid Chemical Disclosure**

A. SYSTEM DETAILS:	
OPERATOR:	Beach Energy
PROJECT / WELL NAME:	Trigg Northwest 1A Exploration Drilling
SYSTEM:	Drilling Fluids, HT Logging Pill & Completion Brine / Plug and Abandonment Fluid System
TOTAL VOLUME OF SYSTEM (m^3):	*3180 m^3

* includes 100% contingency volume

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
Water	N/A	Base Fluid	Bore water sourced onsite	81.04%	N
Barite / Newbar	Newpark	Weighting Agent	**Constituents:** BARIUM SULPHATE QUARTZ (CRYSTALLINE SILICA) Toxicity: Low toxicity. Under normal conditions of use, adverse health effects are not anticipated. QUARTZ (SILICA CRYSTALLINE) (14808-60-7) LCLo (inhalation) 300 ug/m^3/10 years (human) TCLo (inhalation) 16 000 000 particles/ft3/8 hours/17.9 years (human-fibrosis) Aquatic toxicity: Fish Toxicity LC50 (Rainbow trout) > 7500 ppm/96hrs. LC50 (Fresh Water Trout) > 21,000 ppm/96hrs. LC50 (Salt Water StickleBack) > 56,000 ppm/96hrs. Biodegradation/bioaccumulation: Barium sulphate (major ingredient of barite (60-100%)) is insoluble in water and not biodegradable. Not expected to bioaccumulate.	0.37%	Y

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
			This product is not anticipated to cause adverse effects to animal or plant life if released to the environment in small quantities. **OCNS Rated E - 24310, Exp 09/08/2021**		
Bentonite / NewGel NT / API Bentonite	Newpark	Viscosifier	**Constituents:** BENTONITE QUARTZ (CRYSTALLINE SILICA) SODA ASH Toxicity: The main component/s of this product are not anticipated to cause any adverse effects to plants or animals. QUARTZ (SILICA CRYSTALLINE) (14808-60-7) LCLo (inhalation) 300 ug/m^3/10 years (human) TCLo (inhalation) 16 000 000 particles/ft3/8 hours/17.9 years (human-fibrosis) BENTONITE (1302-78-9) LD50 (intravenous) 35 mg/kg (rat) LD50 (oral): >2000mg/kg (rat) LDLo (intravenous) 10 mg/kg (dog) Inhalation LC 50: >5.27 mg/L, 4hr (rat) Ecotoxicity Data: Bentonite (1302-78-9) EC50 Daphnia > 100 mg/l, 48 hours EC50 Freshwater algae > 100 mg/l, 72 hours LC50 Freshwater fish 16000 mg/l, 96 hours LC 50 Marine water fish 2800 - 3200 mg/l, 24 hours EC50 Coon stripe shrimp (*Pandalus danae*) 24.8 mg/l, 96 hours EC 50 Dungeness or edible crab (Cancer magister) 81.6 mg/l, 96 hours LC50 Rainbow trout, donaldson trout (*Oncorhynchus mykiss*) 19000 mg/l, 96 hours Persistence and degradability: Not relevant for inorganic substances Mobility: Low water solubility, expected to sink and migrate into the sediment. Expected to partition to	1.97%	Y

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
			sediment and wastewater solids. Bioaccumulation: Will not bio-accumulate. Other adverse effects: No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component. **OCNS Rated E - 26210 Exp 01/02/2021**		
Potassium Chloride	Newpark	Shale swelling inhibition (smectite & illite clays)	**Constituents:** POTASSIUM CHLORIDE Toxicity: Acute toxicity: LD50 (Ingestion): 1500 mg/kg (mouse) LD50 (Intraperitoneal): 620 mg/kg (mouse) LD50 (Intravenous): 117 mg/kg (mouse) LDLo(Ingestion): 20 mg/kg (man) LDLo (Intraperitoneal):900 mg/kg (guinea pig) LDLo (Intravenous): 77 mg/kg (guinea pig) LDLo (Subcutaneous): 2120 mg/kg (frog) TDLo (Ingestion): 60 mg/kg/days (woman) Ecotoxicity: In short-term acute toxicity tests with fish, daphnia and algae the following results were found (lowest test result values): *Ictalurus punctulus* 48h-LC50 = 720 mg/l; *Daphnia magna*: 48h-LC50 = 177 mg/l; *Nitzschia linearis*: 120 h-EC50 = 1337 mg/l. A chronic reproductive test with the invertebrate *Daphnia magna* gave a LOEC of 101 mg/l. All the studies compiled on the acute and chronic aquatic toxicity were > 100 mg/L. Thus, it is concluded that KCl is not hazardous to freshwater organisms. Taking into considerations the background concentrations of KCl in seawater (380 mg/l K+ and 19,000 mg/l Cl-), it is concluded that there is no reason for further investigations of KCl on marine species. The low concern for the environment is supported by the absence of a bioaccumulation potential for the substance. Biodegradation/Bioaccumulation: Biodegradability does not pertain to inorganic substances. Does not	2.49%	Y

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
			bioaccumulate. Mobile in Soil: No impact if small amount is released to the soil. **OCNS Rated E - 24330, Exp 11/03/2021**		
Calcium Carbonate (including various grades) Crcal 60/16, Circal Y, Circal 1000, Stonedust, Limestone LSC	Newpark	Bridging & Weighting Agent	**Constituents:** LIMESTONE (CALCIUM CARBONATE) QUARTZ (CRYSTALLINE SILICA) Toxicity: This product is expected to be of low toxicity. Based on available data, the classification criteria are not met. Calcium carbonate occurs naturally in a wide variety of substances including limestone, marble and eggshells. It is not anticipated to cause adverse environmental effects. Acute Toxicity: LD50 (Ingestion): 6450 mg/kg (rat) Biodegradation/Bioaccumulation: Biodegradability does not pertain to inorganic substances. Does not bioaccumulate.	5.59%	Y
Calcium Carbonate (including various grades) Omyacarb 10, 20 & 40	Newpark	Bridging & Weighting Agent	**Constituents:** QUARTZ (CRYSTALLINE SILICA) LIMESTONE (CALCIUM CARBONATE) Toxicity: This product is expected to be of low toxicity. Based on available data, the classification criteria are not met. Calcium carbonate occurs naturally in a wide variety of substances including limestone, marble and eggshells. It is not anticipated to cause adverse environmental effects. Acute Toxicity: LD50 (Ingestion) = 6450 mg/kg (rat). Biodegradation/Bioaccumulation:	0.15%	Y

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
			Dissolved calcium carbonate dissociates into calcium and carbonate ions. Calcium ions will be assimilated by living organisms in the water and the carbonate will become part of the carbon cycle. This product does not bioaccumulate.		
Salt (Sodium Chloride all grades)	Newpark	Weighting Agent	**Constituents:** SODIUM CHLORIDE INORGANIC SALT(S) WATER Toxicity: Acute toxicity: LC50 (Inhalation): > 42000 mg/m3/1 hour (rat) LD50 (Ingestion): 3000 mg/kg (rat) LD50 (Skin): > 10000 mg/kg (rabbit) Ecotoxicity: LC50 (water flea) is 2122 mg/L/48 hours; LC50 (fathead minnow) is 6.57 g/L/96 hours. This product is not anticipated to cause adverse effects to animal or plant life if released to the environment in small quantities. Biodegradation/Bioaccumulation: Biodegradability does not pertain to inorganic substances. Does not bioaccumulate.	5.97%	Y
NewZan D/Xanthan gum	Newpark	Viscosifier	**Constituents:** XANTHAM GUM WATER Toxicity: Acute toxicity: LD50 (oral) > 1000 mg/kg (mouse) LD50 (oral) > 45,000 mg/kg (rat) LD50 (oral) > 20,000 mg/kg (dog)	0.42%	Y

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
			LD50 (intraperitoneal): > 50 mg/kg (mouse) LD50 (intravenous): 100-250 mg/kg (mouse) <u>Biodegradation/Bioaccumulation:</u> This product is not anticipated to cause adverse effects to animal or plant life if released to the environment in small quantities. Not expected to bioaccumulate. **OCNS Rated E - 26280, Exp 22/02/2021**		
NewPac LV / Drispac SL	Newpark	Fluid Loss	**<u>Constituents:</u>** SODIUM CARBOXYMETHYL CELLULOSE SODIUM CHLORIDE WATER SODIUM GLYCOLATE <u>Toxicity</u>: Acute toxicity data available for ingredients: SODIUM CARBOXYMETHYL CELLULOSE (9004-32-4) LD50 (Ingestion): 16000 mg/kg (guinea pig) LD50 (Skin): > 2000 mg/kg (rabbit) TDLo (Ingestion): 140 mg/kg (rat) SODIUM CHLORIDE (7647-14-5) LC50 (Inhalation): > 42000 mg/m3/1 hour (rat) LD50 (Ingestion): 3000 mg/kg (rat) LD50 (Intraperitoneal): 2602 mg/kg (mouse) LD50 (Intravenous): 645 mg/kg (mouse) LD50 (Skin): > 10000 mg/kg (rabbit) LD50 (Subcutaneous): 3000 mg/kg (mouse) LDLo (Ingestion): 8000 mg/kg (rabbit) LDLo (Intravenous): 300 mg/kg (guinea pig) LDLo (Subcutaneous): 2160 mg/kg (guinea pig) TDLo (Ingestion): 12357 mg/kg (human) SODIUM GLYCOLATE (2836-32-0)	0.65%	Y

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
			LD50 (Ingestion): 6700 mg/kg (mouse) LDLo (Ingestion): 500 mg/kg (cat) Ecotoxicity: LC50 (Fresh Water Trout) > 21,000 ppm/96hrs. LC50 (Salt Water StickleBack) > 56,000 ppm/96hrs. Biodegradation/Bioaccumulation: This product is not anticipated to cause adverse effects to animal or plant life if released to the environment in small quantities. Not expected to bioaccumulate. **NewPac LV - OCNS Rated E - 28129, Exp 18/05/2021**		
FlexFirm KA	Newpark	Provides shale inhibition	**Constituents:** POTASSIUM SILICATE QUARTZ (CRYSTALLINE SILICA) Toxicity: Acute toxicity Information available for the product: No known toxicological effects from this product. Based on available data, the classification criteria are not met. Skin Irritating to the skin. Contact may result in irritation, redness, pain, rash, dermatitis and possible skin burns. Eye Irritating to the eyes. Contact may result in irritation, lacrimation, pain, redness, conjunctivitis and possible burns. Sensitization This product is not classified as causing skin or respiratory sensitisation. Irritating to the respiratory system. Over exposure may result in irritation of the nose and throat, with coughing. High level exposure may result in breathing difficulties. STOT – single exposure Aspiration This product does not present an aspiration hazard. Repeated exposure to respirable silica may result in pulmonary fibrosis (silicosis). Silicosis is a fibronodular lung disease caused deposition in the lungs of fine respirable particles of crystalline silica. Principal symptoms of silicosis are coughing and breathlessness.	0.24%	Y

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
			STOT – repeated exposure Reproductive Insufficient data available to classify as a reproductive toxin. Carcinogenicity Insufficient data available to classify as a carcinogen. This product contains crystalline silica which is classified as carcinogenic to humans (IARC Group 1). However, there is sufficient information to conclude that the relative risk of lung cancer is increased in persons with silicosis. Therefore, preventing the onset of silicosis will also reduce the cancer risk. Mutagenicity Insufficient data available to classify as a mutagen. Ecotoxicity Information: The ecotoxicity of potassium silicate has not been tested. The high pH when undiluted or unneutralized is acutely harmful to aquatic life. The following data is reported for chemically similar sodium silicates on a 100% solids basis: A 96 hour median tolerance for fish (*Gambusia affinis*) of 2320 ppm; a 96 hour median tolerance of water fleas (*Daphnia magna*) of 247 ppm; a 96 hour median tolerance for snail eggs (*Lymnea*) of 632 ppm; and a 96 hour median tolerance for Amphipoda of 160 ppm. Persistence and degradability This material is not persistent in aquatic systems. Mobility in soil: Expected to be mobile in soil. Diluted material rapidly depolymerizes to yield dissolved silica in a form that is indistinguishable from natural dissolved silica. Biodegradation/Bioaccumulative potential: Neither silica nor potassium will appreciably bio-concentrate up the food chain.		
LC-Lube	Newpark	Well Bore Strengthening	**Constituents:** NATURAL GRAPHITE The are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.	0.11%	Y

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
			Toxicity: No known significant effects or critical hazards. Ecotoxicity: Other adverse effects : Toxicity No known significant effects or critical hazards. Persistence and degradability: Not available. Other adverse effects: No known significant effects or critical hazards **OCNS Rated E - 3922, Exp 02/12/2021**		
NDFT 376 & NDFT 377	Newpark	LCM / Well Bore Strengthening	**Constituents:** ORGANIC FIBRE(S) Not classified as hazardous according to Safe Work Australia criteria. Toxicity: This product is expected to be of low acute toxicity. Under normal conditions of use, adverse health effects are not anticipated. Oral Toxicity (LD50) > 5000 mg/kg (rat), Dermal Toxicity (LD50) > 2000 mg/kg (rabbit) Biodegradation/Bioaccumulation: No information provided.	0.01%	Y
AvaPolymer 5050	Newpark	Encapsulating Agent - provides shale inhibition	**Constituents:** Not applicable – Non-hazardous ingredients Hazard Identification: Not a dangerous substance or mixture according to the Globally Harmonized System (GHS). Constituent 1 – (60%) ATEmix (oral) 27,000.00 mg/kg	0.15%	Y

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
			ATEmix (dermal) 2,002.00 mg/kg Constituent 2 - (40%) Oral Toxicity (LD50) - 16000 mg/kg (guinea pig) Dermal Toxicity (LD50) - > 2000 mg/kg (rabbit) TDLo (oral) 140 mg/kg (rat) <u>Ecotoxicity</u>: The environmental impact of this product has not been fully investigated. 100% of the mixture consists of component(s) of unknown hazards on the aquatic environment. This product has an CEFAS OCNS Gold rating. Registration number 27397 <u>Biodegradation/Bioaccumulation:</u> No information available.		
Caustic Soda	Newpark	pH control-prevents bacteria & corrosion.	**<u>Constituents:</u>** SODIUM HYDROXIDE <u>Toxicity:</u> Toxicity Data available for the ingredients: SODIUM HYDROXIDE (1310-73-2): LD50 (Intraperitoneal): 40 mg/kg (mouse) LDLo (Ingestion): 1.57 mg/kg (human) SILICA, AMORPHOUS (7631-86-9): LD50 (ingestion): 3160 mg/kg (rat) <u>Biodegradation/Bioaccumulation:</u> Biodegradability does not pertain to inorganic substances. Does not	0.10%	Y

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
			bioaccumulate. WATER: If released to waterways, alkaline products may change the pH of the waterway. Fish will die if the pH reaches 10-11 (goldfish 10.9, bluegill 10.5). SOIL: May leach to groundwater with toxic effects on aquatic life as above. ATMOSPHERE: Not expected to reside in the atmosphere. Drops or particles released to atmosphere should be removed by gravity and/or be rained out. **OCNS category and registration number E - 24316**		
Sodium Sulphite	Newpark	Oxygen Scavenger	**Constituents:** SODIUM SULPHITE SODIUM SULPHATE SODIUM CARBONATE WATER Toxicity: Acute toxicity: LD50 (Ingestion): 820 mg/kg (mouse) LD50 (Intraperitoneal): 950 mg/kg (mouse) LD50 (Intravenous): 175 mg/kg (mouse) LDLo (Ingestion): 2825 mg/kg (rabbit) LDLo (Intravenous): 400 mg/kg (cat) LDLo (Subcutaneous): 600 mg/kg (rabbit) SODIUM CARBONATE (497-19-8) LC50 (inhalation) 800 mg/m^3/2 hours (guinea pig) LD50 (ingestion) 4090 mg/kg (rat) LD50 (intraperitoneal) 117 mg/kg (mouse) LD50 (subcutaneous) 2210 mg/kg (mouse) SODIUM SULPHATE (7757-82-6) LD50 (ingestion) 5989 mg/kg (mouse) LD50 (intravenous) 1220 mg/kg (rabbit) LDLo (intravenous) 1220 mg/kg (mouse) TDLo (ingestion) 14 g/kg (mouse - 8-12 days pregnant)	0.12%	Y

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
			TDLo (subcutaneous) 806 mg/kg/26 weeks intermittently (mouse) Biodegradation/Bioaccumulation: Biodegradability does not pertain to inorganic substances. Does not bioaccumulate. **OCNS category and registration number E - 26232**		
Soda Ash	Newpark	pH / Hardness control	**Constituents:** SODIUM CARBONATE Toxicity: LD50 (Ingestion): 4090 mg/kg (rat) LC50 (Inhalation): 800 mg/m3/2 hours (guinea pig) LD50 (Intraperitoneal): 117 mg/kg (mouse) LD50 (Subcutaneous): 2210 mg/kg (mouse) Ecotoxicity: Fishes, *Lepomis macrochirus*, LC50, 96 h, 300 mg/l Crustaceans, *Ceriodaphnia dubia*, EC50, 48 h, 200 - 227 mg/l Biodegradation/Bioaccumulation: Biodegradability does not pertain to inorganic substances. Does not bioaccumulate. WATER: If released to waterways, alkaline products may change the pH of the waterway. Fish will die if the pH reaches 10-11 (goldfish 10.9, bluegill 10.5). SOIL: May leach to groundwater with toxic effects on aquatic life as above. ATMOSPHERE: Not expected to reside in the atmosphere. Drops or particles released to atmosphere should be removed by gravity and/or be rained out. **OCNS category and registration number E - 26180**	0.10%	Y
Sodium Bicarbonate	Newpark	pH Buffer, Contamination Treatment	**Constituents:** SODIUM BICARBONATE Toxicity: Acute toxicity: LD50 (Ingestion): 3360 mg/kg (mouse) LC50 (inhalation): 4.74 mg/L (rat)	0.03%	Y

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
			Ecotoxicity: Fishes, *Lepomis macrochirus*, LC50, 96 h, 300 mg/l Crustaceans, *Ceriodaphnia dubia*, EC50, 48 h, 200 - 227 mg/l Ecotoxicity Data: LC50 (*Oncorhynchus mykiss*), 96 h, 7.700 mg/l LC50 (*Lepomis macrochirus*), 96 h, 7.100 mg/l EC50 (Crustaceans, Daphnia magna) 48 h, 4.100 mg/l LOEC (Crustaceans, Daphnia magna) 48 h, 3.100 mg/l Biodegradation/Bioaccumulation: Biodegradability does not pertain to inorganic substances. Not expected to bioaccumulate. This product is not anticipated to cause adverse effects to animal or plant life if released to the environment in small quantities. **OCNS category and registration number E - 26175**		
Idcide-20	Newpark	Biocide/Prevents bacterial contamination of the mud	**Constituents:** TETRAKIS(HYDROXYMETHYL)PHOSPHONIUM SULPHATE(2:1) WATER Toxicity: Toxicity data available for ingredient: TETRAKIS(HYDROXYMETHYL)PHOSPHONIUM SULPHATE (55566-30-8) LD50 (ingestion) 248 mg/kg (rat) TDLo (ingestion) 650 mg/kg/13 weeks - intermittent (rat) Ecotoxicity: 75% TETRAKIS(HYDROXYMETHYL)PHOSPHONIUM SULPHATE (55566-30-8): LC50 (Rainbow Trout) = 119 mg/L/96 hr LC50(Bluegill Sunfish) = 93 mg/L/ 96 hr EC50 (Daphnia Magna) = 19 mg/L/48 hr LC50 (Brown Shrimp) = 340 mg/L/96 hr	0.09%	Y

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
			LC50 (Mysid Shrimp) = 9.5 mg/L/96 hr LC50 (Sheepshead Minnow) = 94 mg/L/96 hr LC50 (Jevenile Plaice) = 86 mg/L/96 hr Waste Water management EC50 (Activated Sludge) = 24 mg/L/3 hr Persistence and degradability: This product is readily biodegradable. http://www.inchem.org/documents/ehc/ehc/ehc218.htm		
Citric Acid	Newpark	pH Buffer	**Constituents:** CITRIC ACID WATER Toxicity: Acute toxicity: LD50 (Ingestion): 3000 mg/kg (rat) LD50 (Intraperitoneal): 290 mg/kg (rat) LD50 (Intravenous): 42 mg/kg (mouse) LDLo (Ingestion): 7000 mg/kg (rabbit) Ecotoxicity: LC50 (*Leuciscus idus melanotus*): 440 mg/L - 48 h LC 50 (*Daphnia magna*) (Water flea) - 1.535 mg/L - 24 h Biodegradation/Bioaccumulation: Readily Biodegradability. Does not bioaccumulate. If citric acid is released to water, it is expected to biodegrade rapidly. May be toxic to fish at moderately high levels (120 ppm is fatal to daphnia; 894 ppm with pH 4 is fatal to goldfish) due to acidic nature. Fairly high biological oxygen demand (BOD) which may cause oxygen depletion in large spills. Citric acid occurs naturally in many plants. **OCNS category and registration number E - 24317**	0.03%	Y

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
Magnesium Oxide	Newpark	pH Indicator	**Constituents:** MAGNESIUM OXIDE CALCIUM OXIDE SILICON DIOXIDE (SILICA, AMORPHOUS) Not classified as hazardous according to Safe Work Australia criteria. Toxicity: Acute toxicity: This product is expected to be of low toxicity. Ecotoxicity: No information provided. Bioaccumulation/Biodegradation: No information provided. **OCNS category and registration number E - 28127**	0.05%	Y
TEA	Newpark	Polymer stabiliser which effectively reduces the degradation of polymers at high temperatures	**Constituents:** TRIETHANOLAMINE DIETHANOLAMINE Toxicity: Acute toxicity: CONSTITUENT 1 (>60%) Oral Toxicity (LD50) 2200 mg/kg (rabbit), Dermal Toxicity (LD50) > 20 mL/kg (rabbit) CONSTITUENT 2 (10 – 30%) Oral Toxicity (LD50) 620 uL/kg (rat), Dermal Toxicity (LD50) > 20 mL/kg (rabbit) CONSTITUENT 3 (<10%) Component is naturally occurring and not intrinsically hazardous. Biodegradation/Bioaccumulation: The substance is expected to be readily biodegradable according to the AS 4351 Part 2 test method. In soil and water, triethanolamine will biodegrade fairly rapidly following acclamation (half-life in the order of days to weeks). In soil, residual	0.08%	Y

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
			triethanolamine may leach to groundwater. LC50 (shrimp): > 100 ppm.		
Driscal D	Newpark	High temperature fluid loss control agent	**Constituents:** Not applicable – Non-hazardous ingredients. Not a dangerous substance or mixture according to the Globally Harmonized System (GHS). Toxicity: LCLo (Inhalation): 300 ug/m3/10 years (human), LDLo (Intratracheal): 200 mg/kg (rat) LDLo (Intravenous): 20 mg/kg (dog), TCLo (Inhalation): 16 000 000 particles/ft3/8 hours/17.9 years (human-fibrosis) The product contains no substance classified as hazardous to health in concentrations which should be taken into account. Bioaccumulation: Accumulation in aquatic organisms is unlikely. Biodegradability: Taking into consideration the properties of several ingredients, the product is estimated not to be readily biodegradable according to OECD classification.	0.01%	Y
Gagetrol	Newpark	HT Fluid Loss	**Constituents:** CARBOXYMETHYL STARCH Not classified as hazardous according to Australian WHS Regulations. Toxicity: Low toxicity - low irritant. Under normal conditions of use, adverse health effects are not anticipated. Ecotoxicity: This product is not anticipated to cause adverse effects to animal or plant life if released to the environment in small quantities. Biodegradation/Bioaccumulation:	0.23%	Y

B. PRODUCT LIST					
Trade name	**Supplier**	**Purpose**	**Toxicity & Eco toxicity Info**	**% Product in system fluid**	**SDS Attached**
			Not expected to bioaccumulate. **OCNS category and registration number Gold - 27759**		
Defoam-AP400	Newpark	Defaomer suitable for High Temperatures	**Constituents:** POLYETHYLENE GLYCOL OCTAN-2-OL Not classified as hazardous according to Safe Work Australia criteria. Toxicity: Low toxicity - low irritant. This product has the potential to irritate mucous membranes. Use safe work practices to avoid eye or skin contact and inhalation. Due to the low vapour pressure of this product, an inhalation hazard is not anticipated with normal use. Chronic exposure to some glycols may result in liver and kidney damage. POLYETHYLENE GLYCOL (25322-68-3) LD50 (ingestion) 33750 mg/kg (rat) Ecotoxicity: No information provided. Biodegradation/Bioaccumulation: No information provided. ATMOSPHERE: Vapour phase glycols are expected to degrade fairly rapidly by reaction with hydroxyl radicals (eg half-life 32 hours for propylene glycol). Removal from air by rainfall is possible. WATER: Should degrade relatively rapidly via biodegradation. SOIL: If released to soil, relatively rapid biodegradation should also occur. Leaching to groundwater may occur.	0.03%	Y
TOTAL	100.02%		**TOTAL**	100.02%	
AVADEFOAM NS	Newpark	Defoamer suitable for WBM	**Constituents:** Not applicable – Non-hazardous ingredients. Not a dangerous substance or mixture according to the Globally Harmonized System (GHS).	0.05%	Y

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
			Toxicity: CONSTITUENT 1 (95%) - Acute toxicity - Acute oral toxicity (LD50): 9380 mg/kg [Rat]. Ecotoxicity: Ecotoxicity in water (LC50): 100 mg/l 96 hours [Fish]. Possibly hazardous short-term degradation products are not likely. However, long term degradation products may arise. The product itself and its products of degradation are not toxic. Toxicity: CONSTITUENT 2 (5%) - Acute toxicity - Dermal LD50 Albino rabbit - > 2000 mg/kg, 14 days At this dose no death occurred. LD50 Oral Albino Sprague-Dawley rat > 10000 mg/kg, 14 days At this dose no death occurred. Ecotoxicity: Product Information: Product does not present an acute toxicity hazard based on known or supplied information. The following values are calculated based on chapter 3.1 of the GHS document ATEmix (oral) 10,010.00 mg/kg. The product is not classified as environmentally hazardous. Components Species Test Results Tall Oil Fatty Acids EC50 Bacteria (*Pseudomonas putida*) > 10000 mg/l, 16 hr Aquatic Algae EL50 > 1000 mg/l, 72 hr Growth rate; OECD 201 Green algae (*Selenastrum capricornutum*) Crustacea EL50 Water flea (*Daphnia magna*) > 1000 mg/l, 48 hr OECD 202 Fish LL50 Zebra danio (*Danio rerio*) > 10000 mg/l, 96 hr 95 % of the mixture consists of component(s) of unknown hazards to the aquatic environment Biodegradation/Bioaccumulation: - Percent degradation (Aerobic biodegradation) Tall Oil Fatty Acids 88 - 100 % CO2 Evolution Test		

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
			Species: Activated sewage sludge Test Duration: 28 d **OCNS category and registration number Gold - 27915**		
Barite / Newbar	Newpark		See Above	4.16%	Y
TrueScav HD	Newpark	Oxygen Scavenger Non-sulphur based,	**Constituents:** SODIUM ERYTHORBATE Toxicity: Constituent 1 – (>99%) The following values are calculated based on chapter 3.1 of the GHS document ATEmix (oral) 5,005.00 mg/kg Oral LD50 > 5 g/kg (Rat) Ecotoxicity: The environmental impact of this product has not been fully investigated. Unknown aquatic toxicity. 100 % of the mixture consists of component(s) of unknown hazards to the aquatic environment. Biodegradation/Bioaccumulation: Persistence/Degradability: Possibly hazardous short-term degradation products are not likely; However, long term degradation products may arise.	0.20%	Y
NDFT 376 & 377	Newpark	LCM / Well Bore Strengthening	See Above	8.50%	Y
Calcium Chloride (94%) Powder	Newpark	Weighting Agent	**Constituents:** CALCIUM CHLORIDE ANHYDROUS SODIUM CHLORIDE WATER Toxicity: Acute toxicity: Based on available data, the classification criteria are not met. Toxicity Data available for the ingredients: CALCIUM CHLORIDE ANHYDROUS (10043-52-4)	0.01%	Y

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
			LD50 (Ingestion): 1000 mg/kg (rat) LD50 (Intraperitoneal): 210 mg/kg (mouse) LD50 (Intravenous): 42 mg/kg (mouse) LD50 (Subcutaneous): 823 mg/kg (mouse) LDLo (Ingestion): 1384 mg/kg (rabbit) LDLo (Intravenous): 150 mg/kg (guinea pig) LDLo (Subcutaneous): 249 mg/kg (cat) TDLo (Intravenous): 20 mg/kg/1 hour (woman) SODIUM CHLORIDE (7647-14-5) LC50 (Inhalation): > 42000 mg/m3/1 hour (rat) LD50 (Ingestion): 3000 mg/kg (rat) LD50 (Intraperitoneal): 2602 mg/kg (mouse) LD50 (Intravenous): 645 mg/kg (mouse) LD50 (Skin): > 10000 mg/kg (rabbit) LD50 (Subcutaneous): 3000 mg/kg (mouse) LDLo (Ingestion): 8000 mg/kg (rabbit) LDLo (Intravenous): 300 mg/kg (guinea pig) LDLo (Subcutaneous): 2160 mg/kg (guinea pig) TDLo (Ingestion): 12357 mg/kg (human) Ecotoxicity: No information provided. Biodegradation/Bioaccumulation: Biodegradability does not pertain to inorganic substances. Does not bioaccumulate.		
MEG	Newpark	Agent to free differentially stuck pipe	**Constituents:** ETHYLENE GLYCOL Toxicity: Toxicity data available for ingredient: ETHYLENE GLYCOL (107-21-1) LC50 (inhalation) 10 876 mg/kg (rat) LD50 (ingestion) 1650 mg/kg (cat)	2.73%	Y

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
			LD50 (skin) 9530 ug/kg (rabbit) LDLo (ingestion) 398 mg/kg (human) TCLo (inhalation) 10,000 mg/m^3 (human - cough) TDLo (ingestion) 5500 mg/kg (child - anaesthesia) Ethylene glycol will mainly exist in the vapour phase in the ambient atmosphere where it will be degraded by reaction with hydroxyl radicals. Expected to be very highly mobile in soil. Not anticipated to volatilise from moist soil or water surfaces. <u>Ecotoxicity:</u> LC50 (Aquatic species): >100mg/L/96hrs. Non-hazardous to aquatic organisms. <u>Biodegradation/Bioaccumulation:</u> Biodegradation in both soil and water is expected to be a major fate process for this compound. Not expected to bioconcentrate in aquatic organisms. Safe Work Australia Exposure Standards: http://hsis.ascc.gov.au/DocumentationES.aspx?ID=722 http://hsis.ascc.gov.au/DocumentationES.aspx?ID=271 CICADS Available: http://inchemsearch.ccohs.ca/inchem/jsp/search/search.jsp?inchemcasreg=1&Coll=inchemall&serverSpec=22vailab.ccohs.ca%3A9900&QueryText1=107-21-1&QueryText2=&Search.x=52&Search.y=10		
Strata-Vanguard	Newpark	Bridging Agent	**<u>Constituents:</u>** CELLULOSE DIATOMACEOUS EARTH, FLUX CALCINED FULLERS EARTH LIMESTONE (CALCIUM CARBONATE) CRISTOBALITE QUARTZ (CRYSTALLINE SILICA) MAGNESIUM OXIDE 1,3 BUTADIENE/STYRENE COPOLYMERS	0.12%	Y

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
			2-PROPENENITRILE-1,3-BUTADIENE RUBBER NATURAL RUBBER POLYISOPRENE POLYETHYLENE Toxicity: Toxicity data available for the ingredients: CRISTOBALITE (14464-46-1) TCLo (inhalation) 16 mppcf/8hours/17.9 years (human-fibrosis) QUARTZ (SILICA CRYSTALLINE) (14808-60-7) LCLo (inhalation) 300 ug/m^3/10 years (human) TCLo (inhalation) 16 000 000 particles/ft3/8 hours/17.9 years (human-fibrosis) CELLULOSE (9004-34-6) LC50 (inhalation) > 5800 mg/m^3/4 hours (rat) LD50 (ingestion) > 5000 mg/kg (rat) LD50 (intraperitoneal) > 31600 mg/kg (rat) LD50 (skin) > 2000 mg/kg (rabbit) POLYETHYLENE (9002-88-4) LDLo (ingestion) 3000 mg/kg (rat) MAGNESIUM OXIDE (1309-48-4) TCLo (inhalation) 400 mg/kg (human) Ecotoxicity: This product is not anticipated to cause adverse effects to animal or plant life if released to the environment in small quantities Biodegradation/Bioaccumulation: Not expected to bioaccumulate. This product has low mobility in soil.		
Frac Attack	Newpark	Prevent lost circulation	**Constituents:** CELLULOSE DIATOMACEOUS EARTH FULLERS EARTH	1.30%	Y

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
			CALCIUM OXIDE CALCIUM HYDROXIDE CRISTOBALITE QUARTZ (CRYSTALLINE SILICA) MAGNESIUM OXIDE 1,3 BUTADIENE/STYRENE COPOLYMERS 2-PROPENENITRILE-1,3-BUTADIENE RUBBER NATURAL RUBBER POLYISOPRENE <u>Toxicity:</u> Toxicity data available for the ingredients: CALCIUM HYDROXIDE (1305-62-0) LD50 (ingestion) 7300 mg/kg (mouse) CRISTOBALITE (14464-46-1) TCLo (inhalation) 16 mppcf/8hours/17.9 years (human-fibrosis) QUARTZ (SILICA CRYSTALLINE) (14808-60-7) LCLo (inhalation) 300 ug/m^3/10 years (human) TCLo (inhalation) 16 000 000 particles/ft3/8 hours/17.9 years (human-fibrosis) CELLULOSE (9004-34-6) LC50 (inhalation) > 5800 mg/m^3/4 hours (rat) LD50 (ingestion) > 5000 mg/kg (rat) LD50 (intraperitoneal) > 31600 mg/kg (rat) LD50 (skin) > 2000 mg/kg (rabbit) MAGNESIUM OXIDE (1309-48-4) TCLo (inhalation) 400 mg/kg (human) <u>Ecotoxicity:</u> The manufacturer reports that this product is harmful to aquatic life. Acute aquatic toxicity. CALCIUM HYDROXIDE (1305-62-0)		

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
			EC50 Crustacea – 49.1 mg/L (*Daphnia magna* (water flea); 48-hour) ErC50 Algae – 184.6 mg/L (*Pseudokirchneriella subcapitata* (algae); 72-hour) Biodegradation/Bioaccumulation: No information was located.		
AVAPERM NF	Newpark	Prevent swelling clays by blocking the site for water hydration.	An equivalent product to AVAPERM NF has been registered on the CEFAS Offshore Chemical Notification Scheme with a 'Gold' rating & Registration # 24780 **Constituents (mixture):** HEXANEDINITRILE, HYDROGENATED, HIGH-BOILING FRACTION HYDROCHLORIC ACID NON-HAZARDOUS INGREDIENTS Toxicity: Skin corrosion/irritation: Not corrosive (B.40 Bis - Reg. 440/2008/EC). Skin contact: Harmful and irritant. Eye contact: Irritant. Inhalation: Irritant. Ingestion: Harmful. Acute oral toxicity on rats (LD50): > 500 < 1000 mg/kg.* (based on components) Following information is confidential: Ecotoxicity: EC 50 (*Skeletonema costatum*) 54.4 mg/l LC50 (*Acartia tonsa*) 52.4 mg/l LC50 (*Scophthalmus maximus* juvenile) >51.0 mg/l Biodegradation/Bioaccumulation: Biodegradation Seawater test OECD 306 75 % Bioaccumulation OECD 117 LogPow ≤ 1.36	4.15%	Y

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
JK-161 LV / JK-261 / JK-261HP	Newpark	Encapsulating Agent - provides shale inhibition	**Constituents:** ACRYLAMIDE, SODIUM ACRYLATE COPOLYMER WATER Toxicity: This product is expected to be of low toxicity. Under normal conditions of use, adverse health effects are not anticipated. LD50 rat (oral): > 2,000 mg/kg (OECD Guideline 401). Ecotoxicity: (10000 ppm test concentration) (EPA-821-R-02-012) *Mysidopsis bahia* = 48hr LC50 = 16.2 mg/L. *Menidia beryllina* = 48hr LC50 = 34.2 mg/L. *Scophthalmus Maximus* = 96hr LC50 > 1000 mg/L. *Skeletonemia costatum* = 72hr EC50 = 393 mg/L [NOEC = 118 mg/L] *Acartia tonsa* = 48 hr EC50 = 393 mg/L [NOEC = 112 mg/L] *Corophium Volutator* = 10 Day LC50 = 9338 mg/Kg [NOEC = 1000 mg/Kg] Biodegradation/Bioaccumulation: Not readily biodegradable (by OECD criteria). Based on its structural properties, the polymer is not biologically available. Accumulation in organisms is not to be expected.	0.75%	Y
Driscal D	Newpark	High temperature fluid loss control agent	**Constituents:** Not applicable – Contains no hazardous ingredients (substance or mixture) according to GHS. Toxicity: LCLo (Inhalation): 300 ug/m3/10 years (human), LDLo (Intratracheal): 200 mg/kg (rat) LDLo (Intravenous): 20 mg/kg (dog), TCLo (Inhalation): 16 000 000 particles/ft3/8 hours/17.9 years (human-fibrosis) Ecotoxicity: This material is not expected to be harmful to aquatic organisms. Biodegradation/Bioaccumulation:	0.25%	Y

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
			Taking into consideration the properties of several ingredients, the product is estimated not to be readily biodegradable according to OECD classification. Accumulation in aquatic organisms is unlikely.		
DSCO™ Defoam	Newpark	Defoamer	**Constituents:** POLYPROPYLENE GLYCOL Toxicity: This product is expected to be of low acute toxicity. Under normal conditions of use, adverse health effects are not anticipated. Not classified as hazardous according to Safe Work Australia criteria. Constituent 1 – (>60%) Oral Toxicity: An oral LD50 300 - 57000 mg/kg (range) Constituent 2 – (remainder) No Hazard Biodegradation/Bioaccumulation: This product is not expected to bioaccumulate.	0.01	Y
SAPP	Newpark	Deflocculate or disperse bentonite muds or fluids with high levels of low gravity solids.	**Constituents:** DISODIUM PYROPHOSPHATE Toxicity: Acute toxicity: Low toxicity. Ingestion of large quantities may result in nausea, vomiting and gastrointestinal irritation. Ingestion of large quantities may also result in serious disturbances in calcium metabolism. LD50 (Ingestion): 2650 mg/kg (mouse) LD50 (Intraperitoneal): 1 g/kg (mouse) LD50 (Intravenous): 59 mg/kg (mouse) LD50 (Subcutaneous): 480 mg/kg (mouse) Biodegradation/Bioaccumulation: Biodegradability does not pertain to inorganic substances. Does not bioaccumulate.	0.13%	Y

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
			OCNS category (actual or equivalent chemical) and Registration number. E-2449		
Calcium Carbonate (including various grades Circal 60/16, Circal Y, Circal 1000, Omyacarb 10, 20 & 40, Stonedust, Limestone LSC	Newpark	Bridging agent & loss circulation material	As per Calcium Carbonate (including various grades Circal 60/16, Circal Y, Circal 1000, Omyacarb 10, 20 & 40, Stonedust, Limestone LSC **Constituents:** LIMESTONE (CALCIUM CARBONATE) QUARTZ (CRYSTALLINE SILICA) No classified as hazardous according to Australian WHS Regulations. Toxicity: This product is expected to be of low toxicity. Under normal conditions of use, adverse health effects are not anticipated. LD50 (Ingestion): 6450 mg/kg (rat). Ecotoxicity: Calcium carbonate occurs naturally in a wide variety of substances including limestone, marble and eggshells. It is not anticipated to cause adverse environmental effects. Biodegradation/Bioaccumulation: Biodegradability does not pertain to inorganic substances. Dissolved calcium carbonate dissociates into calcium and carbonate ions. Calcium ions will be assimilated by living organisms in the water and the carbonate will become part of the carbon cycle. This product does not bioaccumulate. Due to its limited solubility, calcium carbonate precipitates and deposits on the sediment.	0.99%	Y
FlexFirm	Newpark	Inhibits dispersion of drilled shale cuttings	**Constituents:** POTASSIUM SILICATE QUARTZ (CRYSTALLINE SILICA)	0.45%	Y

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
			Toxicity: Acute toxicity Information available for the product: No known toxicological effects from this product. Based on available data, the classification criteria are not met. Skin Irritating to the skin. Contact may result in irritation, redness, pain, rash, dermatitis and possible skin burns. Eye Irritating to the eyes. Contact may result in irritation, lacrimation, pain, redness, conjunctivitis and possible burns. Sensitization This product is not classified as causing skin or respiratory sensitisation. Irritating to the respiratory system. Over exposure may result in irritation of the nose and throat, with coughing. High level exposure may result in breathing difficulties. STOT – single exposure Aspiration This product does not present an aspiration hazard. Repeated exposure to respirable silica may result in pulmonary fibrosis (silicosis). Silicosis is a fibronodular lung disease caused deposition in the lungs of fine respirable particles of crystalline silica. Principal symptoms of silicosis are coughing and breathlessness. STOT – repeated exposure Reproductive Insufficient data available to classify as a reproductive toxin. Carcinogenicity Insufficient data available to classify as a carcinogen. This product contains crystalline silica which is classified as carcinogenic to humans (IARC Group 1). However, there is sufficient information to conclude that the relative risk of lung cancer is increased in persons with silicosis. Therefore, preventing the onset of silicosis will also reduce the cancer risk. Mutagenicity Insufficient data available to classify as a mutagen. Ecotoxicity Information: The ecotoxicity of potassium silicate has not been tested. The following data is reported for chemically similar sodium silicates on a 100% solids basis: A 96 hour median tolerance for fish (Gambusia affnis) of 2320 ppm; a 96 hour median		

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
			tolerance of water fleas (Daphnia magna) of 247 ppm; a 96 hour median tolerance for snail eggs (Lymnea) of 632 ppm; and a 96 hour median tolerance for Amphipoda of 160 ppm. Toxicity: The high pH when undiluted or unneutralized is acutely harmful to aquatic life. The following data is reported for chemically similar Sodium Silicates on a 100% solids basis: A 96 hour median tolerance for fish (Gambusia affnis) of 2320 ppm; a 96 hour median tolerance for water fleas (Daphnia magna) of 247 ppm; a 96 hour median tolerance for snail eggs (Lymnea) of 632 ppm; and a 96 hour median tolerance for Amphipoda of 160 ppm. Persistence and degradability: This material is not persistent in aquatic systems. Mobility in soil: Expected to be mobile in soil. Diluted material rapidly depolymerizes to yield dissolved silica in a form that is indistinguishable from natural dissolved silica. Bioaccumulative potential: Neither silica nor potassium will appreciably bio-concentrate up the food chain.		
SPA	Newpark	High temperature fluid loss control agent	**Constituents:** ACRYLATE – ACRYLAMIDE COPOLYMER Toxicity: This product is expected to be of low toxicity. Based on available data, the classification criteria are not met. Ecotoxicity: (10000 ppm test concentration) (EPA-821-R-02-012) *Mysidopsis Bahia* = 48HR LC50 = 16.2 mg/L. *Menidia Beryllina* = 48hr LC50 = 34.2 mg/L. *Scophthalmus Maximus* = 96hr LC50 > 1000 mg/L. *Skeletonemia Costatum* = 72hr EC50 = 393 mg/L [NOEC = 118 mg/L] *Acartia Tonsa* = 48hr EC50 = 393 mg/L [NOEC = 112 mg/L] *Corophium Volutator* = 10 day LC50 = 9338 mg/Kg [NOEC = 1000 mg/Kg] Biodegradation/Bioaccumulation:	0.10%	Y

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
			No information provided.		
QUICKSEAL F / M / C	Newpark	Lost circulation material	**Constituents:** CELLULOSE Toxicity: This product is expected to be of low toxicity. Under normal conditions of use, adverse health effects are not anticipated Acute Toxicity: Acute Oral Toxicity: LD50 (oral) > 5000 mg/kg (rats). Acute Dermal Toxicity: LD50 (dermal) > 2000 mg/kg (rats). Acute Inhalation Toxicity: LC50 (Inhalation) = 5800 mg/m3/4hrs (rat). Ecotoxicity: Low toxicity to aquatic organisms. Biodegradation/Bioaccumulation: This product is readily biodegradable. This product is not expected to bioaccumulate.	0.02%	Y
AvaGreenLube	Newpark	Lubricant	**Constituents:** METHYL ESTERS OF FATTY ACIDS Ecotoxicity: LC50 (Fish) 48 h: > 10000 µg / L LC50 (Mollusc) 48 h: > 10000 µg /L LC50 (Amphibious) 48 h: > 7600 µg/L Biodegradation/Bioaccumulation: Persistence and degradability: 70% 28 days (method OECD 301 B). Low potential for bioaccumulation in aquatic organisms or terrestrial even after repeated exposure. It is not volatile and not expected to persist in the environment	0.40%	Y
Zinc Oxide	Newpark	H2S Scavenger	**Constituents:** ZINC OXIDE	0.06%	Y

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
			Toxicity: Acute toxicity: This product is expected to be of low toxicity. Based on available data, the classification criteria are not met. ZINC OXIDE (1314-13-2) LD50 (Oral) 7950 mg/kg (mouse) LC50 (Inhalation): 2500 mg/m³ (mouse) Additional ingredient toxicity values: LD50 (intraperitoneal) 240 mg/kg (rat) LDLo (oral) 500 mg/kg (human) TCLo (inhalation) 600 mg/m³ (human) Ecotoxicity: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Biodegradation/Bioaccumulation: This product is not readily biodegradable		
Salt (Sodium Chloride all grades)	Newpark	Weighting Agent	See Above	0.64%	Y
Gagetrol	Newpark	HT Fluid Loss Addtive	See Above	0.28%	Y
Magnesium Oxide	Newpark	Ph Buffer	See Above	0.03%	Y
TEA	Newpark	Polymer stabiliser which effectively reduces the degradation of polymers at high temperatures	See Above	0.03%	Y

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
Polydrill	Newpark	High temperature fluid loss control agent	**Constituents:** SULPHONATED ORGANIC POLYMER Toxicity: This product is expected to be of low toxicity. Under normal conditions of use, adverse health effects are not anticipated. SULPHONATED ORGANIC POLYMER Oral Toxicity - (LD50) > 5000 mg/kg (rat) Biodegradation/Bioaccumulation: This product is not readily biodegradable.	0.20%	Y
Geovis	Newpark	High temperature viscosifier	**Constituents:** D-GLUCURONO-6-DEOXY-L-MANNO-D-GLUCAN, ACETATE, CALCIUM MAGNESIUM POTASSIUM SODIUM SALT Toxicity: This product is expected to be of low toxicity. Under normal conditions of use, adverse health effects are not anticipated. Oral Toxicity - (LD50) - > 5000 mg/kg (rat) Ecotoxicity: The notified polymer is not toxic to fish (rainbow trout), aquatic invertebrates (*daphnia magna*) and marine invertebrates (*acartia tonsa*) under test conditions. Biodegradation/Bioaccumulation: Considered readily biodegradable. No experimental results provided. However, based on the molecular weight, water solubility and Kow value the notified polymer is not expected to bioaccumulate.	0.15%	Y
Microflow	Newpark	Stimulation Additive	**Constituents:** SWEET ORANGE OIL ISOPROPYL ALCOHOL	0.22%	Y

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
			Toxicity: Acute toxicity: May be harmful if swallowed. Constituent 1 : ISOPROPANOL – (15-50%) Oral Toxicity: An oral LD50 in mice of 3600 mg/kg Constituent 2 : SWEET ORANGE OIL – (20-60%) No Hazard Ecotoxicity: Not expected to be dangerous to the aquatic environment. Biodegradation/Bioaccumulation: This product is readily biodegradable. This product is not expected to bioaccumulate. Relatively volatile and would therefore readily evaporate from dry soil and surfaces.		
Total *Contingent chemicals are highlighted grey.					51.10%

C. Chemical List (Chemicals within fluid system identified in Table B)

Chemicals Name	CAS number	Mass fraction (%)
Water	7732-18-5	81.20%
Bentonite	1302-78-9	1.93%
Potassium Chloride	7447-40-7	2.49%
Potassium Silicate	1312-76-1	0.24%
Calcium Carbonate (Limestone)	471-34-1	5.68%

C. Chemical List (Chemicals within fluid system identified in Table B)		
Chemicals Name	**CAS number**	**Mass fraction (%)**
Sodium Chloride	7647-14-5	5.98%
Barium Sulphate	7727-43-7	0.33%
Sodium carboxymethyl Cellulose	9004-32-4	0.57%
Xanthan Gum	11138-66-2	0.42%
Polyvinylalcohol	9002-89-5	0.11%
Acrylamide, Sodium Acrylate Copolymer	25987-30-8	0.15%
Quartz (Silica Crystalline)	14808-60-7	0.12%
Sodium Hydroxide	1310-73-2	0.15%
Sodium Carbonate (Soda Ash)	497-19-8	0.15%
Sodium Sulphite	7757-83-7	0.12%
Sodium Sulphate	7757-82-6	0.12%
Sodium Bicarbonate	144-55-8	0.003%
Citric Acid, Anhydrous	77-92-9	0.025%
Sodium Glycolate	2836-32-0	0.025%
Triethanolamine	102-71-6	0.001%
Magnesium Oxide	1309-48-4	0.059%
Hexahydro-1,3,5-tris(2-hydroxyethyl)-S-triazine	4/04/4719	0.049%
Ethanol, 2,2'-oxybis-,	68909-77-3	0.032%
Poly (oxy-1,2-ethanediyl)	68909-09-1	0.027%
Acetic Acid	64-19-7	0.009%
TOTAL		**100.00%**
Water	7732-18-5	84.88%

C. Chemical List (Chemicals within fluid system identified in Table B)		
Chemicals Name	**CAS number**	**Mass fraction (%)**
Octan-2-ol	123-96-6	0.05%
Cellulose	9004-34-6	1.32%
Calcium Chloride	10043-52-4	0.01%
Sodium Chloride	7647-14-5	0.64%
Ethylene Glycol	107-21-1	2.73%
Quartz (Silica Crystalline)	14808-60-7	0.29%
2-Propenenitrile, polymer with 1,3-butadiene Rubber	9003-18-3	0.04%
Zinc Oxide	1314-13-2	0.06%
Natural Rubber	9006-04-6	0.03%
Polyisoprene	9003-31-0	0.03%
Rubber - SBR elastomers (derived from recycled automotive tyres)	9003-55-8	0.03%
Diatomaceous Earth	68855-54-9	0.02%
Fuller's earth	8031-18-3	0.01%
D-glucurono-6-deoxy-L-manno-D-glucan, Acetate, calcium magnesium potassium sodium Salt	595585-15-2	0.15%
Calcium Carbonate	1317-65-3	0.99%
Tall Oil Fatty Acid	61790-12	0.006%
Polyethylene	9002-88-4	0.01%
Cristobalite	14464-46-1	0.08%
Isopropyl Alcohol	67-63-0	0.11%
Calcium Oxide	1305-78-8	0.04%
Organic fibres	9004-34-6	0.03%
Calcium Hydroxide	1305-62-0	0.03%

C. Chemical List (Chemicals within fluid system identified in Table B)		
Chemicals Name	**CAS number**	**Mass fraction (%)**
Methyl Oxirane Polymer	9003-11-6	0.06%
Magnesium oxide	1309-48-4	0.02%
Triethanolamine	102-71-6	1.66%
Hydrochloric acid	7647-01-0	0.21%
Zinc Oxide	1314-13-2	0.006%
Hexamethylenediamine	124-09-4	0.45%
Formic Acid	64-18-6	0.23%
Carboxymethyl starch	9057-06-1	0.28%
Dazomet (iso)[tetrahydro-3,5-dimethyl-1,3,5-thiadiazine-2-thione]	533-74-4	0.02%
Disodium Pyrophosphate	7758-16-9	0.13%
Acrylamide, Sodium Acrylate Copolymer	25987-30-8	0.10%
Sulphonated organic polymer	28210-41-5	0.15%
Barium Sulphate	7727-43-7	4.16%
Methyl esters of fatty acids	68990-52-3	0.40%
Sweet Orange Oil	68647-72-3	0.36%
TOTAL		**100.00%**

2. **Cement and Spacer (Alternate) Chemical Disclosure**

A. SYSTEM DETAILS:	
OPERATOR:	Beach Energy
PROJECT / WELL NAME:	Trigg Northwest 1A Exploration Drilling
SYSTEM:	Pre-job Cement System / Plug and Abandonment Cementing System
TOTAL VOLUME OF SYSTEM:	CEMENT Blend: 118,230 gal

B. PRODUCT LIST

Trade name	**Supplier**	**Purpose**	**Toxicity & Ecotoxicity Info**	**Product in system fluid (mass %)**	**SDS Attached**
D013 EH	Schlumberger	D013 EH Retarder	**Constituents:** Not applicable. No classified ingredients, or those having occupational exposure limits, present above the level of disclosure. Classified as Non-Hazardous according to the criteria of NOHSC. Toxicity: Acute toxicity: aromatic polymer sulfonated derivative: LD50 oral (Rat) >40g/kg. Chronic toxicity: Product contains no components known to be sensitizing, mutagens, or carcinogens. Product does not contain any known or suspected reproductive or developmental hazards. Ecotoxicity: The product component(s) are not classified as environmentally hazardous. Product not considered toxic to algae, or invertebrates. Toxicity to Fish: LC50: aromatic polymer sulfonated derivative = 7300 mg/L Biodegradation/Bioaccumulation: No product level data available. The product is water soluble, and may spread in water systems.	0.004%	Yes
Barite / Newbar	Newpark	Weighting Agent	**Constituents:** BARIUM SULPHATE	2.280%	Yes

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Ecotoxicity Info	Product in system fluid (mass %)	SDS Attached
			QUARTZ (CRYSTALLINE SILICA) Toxicity: Low toxicity. Under normal conditions of use, adverse health effects are not anticipated. QUARTZ (SILICA CRYSTALLINE) (14808-60-7) LCLo (inhalation) 300 ug/m^3/10 years (human) TCLo (inhalation) 16 000 000 particles/ft3/8 hours/17.9 years (human-fibrosis) Aquatic toxicity: Fish Toxicity LC50 (Rainbow trout) > 7500 ppm/96hrs. LC50 (Fresh Water Trout) > 21,000 ppm/96hrs. LC50 (Salt Water StickleBack) > 56,000 ppm/96hrs. Biodegradation/bioaccumulation: Barium sulphate (major ingredient of barite (60-100%) is insoluble in water and not biodegradable. Not expected to bioaccumulate. This product is not anticipated to cause adverse effects to animal or plant life if released to the environment in small quantities. **OCNS Rated E - 24310, Exp 09/08/2021**		
Bentonite / NewGel NT / API Bentonite	Newpark	Viscosifier	**Constituents:** BENTONITE QUARTZ (CRYSTALLINE SILICA) SODA ASH Toxicity: The main component/s of this product are not anticipated to cause any adverse effects to plants or animals. QUARTZ (SILICA CRYSTALLINE) (14808-60-7) LCLo (inhalation) 300 ug/m^3/10 years (human) TCLo (inhalation) 16 000 000 particles/ft3/8 hours/17.9 years (human-fibrosis) BENTONITE (1302-78-9) LD50 (intravenous) 35 mg/kg (rat) LD50 (oral): >2000mg/kg (rat)	3.376%	Yes

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Ecotoxicity Info	Product in system fluid (mass %)	SDS Attached
			LDLo (intravenous) 10 mg/kg (dog) Inhalation LC 50: >5.27 mg/L, 4hr (rat) Ecotoxicity Data: Bentonite (1302-78-9) EC50 Daphnia > 100 mg/l, 48 hours EC50 Freshwater algae > 100 mg/l, 72 hours LC50 Freshwater fish 16000 mg/l, 96 hours LC 50 Marine water fish 2800 - 3200 mg/l, 24 hours EC50 Coon stripe shrimp (*Pandalus danae*) 24.8 mg/l, 96 hours EC 50 Dungeness or edible crab (Cancer magister) 81.6 mg/l, 96 hours LC50 Rainbow trout, donaldson trout (*Oncorhynchus mykiss*) 19000 mg/l, 96 hours Persistence and degradability: Not relevant for inorganic substances Mobility: Low water solubility, expected to sink and migrate into the sediment. Expected to partition to sediment and wastewater solids. Bioaccumulation: Will not bio-accumulate. Other adverse effects: No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component. OCNS Rated E - 26210 Exp 01/02/2021		
D047	Schlumberger	AntiFoam Agent	**Constituents:** Not applicable - No classified ingredients, or those having occupational exposure limits, present above the level of disclosure. Classified as Non-Hazardous according to the criteria of NOHSC, Toxicity: Acute toxicity: None. Chronic toxicity: Product contains no components known to be sensitizing, mutagens, or carcinogens. Product does not contain any known or suspected reproductive or developmental hazards. Ecotoxicity:	0.052%	Yes

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Ecotoxicity Info	Product in system fluid (mass %)	SDS Attached
			The product component(s) are not classified as environmentally hazardous. Product not considered toxic to algae, fish, or invertebrates. Biodegradation/Bioaccumulation: Readily biodegradable, bioaccumulation is unlikely.		
D065	Schlumberger	Dispersant	Toxicity: Acute toxicity: None. Chronic toxicity: Product contains no components known to be sensitizing, mutagens, or carcinogens. Product does not contain any known or suspected reproductive or developmental hazards. Ecotoxicity: The product component(s) are not classified as environmentally hazardous. Product not considered toxic to algae, fish, or invertebrates. Biodegradation/Bioaccumulation: Product not readily biodegradable. Bioaccumulation is unlikely. The product is water soluble, and may spread in water systems	0.056%	Yes
D066	Schlumberger	Silica	**Constituents:** QUARTZ (CRYSTALLINE SILICA) Toxicity: Acute toxicity: Quartz, Crystalline Silica: LD50 Oral (Rat): = 500 mg/kg Chronic toxicity: Product contains no components known to be sensitizing or mutagens. Crystalline silica dust is listed by IARC as Group 1 carcinogen. Product does not contain any known or suspected reproductive or developmental hazards. Ecotoxicity: The product component(s) are not classified as environmentally hazardous. This product is not considered toxic to algae, fish, or invertebrates	5.492%	Yes

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Ecotoxicity Info	Product in system fluid (mass %)	SDS Attached
			Biodegradation/Bioaccumulation: Not applicable – Inorganic chemical.		
D075	Schlumberger	Extender	**Constituents:** Not applicable – this product does not contain any hazardous ingredients, or ingredients with national workplace exposure limits. Classified as Non-Hazardous according to the criteria of NOHSC. Toxicity: Acute toxicity: None. Chronic toxicity: Product contains no components known to be sensitizing, mutagens, or carcinogens. Product does not contain any known or suspected reproductive or developmental hazards. Ecotoxicity: The product component(s) are not classified as environmentally hazardous. Product not considered toxic to algae, fish, or invertebrates. Biodegradation/Bioaccumulation: Contains no substance considered to be bioaccumulating or toxic.	0.053%	Yes
D080	Schlumberger	Dispersant	**Constituents:** SODIUM POLYNAPHTALENE SULFONATE Toxicity: Acute toxicity: None. Chronic toxicity: Product contains no components known to be sensitizing, mutagens, or carcinogens. Product does not contain any known or suspected reproductive or developmental hazards. Ecotoxicity: Toxic to aquatic life with long lasting effects. Sodium polynaphthalene sulfonate: EC50 (48 hours) 1.8 mg/l Product is not considered toxic to fish or invertebrates. Biodegradation/Bioaccumulation:	0.343%	Yes

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Ecotoxicity Info	Product in system fluid (mass %)	SDS Attached
			Product is not biodegradable. Bioaccumulation is unlikely.		
D081	Schlumberger	Retarder	**Constituents:** Not applicable – this product does not contain any hazardous ingredients, or ingredients with national workplace exposure limits. Classified as Non-Hazardous according to the criteria of NOHSC. Toxicity: Acute toxicity: None. Chronic toxicity: Product contains no components known to be sensitizing, mutagens, or carcinogens. Product does not contain any known or suspected reproductive or developmental hazards. Ecotoxicity: The product component(s) are not classified as environmentally hazardous. Product not considered toxic to algae, fish, or invertebrates. Biodegradation/Bioaccumulation: Does not bioaccumulate	0.031%	Yes
D110 WH	Schlumberger	D110 WH Retarder	**Constituents:** Not applicable – no classified ingredients, or those having occupational exposure limits, present above the level of disclosure. Classified as Non-Hazardous according to the criteria of NOHSC. Toxicity: Acute toxicity: None. Chronic toxicity: Product contains no components known to be sensitizing, mutagens, or carcinogens. Product does not contain any known or suspected reproductive or developmental hazards. Ecotoxicity: The product component(s) are not classified as environmentally hazardous. Product not considered toxic to algae, fish, or invertebrates. Biodegradation/Bioaccumulation:	0.553%	Yes

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Ecotoxicity Info	Product in system fluid (mass %)	SDS Attached
			Product is biodegradable, does not bioaccumulate.		
D161	Schlumberger	Retarder	**Constituents:** SODIUM PENTABORATE This product contains other ingredients which do not contribute to the overall classification. Toxicity: Acute toxicity: Sodium Pentaborate Ld50 Dermal: >2 g/kg LC50 Inhalation: > 2.03 mg/L Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, or mutagenic effects. Product is or contains a chemical which is a known or suspected reproductive hazard. Not known to cause birth defects or have a deleterious effect on a foetus. Ecotoxicity: Sodium Pentaborate: Toxicity to Fish: LC50: = 600 mg/L (96 h) Toxicity to Invertebrates: EC50= 86 mg/L (48 h) Biodegradation/Bioaccumulation: The organic portion of this material is not biodegradable. Contains no substance considered to be bioaccumulating or toxic.	0.460%	Yes
D168	Schlumberger	Fluid Loss Additive	**Constituents:** Not applicable – no classified ingredients, or those having occupational exposure limits, present above the level of disclosure. Classified as Non-Hazardous according to the criteria of NOHSC. Toxicity: Acute toxicity: None. Chronic toxicity: Product contains no components known to be sensitizing, mutagens, or carcinogens. Product does not contain any known or suspected reproductive or developmental hazards.	0.076%	Yes

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Ecotoxicity Info	Product in system fluid (mass %)	SDS Attached
			Ecotoxicity: The product component(s) are not classified as environmentally hazardous. Product not considered toxic to algae, fish, or invertebrates. Biodegradation/Bioaccumulation: Product is biodegradable, does not bioaccumulate.		
D175A	Schlumberger	AntiFoam Agent	**Constituents (mixtures):** NON-CRYSTALLINE SILICA The product has no classified ingredients, or those having occupational exposure limits, present above the level of disclosure. The product contains other ingredients which do not contribute to the overall classification. Toxicity: Acute toxicity: None. Chronic toxicity: Product contains no components known to be sensitizing, mutagens, or carcinogens. Product does not contain any known or suspected reproductive or developmental hazards. Ecotoxicity: The product component(s) are not classified as environmentally hazardous. Product not considered toxic to algae, fish, or invertebrates. Biodegradation/Bioaccumulation: Contains no substance considered to be bioaccumulating or toxic.	0.031%	Yes
D182	Schlumberger	Spacer	**Constituents:** Not applicable – no classified ingredients, or those having occupational exposure limits, present above the level of disclosure. Not classified as PBY/vPvB by current EU criteria. Toxicity: Acute toxicity: None.	0.125%	Yes

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Ecotoxicity Info	Product in system fluid (mass %)	SDS Attached
			Chronic toxicity: Product contains no components known to be sensitizing, mutagens, or carcinogens. Product does not contain any known or suspected reproductive or developmental hazards. Ecotoxicity: The product component(s) are not classified as environmentally hazardous. Product not considered toxic to algae, fish, or invertebrates. Biodegradation/Bioaccumulation: Bioaccumulation is unlikely.		
D194	Schlumberger	Retarder	**Constituents:** Not applicable – this product does not contain any hazardous ingredients, or ingredients with national workplace exposure limits. Classified as Non-Hazardous according to the criteria of NOHSC. Toxicity: Acute toxicity: None. Chronic toxicity: Product contains no components known to be sensitizing, mutagens, or carcinogens. Product does not contain any known or suspected reproductive or developmental hazards. Ecotoxicity: The product component(s) are not classified as environmentally hazardous. Product not considered toxic to algae, fish, or invertebrates. Biodegradation/Bioaccumulation: Contains no substance considered to be bioaccumulating or toxic.	0.053%	Yes
D255	Schlumberger	Mid-Range FLAC D255	**Constituents:** 2-METHYLPROPAN-2-OL The product contains other ingredients which do not contribute to the overall classification. Suspended dust may present a dust explosion hazard. Toxicity:	0.084%	Yes

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Ecotoxicity Info	Product in system fluid (mass %)	SDS Attached
			Acute toxicity : 2-methylpropan-2-ol LD50 Oral (Rat): > 2200 mg/kg Ld50 Dermal (Rabbit): >2 g/kg LC50 Inhalation (Rat): > 10000 ppm, (4h) Chronic Toxicity: No known sensitizing, carcinogenic, reproductive, or mutagenic effects. Product does not contain any known or suspected reproductive or developmental hazards. Ecotoxicity: 2-methylpropan-2-ol Toxicity to Fish: LC50 (*Pimpehales promelas*): = 6130-6700 mg/L (96 h) Toxicity to Algae: EC50 (*Desmodesmus subspicatus*): >1000 mg/L (120 h) Toxicity to Invertebrates: EC50 (*Daphnia magna*) = 4607-6577 mg/L (48 h) Biodegradation/Bioaccumulation: Not readily biodegradable. Does not bioaccumulate.		
D256	Schlumberger	Mid-Range liquid FLAC D256	**Constituents:** Not applicable – no classified ingredients, or those having occupational exposure limits, present above the level of disclosure. No classified hazards. Toxicity: Acute toxicity: None. Chronic toxicity: Product contains no components known to be sensitizing, mutagens, or carcinogens. Product does not contain any known or suspected reproductive or developmental hazards. Ecotoxicity: The product component(s) are not classified as environmentally hazardous. Product not considered toxic to algae, fish, or invertebrates. Biodegradation/Bioaccumulation: Not readily biodegradable, bioaccumulation is unlikely.	0.092%	Yes

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Ecotoxicity Info	Product in system fluid (mass %)	SDS Attached
D600G	Schlumberger	Gas Control Agent	**Constituents:** DODECYL SULFATE, SODIUM SALT 1,4-DIOXANE The product contains other ingredients which do not contribute to the overall classification. Toxicity: Acute toxicity : 1,4-Dioxane (Impurity) LD50 Oral (Rat): > 4200 mg/kg Ld50 Dermal (Rabbit): >7600mg/kg LC50 Inhalation (Rat): > 46 mg/L (2h) Chronic Toxicity: May cause allergic reactions in very susceptible persons. Contains a known or suspected carcinogen. Is not known to have reproductive, or mutagenic effects. Product does not contain any known or suspected reproductive or developmental hazards. Ecotoxicity: 1,4-Dioxane (impurity) Toxicity to Fish: LC50 (*Pimpehales promelas*): = 9850 mg/L (96 h) Toxicity to Invertebrates: EC50 (*Daphnia magna*) = 163 mg/L (48 h) Biodegradation/Bioaccumulation: Not readily biodegradable. Does not bioaccumulate.	1.574%	Yes
D901	Schlumberger	Cement	**Constituents:** PORTLAND CEMENT Toxicity: Acute toxicity: None. Chronic toxicity: Product contains no components known to be mutagens, or carcinogens. Can be come skin sensitizing if stored improperly. Product does not contain any known or suspected reproductive or developmental hazards.	26.66%	Yes

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Ecotoxicity Info	Product in system fluid (mass %)	SDS Attached
			Ecotoxicity: The product component(s) are not classified as environmentally hazardous. Product not considered toxic to algae, fish, or invertebrates. Biodegradation/Bioaccumulation: Not applicable – Inorganic chemical.		
D907	Schlumberger	Cement	**Constituents:** PORTLAND CEMENT CLINKER The product contains other ingredients which do not contribute to the overall classification. Toxicity: Acute toxicity: None. Chronic toxicity: Product contains no components known to be mutagens, or carcinogens. Can be come skin sensitizing if stored improperly. Product does not contain any known or suspected reproductive or developmental hazards. Ecotoxicity: The product component(s) are not classified as environmentally hazardous. Product not considered toxic to algae, fish, or invertebrates. Biodegradation/Bioaccumulation: Not applicable – Inorganic chemical	15.692%	Yes
Water	Schlumberger	Water	None	44.491%	Yes
Total				100.00%	

C. Chemical List		
Chemicals within products in Part B	**CAS number**	**Maximum Mass fraction in System (%)**
Portland cement	65997-15-1	~ 66
Water (Including Mix Water Supplied by Client)*	7732-18-5	~ 12
Quartz, Crystalline silica (impurity)	14808-60-7	~ 9
Barium sulphate	7727-43-7	~ 5
Bentonite	1302-78-9	~ 3
Styrene butadiene copolymer	9003-55-8	~ 1
Sulfuric acid, calcium salt	7778-18-9	~ 1
Sodium polynaphthalene sulfonate	9008-63-3	< 1
Calcium glucoheptonate	17140-60-2	< 1
Polypropylene glycol	25322-69-4	< 1
Sulfurous acid, monosodium salt, polymer	40104-76-5	< 1
2-Propenoic acid, ammonium salt, polymer with 2- methyl-2-[(1-oxo-2-propeny)amino]-1-propanesulfonic acid monoammonium salt and 2-propenamide	99716-31-1	< 1
Sodium lignosulfonate	8061-51-6	< 1
Propane-1,2-diol	57-55-6	< 0.1
Polysaccharide biopolymer	72121-88-1	< 0.1
Sodium pentaborate	12007-92-0	< 0.1
Sodium chloride (impurity)	7647-14-5	< 0.1
C12-15 alcohol ethyoxylated	68131-39-5	< 0.1
Calcium lignosulfonate	8061-52-7	< 0.1
Silicic acid, sodium salt	1344-09-8	< 0.1
Alkyl glyceryl ether sulfonate	246867-88-9	< 0.1

C. Chemical List		
Chemicals within products in Part B	**CAS number**	**Maximum Mass fraction in System (%)**
2-Propenoic acid, polymer with 2-methyl-2-[(1-oxo-2-propenyl)amino]-1-propanesulfonic acid and 2-propenamide, ammonium salt.	1857271-55-6	< 0.1
Sodium sulphate	7757-82-6	< 0.1
Dimethyl siloxanes and silicones	63148-62-9	< 0.1
Vinylamide/vinylsulfonated polymer	110897-64-8	< 0.1
Pentasodium EDTMP	7651-99-2	< 0.01
2-methylpropan-2-ol	75-65-0	< 0.01
Sodium gluconate	527-07-1	< 0.01
Sorbitan stearate	1338-41-6	< 0.01
Tartaric Acid	87-69-4	< 0.01
Calcium chloride	10043-52-4	< 0.01
Sodium dodecyl sulphate	151-21-3	< 0.01
1,4-Dioxane (Impurity)	123-91-1	< 0.01
Sodium hydroxide	1310-73-2	< 0.01
Polyoxyethylene (40) stearic acid (monoester)	9004-99-3	< 0.01
Silicon Dioxide	7631-86-9	< 0.01
2-bromo-2-nitropropane-1,3-diol	52-51-7	< 0.001
Phosphonic acid (impurity)	13598-36-2	< 0.001
Phosphoric acid (impurity)	7664-38-2	< 0.001
2-Propenamide (impurity)	79-06-1	< 0.001
3,3'-methylenebis[5-methyloxazolidine]	66204-44-2	< 0.001
Sorbic acid	110-44-1	< 0.0001

C. Chemical List		
Chemicals within products in Part B	**CAS number**	**Maximum Mass fraction in System (%)**
5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-4-isothiazolin-3-one	55965-84-9	< 0.0001
Total		100.00%

3. **Alternative Drilling Fluid system**

A. SYSTEM DETAILS:	
OPERATOR:	Beach Energy
PROJECT / WELL NAME:	Trigg Northwest 1A Exploration Drilling
SYSTEM:	Alternative Drilling Fluid System / Alternative Plug and Abandonment Fluid System
TOTAL VOLUME OF SYSTEM (m^3):	120 m^3

B. PRODUCT LIST

Trade name	**Supplier**	**Purpose**	**Toxicity & Eco toxicity Info**	**% Product in system fluid**	**SDS Attached**
Water	N/A	Base Fluid	N/a	99.62%	N/A
Quik-gel Gold	Baroid / Halliburton	Viscosifier	**Constituents:** BENTONITE CRYSTALLINE SILICA, QUARTZ CRYSTALLINE SILICA, CRISTOBALITE CRYSTALLITE SILICA, TRIDYMITE Toxicity: **Constituent 1: Bentonite** LD50 Oral > 5000 mg/kg (Rat) > 2000 mg/kg (Rat) LD50 Dermal >2000 mg/kg LC50 Inhalation > 5.27 mg/L (Rat) >200 mg/L (Rat) 1h **Constituent 2: Crystalline silica, quartz** LD50 Oral > 15,000 mg/kg (Human) LD50 Dermal -No data available LC50 Inhalation - No data available **Constituent 3: Crystalline silica, cristobalite**	0.31%	Y

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
			LD50 Oral >15,000 mg/kg (Human) LD50 Dermal -No data available LC50 Inhalation - No data available **Constituent 4: Crystalline silica, tridymite** LD50 Oral >15,000 mg/kg (Human) LD50 Dermal -No data available LC50 Inhalation - No data available <u>Ecotoxicity:</u> **Constituent 1: Bentonite** Toxicity to Algae EC50 (72h) > 100 mg/L (freshwater algae) Toxicity to Fish TLM 96 10,000 ppm (*Oncorhynchus mykiss*) LC50 (96h) 16,000 - 19,000 mg/L (*Oncorhynchus mykiss*) LC50(24h)2800–3200 mg/L (black bass, warmouth bass, blue gill and sunfish) Toxicity to Invertebrates EC50 (96h) 81.6 mg/L (*Metacarcinus magister*) EC50 (96h) 24.8 mg/L (*Pandalus danae*) EC50 (48h) > 100 mg/L (*Daphnia magna*) **Constituent 2: Crystalline silica, quartz** Toxicity to Fish LL0 (96h) 10,000 mg/L (*Danio rerio*) (similar substance) Toxicity to Invertebrates LL50 (24h) > 10,000 mg/L (*Daphnia magna*) (similar substance) **Constituent 3: Crystalline silica, cristobalite** Toxicity to Fish		

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
			LL0 (96h) 10,000 mg/L (*Danio rerio*) (similar substance) Toxicity to Invertebrates LL50 (24h) > 10,000 mg/L (*Daphnia magna*) (similar substance) **Constituent 4: Crystalline silica, tridymite** Toxicity to Fish LL0 (96h) 10,000 mg/L (*Danio rerio*) (similar substance) Toxicity to Invertebrates LL50 (24h) > 10,000 mg/L (*Daphnia magna*) (similar substance) **Chronic effects:** Inhaled crystalline silica in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (IARC, Group 1). Biodegradation/Bioaccumulation: Aside from Crystalline silica, quartz the remaining constituents are inorganic and biodegradability does not pertain to inorganic substances. No information available regarding the biodegradability of crystalline silica, quartz. No information is available regarding bioaccumulation or mobility in soil for these the constituents in this product. This product does not contain any known or suspected endocrine disruptors.		
Quikmud II	Baroid / Halliburton	Additive	**Constituents:** HYDROTREATED LIGHT PETROLEUM DISTILLATE Toxicity: LD50 Oral > 5000 mg/kg (rat) similar substance LD50 Dermal >2000 mg/kg-bw (rabbit) (similar substance) LC50 Inhalation > 5.2 mg/L (rat, 4 h, vapor) (similar substance) Ecotoxicity: Toxicity to Algae: EC50 (72h) > 1,000 mg/L (*Skeletonema costatum*)	0.035%	Y

B. PRODUCT LIST

Trade name	Supplier	Purpose	Toxicity & Eco toxicity Info	% Product in system fluid	SDS Attached
			ErL50 (72h) > 1000 mg/L (*Pseudokirchneriella subcapitata*) EbL50 (72h) > 1000 mg/L (*Pseudokirchneriella subcapitata*) NOELR (72h) 1000 mg/L (*Pseudokirchneriella subcapitata*) Toxicity to Fish LC50 (96h) > 10,000 mg/L (*Scophthalmus maximus*) LL50 (96h) > 1000 mg/L (*Oncorhynchus mykiss*) Toxicity to Invertebrates LC50 (48h) > 10,000 mg/L (*Acartia tonsa*) EC50 (48h) 1100 mg/L (*Daphnia pulex*) LC50 (48h) 0.12 mg/L (*Daphnia magna*) EL50 (48h) > 1000 mg/L (*Daphnia magna*) Biodegradation/Bioaccumulation: The product is readily biodegradable 40% @ 28 days. The product's bioaccumulation potential has a Log Pow Weighted Average 7.5. This product does not contain any known or suspected endocrine disruptors.		
Pac-r	Baroid / Halliburton	Fluid Loss Additive	**Constituents:** Contains no hazardous substances in concentrations above cut-off values according to the competent authority Non-Hazardous according to the criteria of the 3rd Revised Edition of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS), Non-Dangerous Goods according to the criteria of ADG. No data available to indicate product or components present at greater than 0.1% are chronic health hazards. Toxicity: LD50 Oral 16000mg/kg (16000mg/kg) Guinea pig LD50 Oral> 27gm/kg (27000mg/kg) Mouse	0.031%	Y

B. PRODUCT LIST					
Trade name	**Supplier**	**Purpose**	**Toxicity & Eco toxicity Info**	**% Product in system fluid**	**SDS Attached**
			LD50 Oral > 27gm/kg (27000mg/kg) Rabbit LD50 Skin > 2gm/kg (2000mg/kg) Rabbit LC50 Inhalation > 5800mg/m3/4H (5800mg/m3) Rat LD50 Oral 27000mg/kg (27000mg/kg) Rat <u>Ecotoxicity:</u> Toxicity to Fish 96hr LC50 (rainbow trout): >100 mg/L 96hr LC50 (bluegill sunfish): >100 mg/L Toxicity to Invertebrates 48hr EC50 (Daphnia) 87,26 mg/l This product does not contain any known or suspected endocrine disruptors This is an OCNS Non-CHARMable product – OCNS Category E (Low toxicity) <u>Biodegradation/Bioaccumulation:</u> No information is available regarding degradability, bioaccumulation or mobility in soil for these the constituents in this product.		
Total					100.00%

C. Chemical List (Chemicals within fluid system identified in Table B)		
Chemicals Name	**CAS number**	**Mass fraction (%)**
Water	7732-18-5	99.61%
Bentonite	1302-78-9	0.295%
Crystalline silica, quartz	14808-60-7	0.015%
Crystalline silica, cristobalite	14464-46-1	0.003%

C. Chemical List (Chemicals within fluid system identified in Table B)		
Chemicals Name	**CAS number**	**Mass fraction (%)**
Crystalline silica, tridymite	15468-32-3	0.003%
Hydrotreated light petroleum distillate	64742-47-8	0.035%
Cellulose derivative	9004-32-4	0.031%
Total		**100.00%**

4. **SDS**

SDS no. 901
Version 6
Revision date 08-Jun-2021
Supersedes Date: 13- pr-2016

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Cement Class 901

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name Cement Class 901
Product code 901

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use sed as a cementin additive in oil ield applications

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
chlumber er ustralia Pt td
N: 74 002 459 225
CN: 002 459 225
evel 5 10 Telethon venue
Perth 6000

@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) ustralia 61 2801 44558 sia Paci ic 65 3158 1074 China 86 10 5100 3039 urope 44 (0) 1235 239 670 Middle ast and rica 44 (0) 1235 239 671 Ne ealand 64 9929 1483 001 281 595 3518 Canada 001 613 996 6666

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards

kin corrosion irritation	Cate or 2
erious e e dama e e e irritation	Cate or 1
kin sensitization	Cate or 1
peci ic tar et or an toxicit - in le exposure	Cate or 3

Environmental hazards Not classi ied

Physical Hazards Not classi ied

2.2 Label elements



Signal word
N

Hazard Statements
H315 - Causes skin irritation
H317 - Ma cause an aller ic skin reaction
H318 - Causes serious e e dama e
H335 - Ma cause respirator irritation

Precautionary statements
P271 - se onl outdoors or in a ell-ventilated area
P280 - ear protective loves protective clothin e e protection ace protection
P302 P352 - F N N: ash ith plent o soap and ater
P305 P351 P338 - F N : inse cautiousl ith ater or several minutes. emove contact lenses i present and eas to do. Continue rinsin
P304 P340 - F NH : emove victim to resh air and keep at rest in a position com ortable or breathin
P310 - mmediatel call a P N C NT or doctor ph sician

Supplementary precautionary statements
P261 - void breathin dust ume as mist vapors spra
P264 - ash ace hands and an exposed skin thorou hl a ter handlin
P272 - Contaminated ork clothin should not be allo ed out o the orkplace
P333 P313 - skin irritation or rash occurs: et medical advice attention
P362 P364 - Take o contaminated clothin and ash it be ore reuse
P403 P233 - tore in a ell-ventilated place. eep container ti htl closed
P501 - ispose o contents container in accordance ith local re ional national and international re ulations as applicable

Contains
Portland cement

2.3 Other hazards

Not classi ied as P T vPv b current criteria

Australian statement of hazardous/dangerous nature
Classi ied as Hazardous accordin to the criteria o N H C.
H T NC . N N- N .

3. Composition/information on Ingredients

3.1 Substances

Chemical Name	EC No	CAS No	Weight-%
Portland cement	266-043-4	65997-15-1	60-100

3.2 Mixtures

Not applicable

4. First Aid Measures

4.1 First aid measures

Inhalation inhaled remove rom area to resh air. et medical attention i respirator irritation develops or i breathin becomes di icult.

Ingestion inse mouth. Never ive an thin b mouth to an unconscious person. et medical attention i s mptoms occur.

Skin contact ash o immediatel ith soap and plent o ater hile removin all contaminated clothes and shoes. et medical attention i irritation persists.

Eye Contact Promptl ash e es ith lots o ater hile li tin e e lids. emove contact lenses i orn. Continue to rinse or at least 15 minutes. et medical attention i an discom ort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice The severit o the s mptoms described ill var dependant o the concentration and the len th o exposure. adverse s mptoms develop the casualt should be trans erred to hospital as soon as possible.

Symptoms

Inhalation Please see ection 11. Toxicolo ical n ormation or urther in ormation.

Ingestion Please see ection 11. Toxicolo ical n ormation or urther in ormation.

Skin contact Please see ection 11. Toxicolo ical n ormation or urther in ormation.

Eye contact Please see ection 11. Toxicolo ical n ormation or urther in ormation.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat s mptomaticall .

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
se extin uishin media appropriate or surroundin material.

Extinguishing media which must not be used for safety reasons
None kno n.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None kno n.

Hazardous combustion products
Thermal decomposition can lead to release o irritatin ases and vapors eact ith h dro luoric acid (HF) ormin toxic as (iF4).

5.3 Advice for firefighters

Special protective equipment for fire-fighters

s in an ire ear sel -contained breathin apparatus and ull protective ear.

Special Fire-Fighting Procedures
Containers close to ire should be removed immediatel or cooled ith ater.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

void contact ith the skin and the e es. void dust ormation. se personal protective e uipment. ee also section 8.

6.2 Environmental precautions

The product should not be allo ed to enter drains ater courses or the soil.

Environmental exposure controls
void release to the environment. ocal authorities should be advised i si ni icant spilla es cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent urther leaka e or spilla e i sa e to do so. Cover po der spill ith plastic sheet or tarp to minimize spreadin and keep po der dr .

Methods for cleaning up
o not dr s eep dust. et dust ith ater be ore s eepin or use a vacuum to collect dust. Pick up and trans er to properl labeled containers. eep in suitable closed containers or disposal. Clean contaminated sur ace thorou hl . ter cleanin lush a a traces ith ater.

6.4 Reference to other sections

ee section 13 or more in ormation.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance ith ood industrial h iene and sa et practice. void contact ith skin and e es. void dust ormation. Persons susceptible to aller ic reactions should not handle this product. Ma produce an aller ic reaction.

Hygiene Measures
se ood ork and personal h iene practices to avoid exposure. o not eat drink or smoke hen usin this product ash hands and ace be ore breaks and immediatel a ter handlin the product emove contaminated clothin

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions nsure ade uate ventilation. eep airborne concentrations belo exposure limits. Provide appropriate exhaust ventilation at places here dust is ormed.

Storage precautions eep containers ti htl closed in a dr cool and ell-ventilated place void heat lames and other sources o i nition. Protect rom moisture void contact ith: xidizin a ents tron acids luminum H dro luoric acid (HF)

Storage class Chemical stora e.

Packaging materials se speciall constructed containers onl .

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits N Nuisance dust T 4m m³ espirable ust 10m m³ Total ust.

Chemical Name	Arabic	Australia	Egypt
Portland cement	10 m m³ T	10m m³T inhalable dust	Not determined
Chemical Name	**India**	**Indonesian**	**Japan**
Portland cement	10 m m³ T	10 m m³ T	4 m m³ 1 m m³
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
Portland cement	Not determined	10.0 m m³ T 5.0 m m³ T	10 m m³ T
Chemical Name	**Malaysia**	**Philippines**	**Russia**
Portland cement	10 m m³ T	Not determined	Not determined
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
Portland cement	Not determined	Not determined	Not determined

Notes
No biolo ical limit allocated

8.2 Exposure controls

ll chemical Personal Protective uipment (PP) should be selected based on an assessment o both the chemical hazard present and the risk o exposure to those hazards. The PP recommendations belo are based on an assessment o the chemical hazards associated ith this product. here this product is used in a mixture ith other products or luids additional hazards ma be created and as such urther assessment o risk ma be re uired. The risk o exposure and need o respirator protection ill var rom orkplace to orkplace and should be assessed b the user in each situation.

Engineering Controls
nsure ade uate ventilation Provide appropriate exhaust ventilation at places here dust is ormed

Personal protective equipment

Eye protection se e e protection accordin to N 166 desi ned to protect a ainst dusts a et lasses ith side-shields Ti htl ittin sa et o les

Hand protection ear loves accordin to N 374 to protect a ainst skin e ects rom po ders mpervious loves made o : P C disposable loves ubber loves
Fre uent chan e is advisable

Respiratory protection n case o insu icient ventilation ear suitable respirator e uipment Hal mask ith a particle ilter P2 (uropean Norm N 143 ormer N 3181) t ork in con ined or poorl ventilated spaces respirator protection ith air suppl must be used.

Skin and body protection ear appropriate personal protective clothin to prevent skin contact e ash and emer enc sho er must be available at the ork place.

Hygiene Measures ash hands be ore breaks and immediatel a ter handlin the product emove and ash contaminated clothin be ore re-use



8.2.3 Environmental exposure controls

Environmental exposure se appropriate containment to avoid environmental contamination ee section 6 or more in ormation

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	olid
Appearance	Po der
Odor	dorless
Color	ra or hite

Property	**Values**	**Remarks**
pH	Not applicable	
pH @ dilution	11 - 13	@10 sol
Melting / freezing point	1250 C 2282 F	
Boiling point/range	No in ormation available	
Flash point	oes not lash	
Evaporation rate (BuAc =1)	Not applicable	
Flammability	Not applicable	
Explosion limits:		
Upper explosion limit	No in ormation available	
Lower explosion limit	No in ormation available	
Vapor pressure	No in ormation available	
Relative Vapor Density	No in ormation available	
Specific gravity	No in ormation available	
Bulk density	0.9 - 1.5 cm	
Water solubility	li htl soluble in ater.	
Solubility in other solvents	No in ormation available	
Autoignition temperature	No in ormation available	
Decomposition temperature	No in ormation available	
Kinematic viscosity	No in ormation available	
Dynamic viscosity	No in ormation available	
Partition Coefficient (n-octanol/water)	No in ormation available	
Density and/or Relative Density	2.75 - 3.20	
Explosive properties	Not applicable	
Oxidizing properties	Not applicable	

9.2 Other information

Pour point	No in ormation available
Molecular weight	No in ormation available
VOC content(%)	No in ormation available

Comments
The data listed above are t pical ph sical and chemical properties and should not be construed as product speci ication.

10. Stability and Reactivity

10.1 Reactivity

eact ith h dro luoric acid (HF) ormin toxic as (iF4).

10.2 Chemical stability

table under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous pol merization does not occur.

10.4 Conditions to avoid

Protect rom moisture. void dust ormation. void heat lames and other sources o i nition.

10.5 Incompatible materials

xidizin a ents. H dro luoric acid (HF). tron acids. luminium.

10.6 Hazardous decomposition products

ee ection 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation nhalation o dust ma cause shortness o breath ti htness o the chest a sore throat and cou h. Ma cause aller or asthma s mptoms or breathin di iculties i inhaled. Contact ith moist mucous membranes o the respirator s stem can cause caustic condition resultin in burns.

Eye contact Causes serious e e dama e.

Skin contact Causes skin irritation. Ma cause an aller ic skin reaction.

Ingestion n estion ma cause irritation to mucous membranes.

Unknown acute toxicity Not applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Portland cement	No data available	No data available	No data available

Sensitization Ma cause aller ic skin reaction.

Mutagenic effects This product does not contain an kno n or suspected muta ens.

Carcinogenicity This product does not contain an kno n or suspected carcino ens.

Reproductive toxicity This product does not contain an kno n or suspected reproductive hazards.

Routes of Exposure kin contact. nhalation. e contact.

Routes of entry nhalation. kin contact. e contact.

Specific target organ toxicity - Single exposure Cate or 3

Specific target organ toxicity - Repeated exposure Not classi ied.

Target organ effects espirator s stem. un s.

Aspiration hazard Not applicable.

11.2 Information on other hazards

Other information e literature re erences and sources or data. ee ection 16 or more in ormation.

12. Ecological information

12.1 Toxicity

The product component(s) are not classi ied as environmentall hazardous. Ho ever this does not exclude the possibilit that lar e or re uent spills can have a harm ul or dama in e ect on the environment. ar e amounts ill a ect pH and harm a uatic or anisms

Toxicity to algae
This product is not considered toxic to al ae.

Toxicity to fish
This product is not considered toxic to ish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Portland cement	No in ormation available	No in ormation available	No in ormation available

12.2 Persistence and degradability

Not pplicable - nor anic chemical.

12.3 Bioaccumulative potential

Not pplicable - nor anic chemical.

12.4 Mobility

Mobility
li htl soluble in ater.

Mobility in soil
No in ormation available.

12.5 Other adverse effects

None kno n.

12.6 Other information.

e literature re erences and sources or data. ee ection 16 or more in ormation.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products ispose o in accordance ith local re ulations.

Contaminated packaging mpt containers should be taken or local rec clin recover or aste disposal.

14. Transport information

14.1. UN number
Not re ulated

14.2. UN proper shipping name
The product is not covered b international re ulation on the transport o dan erous oods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not re ulated
IMDG/ANTAQ Hazard class	Not re ulated
ICAO/ANAC Hazard class/division	Not re ulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not re ulated
IMDG/ANTAQ Packing group	Not re ulated
ICAO/ANAC Packing group	Not re ulated

14.5 Environmental hazard
No

14.6 Special precautions
None

14.7 Maritime transport in bulk according to IMO instruments
Please contact @slb.com or in o re ardin transport in ulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons

Portland cement
chedule 4
chedule 6
chedule 5

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

International inventories

USA (TSCA)	Complies

Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies
Eurasian Economic Union: Russian Inventory	Complies

16. Other Information

Prepared by lobal e ulator Compliance - Chemicals (C - Chemicals) andra Mc illiam

Supersedes Date: 13- pr-2016

Revision date 08-Jun-2021

Version 6

This SDS has been revised in the following section(s) ll sections No chan es ith re ard to classi ication have been made.

Key literature references and sources for data
.Chem .com
upplier
National Chemical nventories
National re ulator in ormation
National occupational exposure limits

HMIS classification

Health	3
Flammabilit	1
Ph sical hazard	0
PP	

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SDS no. D907
Version 5
Revision date 01-Aug-2018
Supersedes Date: 05-Mar-2014

Safety Data Sheet
Cement Class G D907

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name Cement Class G D907
Product code D907
Country Limitations This SDS is not for use in the European Union (EU).

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Used as a cementing additive in oilfield applications

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Oilfield Australia Pty Ltd
ABN: 74 002 459 225
ACN: 002 459 225
256 St. Georges Terrace, Perth WA 6000
+47 5157 7424

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 595 3518

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1
Skin sensitization	Sub-Category 1B
Specific target organ toxicity - Single exposure	Category 3

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements



Signal word
DANGER

Hazard Statements
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H335 - May cause respiratory irritation

Precautionary statements
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/physician

Supplementary precautionary statements
P264 - Wash face, hands and any exposed skin thoroughly after handling
P271 - Use only outdoors or in a well-ventilated area
P272 - Contaminated work clothing should not be allowed out of the workplace
P362 - Take off contaminated clothing and wash before reuse
P332 + P313 - If skin irritation occurs: Get medical advice/attention
P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention
P362 + P364 - Take off contaminated clothing and wash it before reuse
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

Contains
Portland Cement Clinker

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria

Australian statement of hazardous/dangerous nature

Classified as Hazardous according to the criteria of NOHSC.
HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical Name	EC No	CAS No	Weight-%
Portland Cement Clinker	266-043-4	65997-15-1	60-100

Comments
The product contains other ingredients which do not contribute to the overall classification.

4. First Aid Measures

4.1 First aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Ingestion Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Seek medical attention if irritation occurs.

Skin contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention if irritation persists.

Eye Contact Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if worn. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing media appropriate for surrounding material.

Extinguishing media which must not be used for safety reasons
None known.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Thermal decomposition can lead to release of irritating gases and vapors React with hydrofluoric acid (HF) forming toxic gas (SiF4).

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8. Avoid dust formation. Avoid breathing dust; if exposed to high dust concentration, leave area immediately. Avoid contact with the skin and the eyes.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry.

Methods for cleaning up
Do not dry sweep dust. Wet dust with water before sweeping or use a vacuum to collect dust. Pick up and transfer to properly labeled containers. Keep in suitable, closed containers for disposal. Clean contaminated surface thoroughly. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Do not breathe vapors/dust. Avoid contact with skin and eyes. Avoid handling causing generation of dust. Persons susceptible to allergic reactions should not handle this product.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation. Provide appropriate exhaust ventilation at places where dust is formed. Keep airborne concentrations below exposure limits.
Storage precautions	Keep containers tightly closed in a dry, cool and well-ventilated place Protect from moisture Store away from incompatibles, Powdered aluminum Acids Oxidizing agents Hydrofluoric acid (HF)

Storage class Chemical storage.

Packaging materials Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits NUI = Nuisance dust, TWA 4mg/m³ Respirable Dust, 10mg/m³ Total Dust.

No biological limit allocated

Component Information

Chemical Name	Arabic	Australia	Egypt
Portland Cement Clinker	10 mg/m³ TWA	10 mg/m³ TWA	Not determined
Chemical Name	**India**	**Indonesian**	**Japan**
Portland Cement Clinker	10 mg/m³ TWA	10 mg/m³ TWA	4 mg/m³ OEL 1 mg/m³ OEL
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
Portland Cement Clinker	Not determined	Not determined	10 mg/m³ TWA
Chemical Name	**Malaysia**	**Philippines**	**Russia**
Portland Cement Clinker	10 mg/m³ TWA	Not determined	Not determined
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
Portland Cement Clinker	Not determined	Not determined	Not determined

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation Provide appropriate exhaust ventilation at places where dust is formed

Personal protective equipment

Eye protection Use eye protection according to EN 166, designed to protect against powders and dusts Tightly fitting safety goggles Safety glasses with side-shields

Hand protection Wear gloves according to EN 374 to protect against skin effects from powders Impervious gloves made of: PVC disposable gloves Rubber gloves Frequent change is advisable

Respiratory protection In case of insufficient ventilation wear suitable respiratory equipment Effective dust mask. Type P2/P3 At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.

Skin and body protection Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.

Hygiene Measures Wash hands before breaks and immediately after handling the product Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Powder
Odor	Odorless
Color	Gray or White
Odor threshold	Not applicable

Property	Values	Remarks
pH	Not applicable	
pH @ dilution	11 - 13	@10% sol
Melting / freezing point	> 1250 °C / 2282 °F	
Boiling point/range	No information available	
Flash point	Not applicable	
Evaporation rate (BuAc =1)	Not applicable	
Flammability (solid, gas)	Not applicable	
Flammability Limit in Air		
Upper flammability limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	No information available	
Vapor density	No information available	
Specific gravity	~ 3	
Bulk density	0.9 - 1.5 g/cm³	
Relative density	2.75 - 3.20	
Water solubility	0.1-1.5 g/L @ 20 °C	
Solubility in other solvents	No information available	
Autoignition temperature	Not applicable	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
log Pow	No information available	

Explosive properties	Not applicable
Oxidizing properties	Not applicable

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	Not applicable
Density	No information available

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

React with hydrofluoric acid (HF) forming toxic gas (SiF4).

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Protect from moisture. Avoid dust formation.

10.5 Incompatible materials

Acids. Powdered aluminum. Strong oxidizing agents. Hydrofluoric acid (HF).

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

Inhalation Inhalation of dust may cause shortness of breath, tightness of the chest, a sore throat and cough. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Contact with moist mucous membranes of the respiratory system can cause caustic condition resulting in burns.

Eye contact Causes serious eye damage.

Skin contact Causes skin irritation. May cause an allergic skin reaction.

Ingestion Ingestion may cause irritation to mucous membranes.

Unknown acute toxicity Not applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Portland Cement Clinker	No data available	No data available	No data available

Sensitization May cause allergic skin reaction.

Mutagenic effects This product does not contain any known or suspected mutagens.

Carcinogenicity This product does not contain any known or suspected carcinogens.

Reproductive toxicity This product does not contain any known or suspected reproductive hazards.

Routes of exposure Skin contact. Inhalation. Eye contact.

Routes of entry Inhalation. Skin contact. Eye contact.

Specific target organ toxicity - Single exposure Category 3

Specific target organ toxicity - Not classified.

Repeated exposure

Target organ effects Respiratory system. Lungs.

Aspiration hazard Not applicable.

Other information Key literature references and sources for data. See Section 16 for more information.

12. Ecological Information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment. Large amounts will affect pH and harm aquatic organisms

Toxicity to algae
This product is not considered toxic to algae.

Toxicity to fish
This product is not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Portland Cement Clinker	No information available	No information available	No information available

12.2 Persistence and degradability

Not Applicable - Inorganic chemical.

Chemical Name	Persistence and degradability
Portland Cement Clinker	Inorganic compound

12.3 Bioaccumulative potential

Not Applicable - Inorganic chemical.

Chemical Name	Bioaccumulation
Portland Cement Clinker	Product/Substance is inorganic

12.4 Mobility

Mobility
Slightly soluble in water.

Mobility in soil
No information available.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

12.7 Other information

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number

Not regulated

14.2. UN proper shipping name

The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG/ANTAQ Hazard class	Not regulated
ICAO/ANAC Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG/ANTAQ Packing group	Not regulated
ICAO/ANAC Packing group	Not regulated

14.5 Environmental hazard

No

14.6 Special precautions

None

14.7 Transport in bulk according to Annex I/II of MARPOL 73/78 and the IBC Code

Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons

Portland Cement Clinker
Schedule 4
Schedule 6
Schedule 5

New Zealand Hazard Classification	Classified
HSNO approval no.	6.5B, 6.3A, 8.3A
Group number	HSR002544

National Code of Practice for the Preparation of Material Safety Data Sheets 2nd Edition [NOHSC: 2011 (2003)].

National Occupational Health and Safety Commission's Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004) 3rd Edition].

National Occupational Health and Safety Commission's Exposure Standards for Atmospheric Contaminants in the occupational Environment [NOHSC:1003 (1995)].

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)
The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Muriel Martin Beurel
Supersedes Date:	05-Mar-2014
Revision date	01-Aug-2018
Version	5
This SDS has been revised in the following section(s)	All sections No changes with regard to classification have been made.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

HMIS classification

Health	3 *
Flammability	1
Physical hazard	0
PPE	E

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SDS no. D110
Version 3
Revision date 06-Jun-2018
Supersedes Date: 20-Feb-2015

Safety Data Sheet
Cement Retarder D110

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name Cement Retarder D110
Product code D110

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Used as a cementing additive in oilfield applications

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Oilfield Australia Pty Ltd
ABN: 74 002 459 225
ACN: 002 459 225
256 St. Georges Terrace, Perth WA 6000
+47 5157 7424

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 595 3518

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards Not classified

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements

Signal word
None

Hazard Statements
This product is not classified as hazardous therefore no (H) hazard statements assigned.

Precautionary statements
This product is not classified as hazardous therefore has no (P) precautionary statements assigned.

-

Contains No hazardous components
2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria

Thermal decomposition can lead to release of irritating gases and vapors

Australian statement of hazardous/dangerous nature
Classified as Non-Hazardous according to the criteria of NOHSC.
NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on ingredients

3.1 Substances

Not applicable

3.2 Mixtures

No classified ingredients, or those having occupational exposure limits, present above the level of disclosure.

4. First Aid Measures

4.1 First aid measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Ingestion Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.

Skin contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention immediately if symptoms occur.

Eye Contact Remove contact lenses, if worn. Promptly wash eyes with lots of water while lifting eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing media appropriate for surrounding material.

Extinguishing media which must not be used for safety reasons
None known.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Fire or high temperatures create: Carbon oxides (COx), Harmful organic chemical fumes.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up
Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Avoid spills and splashing during use.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation. Keep airborne concentrations below exposure limits.
Storage precautions	Keep containers tightly closed in a dry, cool and well-ventilated place Do not freeze Store above 0°C Store away from incompatibles, Strong oxidizing agents
Storage class	Chemical storage.
Packaging materials	Use specially constructed containers only. High density polyethylene (HDPE) drum

8. Exposure controls/personal protection

8.1 Control parameters

Exposure limits	The product does not contain any hazardous materials with occupational exposure limits established.

Notes
No biological limit allocated

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation

Personal protective equipment

Eye protection	It is good practice to wear goggles when handling any chemical Use eye protection according to EN 166, designed to protect against liquid splashes Tightly fitting safety goggles
Hand protection	Wear chemical resistant gloves such as nitrile or neoprene. Repeated or prolonged contact Rubber gloves Neoprene Nitrile Break through time >480 minutes Glove thickness 0.5 mm Be aware that liquid may penetrate the gloves. Frequent change is advisable.
Respiratory protection	No personal respiratory protective equipment normally required In case of insufficient

	ventilation wear suitable respiratory equipment Respirator with combination filter for vapour/particulate (EN 141) Type A/P2
Skin and body protection	Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.
Hygiene Measures	Wash hands before eating, drinking or smoking Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure	Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Opaque
Odor	Sweet
Color	Brown
Odor threshold	Not applicable

Property	**Values**	**Remarks**
pH	6 - 9	
pH @ dilution	No information available	
Melting / freezing point	-4 °C / 24.8 °F	
Boiling point/range	100 °C / 212 °F	
Flash point	> 100 °C / > 212 °F	
Evaporation rate (BuAc =1)	No information available	
Flammability (solid, gas)	Not applicable	
Flammability Limit in Air		
Upper flammability limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	No information available	
Vapor density	No information available	
Specific gravity	1.14	20 °C
Bulk density	No information available	
Relative density	No information available	
Water solubility	Soluble	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	>242°C / >467.6 °F	
Kinematic viscosity	No information available	
Dynamic viscosity	1.5cst	@ 40 °C
log Pow	Does not bioaccumulate	

Explosive properties	None known
Oxidizing properties	None known.

9.2 Other information

Pour point	No information available
Molecular weight	No information available

VOC content(%)	None
Density	No information available

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Do not freeze. Store above 0°C.

10.5 Incompatible materials

Strong oxidizing agents.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

Inhalation	Inhalation of vapors in high concentration may cause irritation of respiratory system.
Eye contact	May cause slight irritation.
Skin contact	Prolonged contact may cause redness and irritation.
Ingestion	Ingestion may cause stomach discomfort.
Unknown acute toxicity	Not applicable.

Sensitization	This product does not contain any components suspected to be sensitizing.
Mutagenic effects	This product does not contain any known or suspected mutagens.
Carcinogenicity	This product does not contain any known or suspected carcinogens.

Reproductive toxicity	This product does not contain any known or suspected reproductive hazards.
Routes of exposure	Skin contact. Eye contact.
Routes of entry	No route of entry noted.
Specific target organ toxicity - Single exposure	Not classified
Specific target organ toxicity - Repeated exposure	Not classified.
Aspiration hazard	Not applicable.
Other information	Key literature references and sources for data. See Section 16 for more information.

12. Ecological Information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Toxicity to algae
This product is not considered toxic to algae.

Toxicity to fish
Not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
Not considered toxic.

12.2 Persistence and degradability

Product is biodegradable.

12.3 Bioaccumulative potential

Does not bioaccumulate.

12.4 Mobility

Mobility
The product is water soluble, and may spread in water systems.

Mobility in soil
No information available.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

12.7 Other information

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues / unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number

Not regulated

14.2. UN proper shipping name

The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG/ANTAQ Hazard class	Not regulated
ICAO/ANAC Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG/ANTAQ Packing group	Not regulated
ICAO/ANAC Packing group	Not regulated

14.5 Environmental hazard

No

14.6 Special precautions

Not applicable

14.7 Transport in bulk according to Annex I/II of MARPOL 73/78 and the IBC Code

Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

National Code of Practice for the Preparation of Material Safety Data Sheets 2nd Edition [NOHSC: 2011 (2003)].

National Occupational Health and Safety Commission's Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004) 3rd Edition].

National Occupational Health and Safety Commission's Exposure Standards for Atmospheric Contaminants in the occupational Environment [NOHSC:1003 (1995)].

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Does not comply
Japan (ENCS)	Complies
China (IECSC)	Does not comply
Australia (AICS)	Complies
Korean (KECL)	Does not comply
New Zealand (NZIoC)	Does not comply

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Ingrid Helland
Supersedes Date:	20-Feb-2015
Revision date	06-Jun-2018
Version	3
This SDS has been revised in the following section(s)	1, 2, 7, 8, 9, 10, 11, 15, 16 No changes with regard to classification have been made.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

HMIS classification

Health	1
Flammability	1
Physical hazard	0
PPE	E

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

SDS no. D013
Version 2
Revision date 17-Nov-2015
Supersedes date 07-Mar-2014

Safety Data Sheet
Retarder D013

1. Identification of the substance/preparation and of the Company/undertaking

1.1 Product identifier

Product name Retarder D013
Product code D013

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Used as a cementing additive in oilfield applications

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Oilfield Australia Pty Ltd
ABN: 74 002 459 225
ACN: 002 459 225
256 St. Georges Terrace, Perth WA 6000
+47 5157 7424

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 595 3518, Canada 001 613 996 6666

2. Hazards identification

2.1 Classification of the substance or mixture

Classification according to (EC) No. 1272/2008

Health hazards Not classified

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements

Signal word
None

Hazard statements
This product is not classified as hazardous therefore no (H) hazard statements assigned.

Precautionary statements

This product is not classified as hazardous therefore has no (P) precautionary statements assigned.

-

-

Contains

2.3 Other data

Not classified as PBT/vPvB by current EU criteria

Australian statement of hazardous/dangerous nature
Classified as Non-Hazardous according to the criteria of NOHSC.
NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on ingredients

3.1 Substances

Not Applicable

3.2 Mixtures

No classified ingredients, or those having occupational exposure limits, present above the level of disclosure.

4. First aid measures

4.1 First-Aid Measures

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Ingestion Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Seek medical attention if irritation occurs.

Skin contact Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention immediately if symptoms occur.

Eye contact Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

4.2 Most important symptoms and effects, both acute and delayed

General advice The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Main symptoms

Inhalation Please see Section 11. Toxicological Information for further information.

Ingestion Please see Section 11. Toxicological Information for further information.

Skin contact Please see Section 11. Toxicological Information for further information.

Eye contact Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Fog, Alcohol Foam, CO_2, Dry Chemical.

Extinguishing media which shall not be used for safety reasons
None known.

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products
Fire or high temperatures create:, Carbon oxides (COx), Sulfur oxides, Harmful organic chemical fumes.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and materials for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so.

Methods for cleaning up
Avoid generating or breathing dust. Sweep up and shovel into suitable containers for disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Avoid dust formation.

Hygiene measures
Use good work and personal hygiene practices to avoid exposure. Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing. Do not eat, drink or smoke when using this product.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation. Provide appropriate exhaust ventilation at places where dust is formed. Keep airborne concentrations below exposure limits.
Storage precautions	Keep away from open flames, hot surfaces and sources of ignition. Keep containers tightly closed in a dry, cool and well-ventilated place. Incompatible with oxidizing agents.
Storage class	Chemical storage.
Packaging material	Use specially constructed containers only.

7.3 Specific end uses

See Section 1.2.

8. Exposure controls/personal protection

8.1 Control parameters

Exposure limits	NUI = Nuisance dust, TWA 4mg/m^3 Respirable Dust, 10mg/m^3 Total Dust.

Notes
No biological limit allocated

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard

present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering measures to reduce exposure
Ensure adequate ventilation. Mechanical ventilation or local exhaust ventilation is required.

Personal protective equipment

Eye protection	Safety glasses with side-shields.
Hand protection	Use protective gloves made of:, Nitrile, Neoprene gloves, Rubber, Frequent change is advisable.
Respiratory protection	Use the indicated respiratory protection if the occupational exposure limit is exceeded and/or in case of product release (dust), Effective dust mask, Type P2, At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.
Skin and body protection	Wear suitable protective clothing, Eye wash and emergency shower must be available at the work place.

Hygiene measures Wash hands before breaks and immediately after handling the product, Remove and wash contaminated clothing before re-use.



9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	Solid
Appearance	Powder
Odor	Faint
Color	Brown
Odor threshold	Not applicable

Property	**Values**	**Remarks**
pH		
pH @ dilution	8.6 @ 10 g/L	
Melting/freezing point	No information available	
Boiling point/range	Not Applicable	
Flash point	Not Applicable	
Evaporation rate (BuAc =1)	No information available	
Flammability (solid, gas)	Not Applicable	
Flammability Limits in Air		
Upper flammability limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	Not applicable	
Vapor density	Not applicable	
Specific gravity	1.2@20°C	
Bulk density	480kg/m^3	
Relative density	No information available	
Water solubility	Soluble	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	Not Applicable	
Dynamic viscosity	. Not Applicable	
Log Pow	Does not bioaccumulate	

Explosive properties	Suspended dust may present a dust explosion hazard
Oxidizing properties	None known.

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	None
Density	No information available

10. Stability and reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Heat, flames and sparks.

10.5 Incompatible materials

Oxidizing agents.

10.6 Hazardous decomposition products

See also section 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation	Inhalation of dust may cause shortness of breath, tightness of the chest, a sore throat and cough.
Eye contact	Dust may cause mechanical irritation.
Skin contact	Repeated exposure may cause skin dryness or cracking.
Ingestion	Ingestion may cause stomach discomfort.
Unknown acute toxicity	Not Applicable.

Sensitization	This product does not contain any components suspected to be sensitizing.
Mutagenic effects	This product does not contain any known or suspected mutagens.
Carcinogenicity	This product does not contain any known or suspected carcinogens.
Reproductive toxicity	This product does not contain any known or suspected reproductive hazards.
Routes of exposure	Inhalation. Skin contact. Eye contact.
Routes of entry	Inhalation.
Specific target organ toxicity (single exposure)	Not classified
Specific target organ toxicity (repeated exposure)	Not classified.
Aspiration hazard	No hazard from product as supplied.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Toxicity to algae
This product is not considered toxic to algae.

Toxicity to fish
This product is not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

12.2 Persistence and degradability

No product level data available.

12.3 Bioaccumulative potential

No product level data available.

12.4 Mobility in soil

Mobility
The product is water soluble, and may spread in water systems.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues / unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be taken for local recycling, recovery or waste disposal.
EWC Waste disposal No.	According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used. The following Waste Codes are only suggestions: 07 07 99; 16 03 06

14. Transport information

14.1 UN Number
Not regulated

14.2 Proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG Hazard class	Not regulated
ICAO Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG Packing group	Not regulated
ICAO Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not Applicable

14.7 Transport in bulk according to Annex I/II of MARPOL 73/78 and the IBC Code

Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Germany, Water Endangering Classes (VwVwS)	Hazardous to water/Class 1

Commission Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments.

This safety data sheet complies with the requirements of Regulation (EC) No. 1272/2008.

National Code of Practice for the Preparation of Material Safety Data Sheets 2nd Edition [NOHSC: 2011 (2003)].

National Occupational Health and Safety Commission's Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004) 3rd Edition].

National Occupational Health and Safety Commission's Exposure Standards for Atmospheric Contaminants in the occupational Environment [NOHSC:1003 (1995)].

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for transport by road or rail.

International inventories

USA (TSCA)	Complies
European Union (EINECS and ELINCS)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

15.2 Chemical Safety Report

No information available

16. Other information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Muriel Martin Beurel
Supersedes date	07-Mar-2014

Revision date	17-Nov-2015
Version	2
The following sections have been revised:	15. Regulatory Information, No changes with regard to classification have been made.

Full text of H-Statements referred to under sections 2 and 3

This product is not classified as hazardous therefore no (H) hazard statements assigned.

Disclaimer
The information contained herein is considered in good faith as reliable of the date issued and is based upon on measurements, tests or data derived from supplier's own study or furnished by others. In providing this SDS information, Supplier makes no express or implied warranties as to the information or product; merchantability or fitness of purpose; any express or implied warranty; or non-infringement of intellectual property rights; and supplier assumes no responsibility for any direct, special or consequential damages, results obtained, or the activities of others. To the maximum extent permitted by law, supplier's warranty obligations and buyer's sole remedies are as stated in separate agreement between the parties.

SDS no. D600G
Version 3
Revision date 15-Jul-2016
Supersedes date 04-Mar-2014

Safety Data Sheet
D600G GASBLOK* Gas Migration Control Additive

1. Identification of the substance/preparation and of the Company/undertaking

1.1 Product identifier

Product name D600G GASBLOK* Gas Migration Control Additive
Product code D600G

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Gas control agent Used as a cementing additive in oilfield applications

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Oilfield Australia Pty Ltd
ABN: 74 002 459 225
ACN: 002 459 225
256 St. Georges Terrace, Perth WA 6000
+47 5157 7424

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 595 3518, Canada 001 613 996 6666
- Brazil 0800 707 7022

2. Hazards identification

2.1 Classification of the substance or mixture

Classification according to (EC) No. 1272/2008

Health hazards Not classified

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements

Signal word
None

Hazard statements
This product is not classified as hazardous therefore no (H) hazard statements assigned.

EU specific hazard statements
EUH208 - Contains mixture of 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-2H-isothiazol-3-one May produce an allergic reaction

Precautionary Statements - EU (§28, 1272/2008)
This product is not classified as hazardous therefore has no (P) precautionary statements assigned.

-

-

Indication of danger
Not classified

Contains
Dodecyl sulfate, sodium salt

1,4-Dioxane

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.3 Other data

Not classified as PBT/vPvB by current EU criteria

3. Composition/information on ingredients

3.1 Substances

Not Applicable

3.2 Mixtures

Component	EC-No.	CAS-No	Weight % - range	Classification (67/548)	Classification (Reg. 1272/2008)	REACH registration number
Dodecyl sulfate, sodium salt	205-788-1	151-21-3	>= 0.1<0.3	Xn: R22 Xi; R38, R41	Acute Tox. 4 (H302) Skin Irrit. 2 (H315) Eye damage. 1 (H318) Aquatic Chronic 3 (H412)	No data available
1,4-Dioxane	204-661-8	123-91-1	<=0.1	F; R11-19 Xi; R36/37 Carc.Cat.3; R40 R66	Eye Irrit. 2 (H319) Carc. 2 (H351) STOT SE 3 (H335) Flam. Liq. 2 (H225) (EUH066) (EUH019)	No data available

Comments
The product contains other ingredients which do not contribute to the overall classification.

4. First aid measures

4.1 First-Aid Measures

Inhalation	If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
Ingestion	Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.
Skin contact	Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention immediately if symptoms occur.
Eye contact	Remove contact lenses. Promptly wash eyes with lots of water while lifting eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

4.2 Most important symptoms and effects, both acute and delayed

General advice	The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.
Main symptoms	
Inhalation	Please see Section 11. Toxicological Information for further information.
Ingestion	Please see Section 11. Toxicological Information for further information.
Skin contact	Please see Section 11. Toxicological Information for further information.
Eye contact	Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	Treat symptomatically.

5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media
Extinguish with carbon dioxide, dry chemical, foam or waterspray.

Extinguishing media which shall not be used for safety reasons
Do not use a solid water stream as it may scatter and spread fire.

5.2 Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Heating or fire can release toxic gas.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment.

6.3 Methods and materials for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up
Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Avoid spills and splashing during use.

Hygiene measures
Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation. Provide sufficient air exchange and/or exhaust in work rooms.
Storage precautions	Keep containers tightly closed in a dry, cool and well-ventilated place. Avoid frost. Keep away from open flames, hot surfaces and sources of ignition. Keep at 39 - 86 °F/ 4 - 30°C Incompatible with materials which react with water. Strong acids. Strong bases Strong oxidizing agents Strong reducing agents.
Storage class	Chemical storage.
Packaging material	Use specially constructed containers only.

7.3 Specific end uses

See Section 1.2.

8. Exposure controls/personal protection

8.1 Control parameters

Component	EU OEL	Austria	Australia	Denmark
Dodecyl sulfate, sodium salt	Not determined	Not determined	Not determined	Not determined
1,4-Dioxane	20 ppm TWA 73 mg/m³ TWA	40 ppm STEL 146 mg/m³ STEL 20 ppm TWA 73 mg/m³ TWA	10ppmTWA 36mg/m³TWA skin notation	10 ppm TWA 36 mg/m³ TWA Potential for cutaneous absorption K

Component	Malaysia	France	Germany	Hungary
Dodecyl sulfate, sodium salt	Not determined	Not determined	Not determined	Not determined
1,4-Dioxane	20 ppm TWA 72.1 mg/m³ TWA Skin notation	40ppmSTEL 140mg/m³STEL 20 ppmTWA 73 mg/m³TWA	20 ppm TWA 73 mg/m³ TWA	73mg/m³TWA

Component	New Zealand	Italy	Netherlands	Norway
Dodecyl sulfate, sodium salt	Not Determined	Not determined	Not determined	Not determined
1,4-Dioxane	25 ppm TWA 90 mg/m³ TWA Known or presumed human carcinogen Possibility of significant uptake through the skin	Not determined	20 mg/m³	5 ppm TWA 18 mg/m³ TWA 10 ppm STEL 36 mg/m³ STEL Carcinogen Skin

Component	Poland	Portugal	Romania	Russia
Dodecyl sulfate, sodium salt	Not determined	Not determined	Not determined	Not determined
1,4-Dioxane	50 mg/m³ TWA	Skin 20 ppm TWA	20ppmTWA 73mg/m³TWA	10 mg/m³ MAC Skin

Component	Spain	Switzerland	Turkey	UK
Dodecyl sulfate, sodium salt	Not determined	Not determined	Not determined	Not determined
1,4-Dioxane	20 ppm VLA-ED indicative limit value inhalable fraction and vapor 73 mg/m³ VLA-ED indicative limit value inhalable fraction and vapor	40 ppm STEL 144 mg/m³ STEL Skin 20 ppm MAK 72 mg/m³ MAK	Not determined	100 ppm STEL 366 mg/m³ STEL Skin 25 ppm TWA 91 mg/m³ TWA

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may

be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering measures to reduce exposure
Ensure adequate ventilation. Mechanical ventilation or local exhaust ventilation is required.

Personal protective equipment

Eye protection	It is good practice to wear goggles when handling any chemical. Tightly fitting safety goggles.
Hand protection	Use protective gloves made of:, Be aware that liquid may penetrate the gloves. Frequent change is advisable.
Respiratory protection	No personal respiratory protective equipment normally required, In case of insufficient ventilation wear suitable respiratory equipment, Use a self contained positive pressure individual breathing apparatus if vapor inhalation is a risk.
Skin and body protection	Wear appropriate personal protective clothing to prevent skin contact, Eye wash and emergency shower must be available at the work place.
Hygiene measures	Wash hands before breaks and immediately after handling the product, Remove and wash contaminated clothing before re-use.



9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Viscous
Odor	Slight
Color	Milky white.
Odor threshold	Not applicable

Property	**Values**	**Remarks**
pH	6 - 8	
pH @ dilution		
Melting/freezing point	-2 °C / 28 °F	
Boiling point/range	> 100 °C / 212 °F	
Flash point	> 100 °C / 212 °F	Closed cup
Evaporation rate (BuAc =1)		
Flammability (solid, gas)	Not Applicable	
Flammability Limits in Air		Not applicable
Upper flammability limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	<31.33 hPa	@ 25 °C
Vapor density	No information available	
Specific gravity	1.02	
Bulk density	No information available	
Relative density	1.01 g/cm³	
Water solubility	Dispersible	
Solubility in other solvents	No information available	
Autoignition temperature	Not Applicable	
Decomposition temperature	No information available	
Kinematic viscosity		
Dynamic viscosity	1000 mPa s	
Log Pow	Not determined	

Explosive properties	Not Applicable
Oxidizing properties	None known.

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	No information available
Density	No information available

10. Stability and reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Keep away from sources of ignition - No smoking. Heat, flames and sparks. Protect from moisture. Avoid frost. Do not freeze.

10.5 Incompatible materials

Incompatible with materials which react with water. Strong acids. Strong bases. Strong oxidizing agents. Strong reducing agents.

10.6 Hazardous decomposition products

See also section 5.2. Thermal decomposition can lead to release of irritating gases and vapors. Carbon oxides (COx). Sulfur oxides. Sodium oxides.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product information	EUH208 - Contains mixture of 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-2H-isothiazol-3-one May produce an allergic reaction.
Inhalation	Inhalation of vapors in high concentration may cause irritation of respiratory system.
Eye contact	May cause slight irritation.
Skin contact	Prolonged contact may cause redness and irritation. Components of the product may be absorbed into the body through the skin.
Ingestion	Ingestion may cause stomach discomfort.
Unknown acute toxicity	Not Applicable.

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Dodecyl sulfate, sodium salt	= 977 mg/kg (Rat)	= 580 mg/kg (Rabbit)	> 3900 mg/m³ (Rat) 1 h
1,4-Dioxane	= 4200 mg/kg (Rat) = 5170 mg/kg (Rat)	= 7600 µL/kg (Rabbit)	= 46 mg/L (Rat) 2 h

Sensitization Repeated or prolonged contact may cause allergic reactions in very susceptible persons.

Mutagenic effects This substance has no evidence of mutagenic properties.

Carcinogenicity Contains a component that may cause cancer.

Reproductive toxicity None known.

Routes of exposure Skin contact. Eye contact.

Routes of entry No route of entry noted.

Specific target organ toxicity (single exposure) Not classified

Specific target organ toxicity (repeated exposure) Not classified.

Aspiration hazard No hazard from product as supplied.

12. Ecological information

12.1 Toxicity

Ecotoxicity effects

Toxicity to algae
See component information below.

Toxicity to fish
See component information below.

Toxicity to daphnia and other aquatic invertebrates
See component information below.

Component	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Dodecyl sulfate, sodium salt	5.8 - 7.5 mg/L LC50 Pimephales promelas 96 h = 1.31 mg/L LC50 Cyprinus carpio 96 h 10.8 - 16.6 mg/L LC50 Poecilia reticulata 96 h 13.5 - 18.3 mg/L LC50 Poecilia reticulata 96 h 6.2 - 9.6 mg/L LC50 Pimephales promelas 96 h 10.2 - 22.5 mg/L LC50 Pimephales promelas 96 h = 4.5 mg/L LC50 Lepomis macrochirus 96 h 4.2 - 4.8	= 117 mg/L EC50 Pseudokirchneriella subcapitata 96 h 3.59 - 15.6 mg/L EC50 Pseudokirchneriella subcapitata 96 h 30 - 100 mg/L EC50 Desmodesmus subspicatus 96 h = 53 mg/L EC50 Desmodesmus subspicatus 72 h	= 1.8 mg/L EC50 Daphnia magna 48 h

	mg/L LC50 Lepomis macrochirus 96 h 4.06 - 5.75 mg/L LC50 Lepomis macrochirus 96 h 9.9 - 20.1 mg/L LC50 Brachydanio rerio 96 h = 7.97 mg/L LC50 Brachydanio rerio 96 h = 4.2 mg/L LC50 Oncorhynchus mykiss 96 h = 4.62 mg/L LC50 Oncorhynchus mykiss 96 h 4.3 - 8.5 mg/L LC50 Oncorhynchus mykiss 96 h 22.1 - 22.8 mg/L LC50 Pimephales promelas 96 h 15 - 18.9 mg/L LC50 Pimephales promelas 96 h 8 - 12.5 mg/L LC50 Pimephales promelas 96 h		
1,4-Dioxane	= 9850 mg/L LC50 Pimephales promelas 96 h > 10000 mg/L LC50 Lepomis macrochirus 96 h 10306 - 14742 mg/L LC50 Pimephales promelas 96 h	No information available	= 163 mg/L EC50 water flea 48 h

12.2 Persistence and degradability

Product is not biodegradable.

12.3 Bioaccumulative potential

No product level data available.

12.4 Mobility in soil

Mobility
After release, disperses through ground water.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues / unused products Dispose of in accordance with local regulations.

Contaminated packaging Empty containers should be taken for local recycling, recovery or waste disposal.

EWC Waste disposal No. According to the European Waste Catalogue, Waste Codes are not product specific, but

application specific. Waste codes should be assigned by the user based on the application for which the product was used. The following Waste Codes are only suggestions: EWC waste disposal No: Waste Code: 07 02 99

14. Transport information

14.1 UN Number
Not regulated

14.2 Proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG Hazard class	Not regulated
ICAO Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG Packing group	Not regulated
ICAO Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
None

14.7 Transport in bulk according to Annex I/II of MARPOL 73/78 and the IBC Code
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Australian Standard for the Uniform Scheduling of Drugs and Poisons

Dodecyl sulfate, sodium salt
Schedule 6
1,4-Dioxane
Schedule 6

Commission Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments.

This safety data sheet complies with the requirements of Regulation (EC) No. 1272/2008.

International inventories

USA (TSCA)	Complies
European Union (EINECS and ELINCS)	Complies
Canada (DSL)	Does not Comply
Philippines (PICCS)	Does not Comply
Japan (ENCS)	Does not Comply
China (IECSC)	Does not Comply
Australia (AICS)	Does not Comply
Korean (KECL)	Does not Comply
New Zealand (NZIoC)	Does not Comply

15.2 Chemical Safety Report

No information available

16. Other information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Ingrid Helland
Supersedes date	04-Mar-2014
Revision date	15-Jul-2016
Version	3
The following sections have been revised:	The following sections have been revised:, 15. Regulatory Information.

Text of R phrases mentioned in Section 3
R11 - Highly flammable
R19 - May form explosive peroxides
R40 - Limited evidence of a carcinogenic effect
R66 - Repeated exposure may cause skin dryness or cracking

R36/37 - Irritating to eyes and respiratory system

Full text of H-Statements referred to under sections 2 and 3

This product is not classified as hazardous therefore no (H) hazard statements assigned.

H319 - Causes serious eye irritation
H335 - May cause respiratory irritation
H351 - Suspected of causing cancer
H225 - Highly flammable liquid and vapor
EUH066 - Repeated exposure may cause skin dryness or cracking
EUH019 - May form explosive peroxides
EUH208 - Contains mixture of 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-2H-isothiazol-3-one May produce an allergic reaction

Disclaimer
The information contained herein is considered in good faith as reliable of the date issued and is based upon on measurements, tests or data derived from supplier's own study or furnished by others. In providing this SDS information, Supplier makes no express or implied warranties as to the information or product; merchantability or fitness

of purpose; any express or implied warranty; or non-infringement of intellectual property rights; and supplier assumes no responsibility for any direct, special or consequential damages, results obtained, or the activities of others. To the maximum extent permitted by law, supplier's warranty obligations and buyer's sole remedies are as stated in separate agreement between the parties.

SDS no. D194
Version 3
Revision date 12-Feb-2019
Supersedes Date: 03-Jun-2015

Safety Data Sheet
Liquid Trifunctional Additive D194

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name Liquid Trifunctional Additive D194
Product code D194

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Used as a cementing additive in oilfield applications

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Oilfield Australia Pty Ltd
ABN: 74 002 459 225
ACN: 002 459 225
256 St. Georges Terrace, Perth WA 6000
+47 5157 7424

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 595 3518

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards Not classified

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements

Signal word
None

Hazard Statements
This product is not classified as hazardous therefore no (H) hazard statements assigned.

Precautionary statements
This product is not classified as hazardous therefore has no (P) precautionary statements assigned.

-

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria
Thermal decomposition can lead to release of irritating gases and vapors

Australian statement of hazardous/dangerous nature
Classified as Non-Hazardous according to the criteria of NOHSC.
NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

This product does not contain any hazardous ingredients, or ingredients with national workplace exposure limits.

4. First Aid Measures

4.1 First aid measures

Inhalation	If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
Ingestion	Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.
Skin contact	Wash skin thoroughly with soap and water. Get medical attention if irritation persists.
Eye Contact	Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if worn. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice	The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.
Symptoms	
Inhalation	Please see Section 11. Toxicological Information for further information.
Ingestion	Please see Section 11. Toxicological Information for further information.
Skin contact	Please see Section 11. Toxicological Information for further information.
Eye contact	Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing media appropriate for surrounding material.

Extinguishing media which must not be used for safety reasons
None known.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Thermal decomposition can lead to release of irritating gases and vapors

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up
Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Avoid spills and splashing during use.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation.
Storage precautions	Keep containers tightly closed in a dry, cool and well-ventilated place Avoid contact with: Strong oxidizing agents
Storage class	Chemical storage.
Packaging materials	Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits	The product does not contain any hazardous materials with occupational exposure limits established. No biological limit allocated

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation

Personal protective equipment

Eye protection	Use eye protection according to EN 166, designed to protect against liquid splashes Safety glasses with side-shields Tightly fitting safety goggles
Hand protection	Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Impervious gloves made of: Neoprene Nitrile Break through time >480 minutes Glove thickness >0.4 mm Be aware that liquid may penetrate the gloves. Frequent change is advisable.
Respiratory protection	In case of insufficient ventilation wear suitable respiratory equipment Respirator with combination filter for vapour/particulate (EN 141) Type A/P2 At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.
Skin and body protection	Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.
Hygiene Measures	Wash hands before eating, drinking or smoking Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Appearance	No information available
Odor	Mild
Color	Brown
Odor threshold	No information available

Property	**Values**	**Remarks**
pH	10	
pH @ dilution	No information available	
Melting / freezing point	-2 °C / 28.4 °F	
Boiling point/range	104 °C / 219.2 °F	
Flash point	No information available	
Evaporation rate (BuAc =1)	No information available	
Flammability (solid, gas)	Not applicable	
Flammability Limit in Air		
Upper flammability limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	14.2 mmHg	@ 20 °C
Vapor density	No information available	
Specific gravity	1.30	
Bulk density	No information available	
Relative density	No information available	
Water solubility	Soluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	<600 cst	
Dynamic viscosity	No information available	
log Pow	No information available	

Explosive properties	No information available
Oxidizing properties	No information available

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	No information available
Density	No information available

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

None known.

10.5 Incompatible materials

Strong oxidizing agents.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

Inhalation	Inhalation of vapors in high concentration may cause irritation of respiratory system.
Eye contact	May cause slight irritation.
Skin contact	Prolonged contact may cause redness and irritation.
Ingestion	Ingestion may cause stomach discomfort.
Unknown acute toxicity	Not applicable.

Sensitization	This product does not contain any components suspected to be sensitizing.
Mutagenic effects	This product does not contain any known or suspected mutagens.
Carcinogenicity	This product does not contain any known or suspected carcinogens.

Reproductive toxicity	This product does not contain any known or suspected reproductive hazards.
Routes of Exposure	Skin contact. Inhalation. Ingestion. Eye contact.
Routes of entry	Ingestion. Inhalation.

Specific target organ toxicity - Single exposure	Not classified
Specific target organ toxicity - Repeated exposure	Not classified.
Aspiration hazard	Not applicable.
Other information	Key literature references and sources for data. See Section 16 for more information.

12. Ecological Information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment. Large amounts will affect pH and harm aquatic organisms

Toxicity to algae
This product is not considered toxic to algae.

Toxicity to fish
This product is not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

12.2 Persistence and degradability

No product level data available.

12.3 Bioaccumulative potential

No product level data available.

12.4 Mobility

Mobility
The product is water soluble, and may spread in water systems.

Mobility in soil
No information available.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

12.7 Other information
Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number

14.2. UN proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG/ANTAQ Hazard class	Not regulated
ICAO/ANAC Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG/ANTAQ Packing group	Not regulated
ICAO/ANAC Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
None

14.7 Transport in bulk according to Annex I/II of MARPOL 73/78 and the IBC Code
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

National Code of Practice for the Preparation of Material Safety Data Sheets 2nd Edition [NOHSC: 2011 (2003)].

National Occupational Health and Safety Commission's Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004) 3rd Edition].

National Occupational Health and Safety Commission's Exposure Standards for Atmospheric Contaminants in the occupational Environment [NOHSC:1003 (1995)].

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Muriel Martin Beurel
Supersedes Date:	03-Jun-2015
Revision date	12-Feb-2019
Version	3
This SDS has been revised in the following section(s)	All sections No changes with regard to classification have been made.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

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SDS no. D075
Version 4
Revision date 19-Sep-2018
Supersedes Date: 09-Apr-2014

Safety Data Sheet
Silicate Additive D75

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name Silicate Additive D75
Product code D075

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Used as a cementing additive in oilfield applications

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Oilfield Australia Pty Ltd
ABN: 74 002 459 225
ACN: 002 459 225
256 St. Georges Terrace, Perth WA 6000
+47 5157 7424

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 595 3518

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards Not classified

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements

Signal word
None

Hazard Statements
This product is not classified as hazardous therefore no (H) hazard statements assigned.

Precautionary statements
This product is not classified as hazardous therefore has no (P) precautionary statements assigned.

-

Contains No hazardous components
2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria

Australian statement of hazardous/dangerous nature
Classified as Non-Hazardous according to the criteria of NOHSC.
NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

This product does not contain any hazardous ingredients, or ingredients with national workplace exposure limits.

4. First Aid Measures

4.1 First aid measures

Inhalation — If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Ingestion — Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Seek medical attention if irritation occurs.

Skin contact — Wash skin thoroughly with soap and water. Get medical attention if irritation persists.

Eye Contact — Promptly wash eyes with lots of water while lifting eye lids. Remove contact lenses, if worn. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice — The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Symptoms

Inhalation — Please see Section 11. Toxicological Information for further information.

Ingestion — Please see Section 11. Toxicological Information for further information.

Skin contact — Please see Section 11. Toxicological Information for further information.

Eye contact — Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing media appropriate for surrounding material.

Extinguishing media which must not be used for safety reasons
None known.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
Contact with metals may evolve flammable hydrogen gas.

Hazardous combustion products
Thermal decomposition can lead to release of toxic and corrosive gases/vapors

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up
Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Avoid spills and splashing during use. Do not breathe vapors or spray mist.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation. Keep airborne concentrations below exposure limits.
Storage precautions	Keep containers tightly closed in a dry, cool and well-ventilated place Keep at temperatures above > 32F /0°C Avoid contact with: Strong acids Metals Aluminum Zinc Steel
Storage class	Chemical storage.
Packaging materials	Use specially constructed containers only.
Packaging materials to be avoided	Metal Aluminium Zinc Steel

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits	The product does not contain any hazardous materials with occupational exposure limits established. No biological limit allocated

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Ensure adequate ventilation

Personal protective equipment

Eye protection	Use eye protection according to EN 166, designed to protect against liquid splashes Safety glasses with side-shields Tightly fitting safety goggles
Hand protection	Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Impervious gloves made of: PVC Rubber Neoprene Nitrile Break through time >480 minutes Glove thickness >0.4 mm Be aware that liquid may penetrate the gloves. Frequent change is advisable.
Respiratory protection	In case of insufficient ventilation wear suitable respiratory equipment Chemical respirator with inorganic vapour cartridge (Grey B). At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.
Skin and body protection	Wear suitable protective clothing Eye wash and emergency shower must be available at the work place.

Hygiene Measures Wash hands before eating, drinking or smoking Remove and wash contaminated clothing before re-use



Environmental exposure Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Aqueous solution
Odor	Odorless
Color	Colorless
Odor threshold	Not applicable

Property	**Values**	**Remarks**
pH	11	
pH @ dilution	No information available	
Melting / freezing point	- 1 °C / 30 °F	
Boiling point/range	101 °C / 214 °F	
Flash point	Not applicable	
Evaporation rate (BuAc =1)	No information available	
Flammability (solid, gas)	Not applicable	
Flammability Limit in Air		
Upper flammability limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	<1 kPa	
Vapor density	No information available	
Specific gravity	1.3 - 1.6	@ 20 °C
Bulk density	No information available	
Relative density	No information available	
Water solubility	Soluble in water	
Solubility in other solvents	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	10-10000 mPa s	
log Pow	No information available	

Explosive properties	No information available
Oxidizing properties	No information available

9.2 Other information

Pour point	No information available
Molecular weight	No information available
VOC content(%)	No information available
Density	No information available

Comments
The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

Contact with metals may evolve flammable hydrogen gas.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Keep at temperatures above > 32°F / 0°C.

10.5 Incompatible materials

Aluminum. Zinc. Metals. Strong acids. Steel.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

Inhalation	Inhalation of vapors in high concentration may cause irritation of respiratory system.
Eye contact	May cause slight irritation.
Skin contact	Prolonged contact may cause redness and irritation.
Ingestion	Ingestion may cause stomach discomfort.
Unknown acute toxicity	Not applicable.

Sensitization	This product does not contain any components suspected to be sensitizing.
Mutagenic effects	This product does not contain any known or suspected mutagens.
Carcinogenicity	This product does not contain any known or suspected carcinogens.

Reproductive toxicity	This product does not contain any known or suspected reproductive hazards.
Routes of exposure	Inhalation. Skin contact. Eye contact.

Routes of entry	None known.
Specific target organ toxicity - Single exposure	Not classified
Specific target organ toxicity - Repeated exposure	Not classified.
Aspiration hazard	Not applicable.
Other information	Key literature references and sources for data. See Section 16 for more information.

12. Ecological Information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment. Large amounts will affect pH and harm aquatic organisms

Toxicity to algae
This product is not considered toxic to algae.

Toxicity to fish
This product is not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

12.2 Persistence and degradability

No product level data available.

12.3 Bioaccumulative potential

No product level data available.

12.4 Mobility

Mobility
Soluble in water.

Mobility in soil
No information available.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

12.7 Other information

Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number

Not regulated

14.2. UN proper shipping name

The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG/ANTAQ Hazard class	Not regulated
ICAO/ANAC Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG/ANTAQ Packing group	Not regulated
ICAO/ANAC Packing group	Not regulated

14.5 Environmental hazard

No

14.6 Special precautions

Not applicable

14.7 Transport in bulk according to Annex I/II of MARPOL 73/78 and the IBC Code

Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons

No poisons schedule number allocated

National Code of Practice for the Preparation of Material Safety Data Sheets 2nd Edition [NOHSC: 2011 (2003)].

National Occupational Health and Safety Commission's Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004) 3rd Edition].

National Occupational Health and Safety Commission's Exposure Standards for Atmospheric Contaminants in the occupational Environment [NOHSC:1003 (1995)].

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Ingrid Helland
Supersedes Date:	09-Apr-2014
Revision date	19-Sep-2018
Version	4
This SDS has been revised in the following section(s)	15, 16 There have been changes with regard to classification.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

HMIS classification

Health	1
Flammability	1
Physical hazard	0
PPE	B

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SDS no. D168
Version 4
Revision date 23-Mar-2018
Supersedes Date: 19-Feb-2015

Safety Data Sheet
UNIFLAC* L D168

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name UNIFLAC* L D168
Product code D168

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Used as a cementing additive in oilfield applications

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
Schlumberger Oilfield Australia Pty Ltd
ABN: 74 002 459 225
ACN: 002 459 225
256 St. Georges Terrace, Perth WA 6000
+47 5157 7424

SDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 595 3518

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards Not classified

Environmental hazards Not classified

Physical Hazards Not classified

2.2 Label elements

Signal word
None

Hazard Statements
This product is not classified as hazardous therefore no (H) hazard statements assigned.

Precautionary statements
This product is not classified as hazardous therefore has no (P) precautionary statements assigned.

-

2.3 Other hazards

Not classified as PBT/vPvB by current EU criteria

Australian statement of hazardous/dangerous nature
Classified as Non-Hazardous according to the criteria of NOHSC.
NON-HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.

3. Composition/information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

No classified ingredients, or those having occupational exposure limits, present above the level of disclosure.

4. First Aid Measures

4.1 First aid measures

Inhalation	If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.
Ingestion	Rinse mouth. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention immediately if symptoms occur.
Eye Contact	Remove contact lenses, if worn. Promptly wash eyes with lots of water while lifting eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice	The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.
Symptoms	
Inhalation	Please see Section 11. Toxicological Information for further information.
Ingestion	Please see Section 11. Toxicological Information for further information.
Skin contact	Please see Section 11. Toxicological Information for further information.
Eye contact	Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
Water Fog, Alcohol Foam, CO_2, Dry Chemical.

Extinguishing media which must not be used for safety reasons
High volume water jet.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None known.

Hazardous combustion products
Thermal decomposition can lead to release of toxic and corrosive gases/vapors Nitrogen oxides (NOx), Sulphur oxides.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Contaminated surfaces will be extremely slippery. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up
Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. After cleaning, flush away traces with water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Do not breathe vapors or spray mist. Avoid spills and splashing during use. If spilled, take caution, as material can cause surfaces to become very slippery.

Hygiene Measures
Use good work and personal hygiene practices to avoid exposure. When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions	Ensure adequate ventilation. Provide sufficient air exchange and/or exhaust in work rooms.
Storage precautions	Keep containers tightly closed in a dry, cool and well-ventilated place Store above freezing temperature Store away from incompatibles, Oxidizing agents
Storage class	Chemical storage.
Packaging materials	Use specially constructed containers only.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits	The product does not contain any hazardous materials with occupational exposure limits established.

Notes
No biological limit allocated

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering Controls
Provide mechanical general and/or local exhaust ventilation to prevent release of vapor or mist into work environment.

Personal protective equipment

Eye protection	Use eye protection according to EN 166, designed to protect against liquid splashes Safety glasses with side-shields Tightly fitting safety goggles
Hand protection	Wear chemically resistant gloves (tested to EN 374) in combination with 'basic' employee training Impervious gloves made of: Butyl Neoprene Nitrile Break through time >480 minutes Glove thickness >0.4 mm Be aware that liquid may penetrate the gloves. Frequent change is advisable.
Respiratory protection	In case of insufficient ventilation wear suitable respiratory equipment Respirator with combination filter for vapour/particulate (EN 141) Type A/P2 At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.
Skin and body protection	Wear appropriate personal protective clothing to prevent skin contact Eye wash and emergency shower must be available at the work place.

Hygiene Measures Wash hands before breaks and immediately after handling the product Remove and wash contaminated clothing before re-use



8.2.3 Environmental exposure controls

Environmental exposure Use appropriate containment to avoid environmental contamination See section 6 for more information

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Aqueous solution
Odor	Odorless
Color	White - Light yellow
Odor threshold	Not applicable

Property	**Values**	**Remarks**
pH	7	@ 20 °C
pH @ dilution	10 g/l	
Melting / freezing point	0 °C / 32 °F	
Boiling point/range	100 °C / 212 °F	
Flash point	Not applicable	
Evaporation rate (BuAc =1)	Similar to water.	
Flammability (solid, gas)	Not applicable	
Flammability Limit in Air		
Upper flammability limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	2.34 kPa	@ 20 °C
Vapor density	No information available	
Specific gravity	1.06 g/cm3	@ 20 °C
Bulk density	No information available	
Relative density	No information available	
Water solubility	Miscible with water.	
Solubility in other solvents	No information available	
Autoignition temperature	500 °C / 932 °F	
Decomposition temperature	260 °C / 500 °F	
Kinematic viscosity	No information available	
Dynamic viscosity	2000 - 4000 mPa s	
log Pow	No information available	

Explosive properties	No information available
Oxidizing properties	Not applicable

9.2 Other information

Pour point	-6°C / 21.2 °F
Molecular weight	No information available
VOC content(%)	None
Density	1.06 g/cm³ (20°C)

Comments

The data listed above are typical physical and chemical properties and should not be construed as product specification.

10. Stability and Reactivity

10.1 Reactivity

No specific reactivity hazards associated with this product.

10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous polymerization does not occur.

10.4 Conditions to avoid

Do not freeze.

10.5 Incompatible materials

Oxidizing agents.

10.6 Hazardous decomposition products

See Section 5.2.

11. Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

Inhalation	Inhalation of vapors in high concentration may cause irritation of respiratory system.
Eye contact	May cause slight irritation.
Skin contact	Prolonged contact may cause redness and irritation.
Ingestion	Ingestion may cause stomach discomfort.
Unknown acute toxicity	Not applicable.

Sensitization	This product does not contain any components suspected to be sensitizing.
Mutagenic effects	This product does not contain any known or suspected mutagens.
Carcinogenicity	This product does not contain any known or suspected carcinogens.

Reproductive toxicity	This product does not contain any known or suspected reproductive hazards.
Routes of exposure	Skin contact. Eye contact. Inhalation.

Routes of entry	No route of entry noted.
Specific target organ toxicity - Single exposure	Not classified
Specific target organ toxicity - Repeated exposure	Not classified.
Aspiration hazard	Not applicable.
Other information	Key literature references and sources for data. See Section 16 for more information.

12. Ecological Information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Toxicity to algae
This product is not considered toxic to algae.

Toxicity to fish
This product is not considered toxic to fish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

12.2 Persistence and degradability

Biodegradable.

12.3 Bioaccumulative potential

Does not bioaccumulate.

12.4 Mobility

Mobility
The product is miscible with water. May spread in water systems.

Mobility in soil
No information available.

12.5 Results of PBT and vPvB assessment

Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects.

None known.

12.7 Other information
Key literature references and sources for data. See Section 16 for more information.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be taken for local recycling, recovery or waste disposal.

14. Transport information

14.1. UN number
Not regulated

14.2. UN proper shipping name
The product is not covered by international regulation on the transport of dangerous goods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not regulated
IMDG/ANTAQ Hazard class	Not regulated
ICAO/ANAC Hazard class/division	Not regulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not regulated
IMDG/ANTAQ Packing group	Not regulated
ICAO/ANAC Packing group	Not regulated

14.5 Environmental hazard
No

14.6 Special precautions
Not applicable

14.7 Transport in bulk according to Annex I/II of MARPOL 73/78 and the IBC Code
Please contact SDS@slb.com for info regarding transport in Bulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

New Zealand Hazard Classification	Not classified
HSNO approval no.	Not applicable
Group number	Not applicable

National Code of Practice for the Preparation of Material Safety Data Sheets 2nd Edition [NOHSC: 2011 (2003)].

National Occupational Health and Safety Commission's Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004) 3rd Edition].

National Occupational Health and Safety Commission's Exposure Standards for Atmospheric Contaminants in the occupational Environment [NOHSC:1003 (1995)].

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)
The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Does not comply
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Does not comply
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by	Global Regulatory Compliance - Chemicals (GRC - Chemicals) , Muriel Martin Beurel
Supersedes Date:	19-Feb-2015
Revision date	23-Mar-2018
Version	4
This SDS has been revised in the following section(s)	All sections No changes with regard to classification have been made.

Key literature references and sources for data
www.ChemADVISOR.com
Supplier
National Chemical Inventories
National regulatory information
National occupational exposure limits

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NEWPARK DRILLING FLUIDS

SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **AVAGREEN LUBE**

Synonyms AVA GREEN LUBE ● GREEN LUBE

1.2 Uses and uses advised against

Uses DRILLING FLUID ● LUBRICANT

1.3 Details of the supplier of the product

Supplier name **NEWPARK DRILLING FLUIDS (AUSTRALIA) LTD**

Address 11 Alacrity Place, Henderson, WA, 6166, AUSTRALIA

Telephone +61 8 9410 8200

Fax +61 8 9410 8299

Website www.newpark.com

1.4 Emergency telephone numbers

Emergency 1800 127 406 (Australia); +64 4 917 9888 (International)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

2.2 GHS Label elements

No signal word, pictograms, hazard or precautionary statements have been allocated.

2.3 Other hazards

No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
METHYL ESTERS OF FATTY ACIDS	68990-52-3	273-606-8	100%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

Ingestion For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor (at once).

First aid facilities Eye wash facilities and safety shower should be available.

4.2 Most important symptoms and effects, both acute and delayed
Adverse effects not expected from this product under normal conditions of use.

4.3 Immediate medical attention and special treatment needed
Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media
Dry agent, carbon dioxide or foam. Prevent contamination of drains and waterways.

5.2 Special hazards arising from the substance or mixture
Combustible. May evolve carbon oxides and hydrocarbons when heated to decomposition.

5.3 Advice for firefighters
Evacuate area and contact emergency services. Toxic gases may be evolved in a fire situation. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

5.4 Hazchem code
None allocated.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Clear area of all unprotected personnel. Ventilate area where possible. Contact emergency services where appropriate.

6.2 Environmental precautions
Prevent product from entering drains and waterways.

6.3 Methods of cleaning up
Contain spillage, then cover / absorb spill with non-combustible absorbent material (vermiculite, sand, or similar), collect and place in suitable containers for disposal.

6.4 Reference to other sections
See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool, dry, well ventilated area, removed from incompatible substances, heat or ignition sources and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use. Large storage areas should have appropriate ventilation systems.

7.3 Specific end uses
No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters
Exposure standards

No exposure standards have been entered for this product.

Biological limits

No biological limit values have been entered for this product.

8.2 Exposure controls

Engineering controls Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended.

PPE

Eye / Face	Wear splash-proof goggles.
Hands	Wear PVC or rubber gloves.
Body	When using large quantities or where heavy contamination is likely, wear coveralls.
Respiratory	Where an inhalation risk exists, wear a Type A (Organic vapour) respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	YELLOW LIQUID
Odour	SWEET VEGETABLE ODOUR
Flammability	CLASS C2 COMBUSTIBLE
Flash point	180°C
Boiling point	> 300°C
Melting point	NOT AVAILABLE
Evaporation rate	NOT AVAILABLE
pH	NOT AVAILABLE
Vapour density	NOT AVAILABLE
Relative density	0.91 to 0.92
Solubility (water)	INSOLUBLE
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT AVAILABLE
Lower explosion limit	NOT AVAILABLE
Partition coefficient	NOT AVAILABLE
Autoignition temperature	260°C
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

10. STABILITY AND REACTIVITY

10.1 Reactivity

Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability

Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions

Polymerization is not expected to occur.

10.4 Conditions to avoid

Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials
Incompatible with oxidising agents (e.g. hypochlorites), acids (e.g. nitric acid), heat and ignition sources.

10.6 Hazardous decomposition products
May evolve carbon oxides and hydrocarbons when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity	This product is expected to be of low acute toxicity. Under normal conditions of use, adverse health effects are not anticipated.
Skin	Not classified as a skin irritant. Contact may cause temporary mild skin irritation.
Eye	Not classified as an eye irritant. Contact may cause discomfort, lacrimation and redness.
Sensitisation	Not classified as causing skin or respiratory sensitisation.
Mutagenicity	No evidence of mutagenic effects.
Carcinogenicity	No evidence of carcinogenic effects.
Reproductive	No relevant or reliable studies were identified.
STOT - single exposure	Not classified as causing organ damage from single exposure.
STOT - repeated exposure	Not classified as causing organ damage from repeated exposure.
Aspiration	This product does not present an aspiration hazard.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
LC50 (Fish) 48 h: > 10000 µg / L
LC50 (Mollusc) 48 h: > 10000 µg /L
LC50 (Amphibious) 48 h: > 7600 µg/L

12.2 Persistence and degradability
70% 28 days (method OECD 301 B

12.3 Bioaccumulative potential
Low potential for bioaccumulation.

12.4 Mobility in soil
It is not volatile and not expected to persist in the environment.

12.5 Other adverse effects
No information provided.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal	For small amounts, absorb with sand, vermiculite or similar and dispose of to an approved landfill site. For large quantities, contact the manufacturer/supplier for additional information.
Legislation	Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE, IMDG OR IATA

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	None allocated.	None allocated.	None allocated.
14.2 Proper Shipping Name	None allocated.	None allocated.	None allocated.
14.3 Transport hazard class	None allocated.	None allocated.	None allocated.
14.4 Packing Group	None allocated.	None allocated.	None allocated.

14.5 Environmental hazards

No information provided.

14.6 Special precautions for user

Hazchem code None allocated.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safe Work Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals (GHS Revision 7).

Inventory listings **AUSTRALIA: AIIC (Australian Inventory of Industrial Chemicals)**
All components are listed on AIIC, or are exempt.

16. OTHER INFORMATION

Additional information

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

Prepared by

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[End of SDS]

SAFETY DATA SHEET

AVAPOLYMER 5050

Issue Date 12- pr-2017 **Revision date** 09- u -2022 **Version** 1.1
N

Section 1: IDENTIFICATION: PRODUCT INDENTIFIER AND CHEMICAL IDENTITY

1

Product identifier

Product Name P M 5050

Product Code N F00252

Other means of identification

Pure substance/mixture Mixture

Recommended use of the chemical and restrictions on use

Recommended Use shale stabilizer

Uses advised against No in ormation available

Details of manufacturer or importer

Supplier
Ne park rillin Fluids (ustralia) T
11 lacrit Place
Henderson 6166
ustralia

For urther in ormation please contact

Contact Point Telephone: 61 8 9410 8200
Fax: 61 8 9410 8299
ebsite: .ne park.com

Emergency telephone number

mer enc telephone number (61)-290372994 (ustralia) (64)-98010034 (Ne ealand)

Section 2: HAZARD(S) IDENTIFICATION

GHS - Classification

Not a dan erous substance or mixture accordin to the loball Harmonized stem (H)

Label elements

Hazard statements
Not a dan erous substance or mixture accordin to the loball Harmonized stem (H)

Other hazards which do not result in classification
Ma be harm ul in contact ith skin
General Hazards
This substance does not meet the P T vPv criteria o CH annex

Section 3: COMPOSITION AND INFORMATION ON INGREDIENTS, IN ACCORDANCE WITH SCHEDULE 8

Substance

Not applicable

Mixture

Chemical name	C No	ei ht-
Non-hazardous in redients	-	100

Section 4: FIRST AID MEASURES

Description of first aid measures

Emergency telephone number Poisons n ormation Center ustralia: 13 11 26
Poisons n ormation Center Ne ealand: 0800 764 766

Inhalation emove to resh air.

Eye contact inse thorou hl ith plent o ater or at least 15 minutes li tin lo er and upper e elids. Consult a ph sician.

Skin contact ash skin ith soap and ater.

Ingestion Clean mouth ith ater and drink a ter ards plent o ater.

Most important symptoms and effects, both acute and delayed

Symptoms No in ormation available.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat s mptomaticall .

Section 5: FIREFIGHTING MEASURES

Suitable Extinguishing Media

Suitable extinguishing media ater spra (o). Carbon dioxide (C 2).

Unsuitable extinguishing media No in ormation available.

Specific hazards arising from the chemical

Thermal decomposition can lead to release o irritatin and toxic ases and vapors. o not allo run-o rom ire- i htin to enter drains or ater courses.

Hazardous combustion products Carbon oxides.

Special protective actions for fire-fighters

Special protective equipment for fire-fighters Fire i hters should ear sel -contained breathin apparatus and ull ire i htin turnout ear. se personal protection e uipment.

Hazchem code Not isted.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions nsure ade uate ventilation.

For emergency responders se personal protection recommended in ection 8.

Environmental precautions

Environmental precautions ee ection 12 or additional colo ical n ormation. o not lush into sur ace ater or sanitar se er s stem. Prevent product rom enterin drains.

Methods and material for containment and cleaning up

Methods for containment Prevent urther leaka e or spilla e i sa e to do so.

Methods for cleaning up Pick up and trans er to properl labeled containers.

Precautions to prevent secondary hazards

Prevention of secondary hazards Clean contaminated ob ects and areas thorou hl observin environmental re ulations.

Section 7: HANDLING AND STORAGE, INCLUDING HOW THE CHEMICAL MAY BE SAFELY USED

Precautions for safe handling

Advice on safe handling Handle in accordance ith ood industrial h iene and sa et practice. void eneration o dust. ash thorou hl a ter handlin . ash contaminated clothin be ore reuse.

General hygiene considerations o not eat drink or smoke hen usin this product. ash hands be ore breaks and a ter ork.

Conditions for safe storage, including any incompatibilities

Storage Conditions eep containers ti htl closed in a dr cool and ell-ventilated place.

Incompatible materials None kno n

Section 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Control parameters

Exposure Limits This product as supplied does not contain an hazardous materials ith occupational exposure limits established b the re ion speci ic re ulator bodies.

Biological occupational exposure limits Not applicable

Appropriate engineering controls

Engineering controls ho ers
e ash stations

entilation s stems.

Individual protection measures, such as personal protective equipment

Eye/face protection Ti ht sealin sa et o les.

Skin and body protection ear suitable protective clothin .

Respiratory protection n case o inade uate ventilation ear respirator protection.

Environmental exposure controls o not allo into an se er on the round or into an bod o ater.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	olid		
Appearance	Po der	**Odor**	li ht.
Color	No in ormation available	**Odor threshold**	No in ormation available

Property	**Values**	**Remarks • Method**
pH	8.0 - 11.0	20 solution
Melting point / freezing point		No data available
Boiling point / boiling range		No data available
Flash point		Not applicable
Evaporation rate		No data available
Flammability (solid, gas)		No data available
Flammability Limit in Air		No data available
Upper flammability limit:		No data available
Lower flammability limit:		No data available
Vapor pressure		No data available
Vapor density		No data available
Relative density		No data available
Water solubility	oluble in ater	
Solubility(ies)		No in ormation available
Partition coefficient		No in ormation available
Autoignition temperature		No data available
Hyphen		No data available
Kinematic viscosity		Not applicable
Dynamic viscosity		Not applicable

Other information

Softening point	No in ormation available
Molecular weight	No in ormation available
VOC Content (%)	No in ormation available
Liquid Density	No in ormation available
Bulk density	No in ormation available
Particle Size	No in ormation available
Particle Size Distribution	No in ormation available

Section 10: STABILITY AND REACTIVITY

Reactivity

Reactivity table.

Chemical stability

Stability table under normal conditions.

Explosion data

Sensitivity to Mechanical Impact None.
Sensitivity to Static Discharge None.

Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processin .

Conditions to avoid

Conditions to avoid None kno n based on in ormation supplied.

Incompatible materials

Incompatible materials None kno n.

Hazardous decomposition products

Hazardous Decomposition Products None kno n based on in ormation supplied.

Section 11: TOXICOLOGICAL INFORMATION

Acute toxicity

Information on likely routes of exposure

Product Information .

Inhalation peci ic test data or the substance or mixture is not available.

Eye contact peci ic test data or the substance or mixture is not available.

Skin contact peci ic test data or the substance or mixture is not available.

Ingestion peci ic test data or the substance or mixture is not available

Symptoms No in ormation available.

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document
ATEmix (oral) 27 000.00 m k
ATEmix (dermal) 2 002.00 m k

Unknown acute toxicity 100 o the mixture consists o in redient(s) o unkno n toxicit
40 o the mixture consists o in redient(s) o unkno n acute oral toxicit
40 o the mixture consists o in redient(s) o unkno n acute dermal toxicit
100 o the mixture consists o in redient(s) o unkno n acute inhalation toxicit (as)
100 o the mixture consists o in redient(s) o unkno n acute inhalation toxicit (vapor)
100 o the mixture consists o in redient(s) o unkno n acute inhalation toxicit (dust mist)

See section 16 for terms and abbreviations

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation No in ormation available.

Serious eye damage/eye irritation No in ormation available.

Respiratory or skin sensitization No in ormation available.

Germ cell mutagenicity	No in ormation available.
Carcinogenicity	No in ormation available.
Reproductive toxicity	No in ormation available.
STOT - single exposure	No in ormation available.
STOT - repeated exposure	No in ormation available.
Aspiration hazard	No in ormation available.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity	The environmental impact o this product has not been ull investi ated.
Unknown aquatic toxicity	100 o the mixture consists o component(s) o unkno n hazards to the a uatic environment.

Persistence and degradability

Persistence and degradability	No in ormation available.

Bioaccumulative potential

Bioaccumulation	No in ormation available.

Mobility

Mobility in soil	No in ormation available.
Mobility	No in ormation available.

Other adverse effects

Other adverse effects	No in ormation available.

Section 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues/unused products	ispose o in accordance ith local re ulations. ispose o aste in accordance ith environmental le islation.
Contaminated packaging	o not reuse empt containers.

Section 14: TRANSPORT INFORMATION

ADG	Not re ulated
IATA	Not e ulated
IMDG	Not e ulated

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
No in ormation available

Section 15: REGULATORY INFORMATION

Regulatory information

National regulations

Australia
ee section 8 or national exposure control parameters

Standard for Uniform Scheduling of Medicines and Poisons (SUSMP)
No poisons schedule number allocated

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
PICCS	Complies
AICS	Complies
NZIoC	Complies

Legend:
TSCA - nited tates Toxic ubstances Control ct ection 8(b) nventor
DSL/NDSL - Canadian omestic ubstances ist Non- omestic ubstances ist
EINECS/ELINCS - uropean nventor o xistin Chemical ubstances uropean ist o Noti ied Chemical ubstances
ENCS - Japan xistin and Ne Chemical ubstances
IECSC - China nventor o xistin Chemical ubstances
KECL - orean xistin and valuated Chemical ubstances
PICCS - Philippines nventor o Chemicals and Chemical ubstances
AICS - ustralian nventor o Chemical ubstances
NZIoC - Ne ealand nventor o Chemicals

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

Brunei Poison List Not applicable.

Section 16: ANY OTHER RELEVANT INFORMATION

Issue Date 12- pr-2017

Revision date 09- u -2022

Revision Note
No in ormation available.

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

T	T (time- ei hted avera e)	T	T (hort Term xposure imit)
Ceilin	Maximum limit value		kin desi nation
C	Carcino en		

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End of Safety Data Sheet

NEWPARK DRILLING FLUIDS

SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **BARITE POWDER**

Synonyms BARITE (API 13A SECTION 7) ● NEWBAR ● RHEOBAR

1.2 Uses and uses advised against

Uses DRILLING FLUID ADDITIVE ● WEIGHTING AGENT

1.3 Details of the supplier of the product

Supplier name **NEWPARK DRILLING FLUIDS (AUSTRALIA) LTD**

Address 11 Alacrity Place, Henderson, WA, 6166, AUSTRALIA

Telephone +61 8 9410 8200

Fax +61 8 9410 8299

Website www.newpark.com

1.4 Emergency telephone numbers

Emergency 1800 127 406 (Australia); +64 4 917 9888 (International)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

2.2 GHS Label elements

No signal word, pictograms, hazard or precautionary statements have been allocated.

2.3 Other hazards

This product contains a small quantity of quartz, crystalline silica. Prolonged and repeated exposure to concentrations of crystalline silica exceeding the workplace exposure limit (WEL) may lead to chronic lung disease such as silicosis. IARC Monographs, Vol. 68, 1997, concludes that there is sufficient evidence that inhaled crystalline silica in the form of quartz or cristobalite from occupational sources causes cancer in humans. IARC Classification Group I.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
BARIUM SULPHATE	7727-43-7	231-784-4	>89%
QUARTZ (CRYSTALLINE SILICA)	14808-60-7	238-878-4	<3%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

Ingestion For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor (at once).

First aid facilities Eye wash facilities should be available.

4.2 Most important symptoms and effects, both acute and delayed

Repeated exposure to crystalline silica may result in lung fibrosis (silicosis). Principal symptoms of silicosis are coughing and breathlessness. Crystalline silica is classified as carcinogenic to humans (IARC Group 1).

4.3 Immediate medical attention and special treatment needed

Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Use an extinguishing agent suitable for the surrounding fire.

5.2 Special hazards arising from the substance or mixture

Non flammable. May evolve toxic gases (sulphur oxides) when heated to decomposition.

5.3 Advice for firefighters

Evacuate area and contact emergency services. Toxic gases may be evolved in a fire situation. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

5.4 Hazchem code

None allocated.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS.

6.2 Environmental precautions

Prevent product from entering drains and waterways.

6.3 Methods of cleaning up

Contain spillage, then cover / absorb spill with non-combustible absorbent material (vermiculite, sand, or similar), collect and place in suitable containers for disposal.

6.4 Reference to other sections

See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities

Store in a cool, dry, well ventilated area, removed from incompatible substances and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use.

7.3 Specific end uses

No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m³	ppm	mg/m³
Barium sulphate	SWA [AUS]	--	10	--	--
Barium sulphate (inhalable)	SWA [Proposed]	--	4	--	--
Barium sulphate (respirable)	SWA [Proposed]	--	1.35	--	--
Quartz (respirable dust)	SWA [AUS]	--	0.1	--	--
Quartz (respirable dust)	SWA [Proposed]	--	0.05	--	--
Quartz (respirable dust)	WorkSafe VIC	--	0.05	--	--

Biological limits No Biological Limit Value allocated.

8.2 Exposure controls

Engineering controls Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended.

PPE

Eye / Face Wear dust-proof goggles.

Hands Wear PVC or rubber gloves.

Body When using large quantities or where heavy contamination is likely, wear coveralls.

Respiratory Where an inhalation risk exists, wear a Class P1 (Particulate) respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	OFF-WHITE POWDER
Odour	ODOURLESS
Flammability	NON FLAMMABLE
Flash point	NOT RELEVANT
Boiling point	NOT RELEVANT
Melting point	> 1300°C
Evaporation rate	NOT RELEVANT
pH	8.2 (20% Slurry)
Vapour density	NOT RELEVANT
Specific gravity	4.20
Solubility (water)	INSOLUBLE
Vapour pressure	NOT RELEVANT
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Partition coefficient	NOT RELEVANT
Autoignition temperature	NOT RELEVANT
Decomposition temperature	NOT RELEVANT
Viscosity	NOT RELEVANT
Explosive properties	NOT EXPLOSIVE
Oxidising properties	NON OXIDISING
Odour threshold	NOT RELEVANT

9.2 Other information

Bulk density ~1.5 kg/L

10. STABILITY AND REACTIVITY

10.1 Reactivity
Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability
Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions
Polymerization is not expected to occur.

10.4 Conditions to avoid
Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials
Incompatible with oxidising agents (e.g. hypochlorites), acids (e.g. nitric acid), alkalis (e.g. sodium hydroxide), heat and ignition sources.

10.6 Hazardous decomposition products
May evolve toxic gases (sulphur oxides) when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity Based on available data, the classification criteria are not met.

Information available for the ingredients:

Ingredient	Oral LD50	Dermal LD50	Inhalation LC50
BARIUM SULPHATE	> 5000 mg/kg (rat)	> 2000 mg/kg (rat)	--

Skin Contact may result in irritation, redness, pain and rash.

Eye Contact may result in irritation, lacrimation, pain, redness and blurring or dimness of vision.

Sensitisation Not classified as causing skin or respiratory sensitisation.

Mutagenicity Not classified as a mutagen.

Carcinogenicity Crystalline silica is classified as carcinogenic to humans (IARC Group 1). However, there is a body of evidence supporting the fact that increased cancer risk would be limited to people already suffering from silicosis.

Reproductive Not classified as a reproductive toxin.

STOT - single exposure Over exposure may result in irritation of the nose and throat, coughing, dizziness, drowsiness and headache.

STOT - repeated exposure Repeated exposure to respirable silica may result in pulmonary fibrosis (silicosis). Silicosis is a fibronodular lung disease caused by deposition in the lungs of fine respirable particles of crystalline silica. Principal symptoms of silicosis are coughing and breathlessness.

Aspiration Not classified as causing aspiration.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
Fish Toxicity: LC50 (Rainbow trout) > 7500 ppm/96hrs; LC50 (Fresh Water Trout) > 21,000 ppm/96hrs; LC50 (Salt Water Stickel Back) > 56,000 ppm/96hrs.

12.2 Persistence and degradability
Barium sulphate (major ingredient of barite (60-100%)) is insoluble in water and not biodegradable.

12.3 Bioaccumulative potential
Not expected to bioaccumulate.

12.4 Mobility in soil
No information provided.

12.5 Other adverse effects
This product is not anticipated to cause adverse effects to animal or plant life if released to the environment in small quantities.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal Dispose of to an approved landfill or waste processing site. Contact the manufacturer/supplier for additional information (if required).

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE, IMDG OR IATA

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	None allocated.	None allocated.	None allocated.
14.2 Proper Shipping Name	None allocated.	None allocated.	None allocated.
14.3 Transport hazard class	None allocated.	None allocated.	None allocated.
14.4 Packing Group	None allocated.	None allocated.	None allocated.

14.5 Environmental hazards

No information provided.

14.6 Special precautions for user

Hazchem code None allocated.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

Inventory listings **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
All components are listed on AICS, or are exempt.

16. OTHER INFORMATION

Additional information

RESPIRATORS: In general the use of respirators should be limited and engineering controls employed to avoid exposure. If respiratory equipment must be worn ensure correct respirator selection and training is undertaken. Remember that some respirators may be extremely uncomfortable when used for long periods. The use of air powered or air supplied respirators should be considered where prolonged or repeated use is necessary.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

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[End of SDS]

NEWPARK DRILLING FLUIDS

SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **CALCIUM CARBONATE**

Synonyms ABGRIT ● CIRCAL ● LIMESTONE ● MARBLE ● NEWCARB, AG LIMESTONE, UNICAL 20 ● OMYACARB ● STONEDUST ● TRUECARB

1.2 Uses and uses advised against

Uses DRILLING FLUID ADDITIVE ● WEIGHTING AGENT

1.3 Details of the supplier of the product

Supplier name **NEWPARK DRILLING FLUIDS (AUSTRALIA) LTD**

Address 11 Alacrity Place, Henderson, WA, 6166, AUSTRALIA

Telephone +61 8 9410 8200

Fax +61 8 9410 8299

Website www.newpark.com

1.4 Emergency telephone numbers

Emergency 1800 127 406 (Australia); +64 4 917 9888 (International)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

2.2 GHS Label elements

No signal word, pictograms, hazard or precautionary statements have been allocated.

2.3 Other hazards

No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
LIMESTONE (CALCIUM CARBONATE)	1317-65-3	215-279-6	>96%
QUARTZ (CRYSTALLINE SILICA)	14808-60-7	238-878-4	<1%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water.

Ingestion For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). If swallowed, do not induce vomiting.

First aid facilities Eye wash facilities and safety shower should be available.

4.2 Most important symptoms and effects, both acute and delayed
May cause irritation to the eyes, skin and respiratory system.

4.3 Immediate medical attention and special treatment needed
Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media
Use an extinguishing agent suitable for the surrounding fire.

5.2 Special hazards arising from the substance or mixture
Non flammable. May evolve toxic gases if strongly heated.

5.3 Advice for firefighters
No fire or explosion hazard exists.

5.4 Hazchem code
None allocated.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS.

6.2 Environmental precautions
Prevent product from entering drains and waterways.

6.3 Methods of cleaning up
If spilt, collect and reuse where possible. If reuse is not possible, contain spillage, then collect and place in suitable containers for disposal. Avoid generating dust.

6.4 Reference to other sections
See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool, dry, well ventilated area, removed from incompatible substances and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use.

7.3 Specific end uses
No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters
Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m³	ppm	mg/m³
Calcium carbonate (Limestone, Marble, Whiting)	SWA [AUS]	--	10	--	--
Quartz (respirable dust)	SWA [AUS]	--	0.05	--	--
Quartz (respirable dust) (Precautionary advice)	WorkSafe VIC	--	0.02	--	--

Biological limits No Biological Limit Value allocated.

8.2 Exposure controls

Engineering controls Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended. Maintain dust levels below the recommended exposure standard.

PPE

Eye / Face	Wear dust-proof goggles.
Hands	When using large quantities or where heavy contamination is likely, wear PVC or rubber gloves.
Body	When using large quantities or where heavy contamination is likely, wear coveralls.
Respiratory	Where an inhalation risk exists, wear a Class P1 (Particulate) respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	OFF-WHITE POWDER
Odour	ODOURLESS
Flammability	NON FLAMMABLE
Flash point	NOT RELEVANT
Boiling point	840°C (Decomposes)
Melting point	825°C
Evaporation rate	NOT AVAILABLE
pH	9
Vapour density	NOT AVAILABLE
Relative density	2.7
Solubility (water)	INSOLUBLE
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

10. STABILITY AND REACTIVITY

10.1 Reactivity

Calcium carbonate reacts with acids and acidic salts to generate gaseous carbon dioxide with effervescence (bubbling). The reaction with concentrated solutions of acids is rapid and exothermic. The effervesence can create extensive foaming. Ignites on contact with fluorine.

10.2 Chemical stability

Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions

Polymerization will not occur.

10.4 Conditions to avoid

Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials

Incompatible with acids (e.g. nitric acid), fluorine, aluminium (hot) and ammonium salts. Incompatible with oxidising agents (e.g. hypochlorites).

10.6 Hazardous decomposition products

May evolve toxic gases if heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity This product is expected to be of low toxicity. Based on available data, the classification criteria are not met. LD50 (Ingestion) = 6450 mg/kg (rat).

Information available for the ingredients:

Ingredient	Oral LD50	Dermal LD50	Inhalation LC50
LIMESTONE (CALCIUM CARBONATE)	> 5000 mg/kg (rat)	--	--

Skin Not classified as a skin irritant. Contact may result in mild irritation, redness and rash.

Eye Contact may result in irritation, lacrimation, pain and redness.

Sensitisation Not classified as causing skin or respiratory sensitisation.

Mutagenicity Insufficient data available to classify as a mutagen.

Carcinogenicity Insufficient data available to classify as a carcinogen.

Reproductive Insufficient data available to classify as a reproductive toxin.

STOT - single exposure Not classified as causing organ damage from single exposure.

STOT - repeated exposure Not classified as causing organ damage from repeated exposure. Chronic exposure to respirable silica may result in pulmonary fibrosis (silicosis). However, given the low levels present, over exposure is not anticipated.

Aspiration This product does not present an aspiration hazard.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Calcium carbonate occurs naturally in a wide variety of substances including limestone, marble and egg shells. It is not anticipated to cause adverse environmental effects.

12.2 Persistence and degradability

Dissolved calcium carbonate dissociates into calcium and carbonate ions. Calcium ions will be assimilated by living organisms in the water and the carbonate will become part of the carbon cycle.

12.3 Bioaccumulative potential

This product does not bioaccumulate.

12.4 Mobility in soil

Due to its limited solubility, calcium carbonate precipitates and deposits on the sediment.

12.5 Other adverse effects

Avoid contamination of drains and waterways.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal Ensure product is covered with moist soil to prevent dust generation and dispose of to approved Council landfill. Contact the manufacturer/supplier for additional information (if required).

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE, IMDG OR IATA

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	None allocated.	None allocated.	None allocated.
14.2 Proper Shipping Name	None allocated.	None allocated.	None allocated.
14.3 Transport hazard class	None allocated.	None allocated.	None allocated.
14.4 Packing Group	None allocated.	None allocated.	None allocated.

14.5 Environmental hazards

No information provided.

14.6 Special precautions for user

Hazchem code None allocated.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safe Work Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals (GHS Revision 7).

Inventory listings **AUSTRALIA: AIIC (Australian Inventory of Industrial Chemicals)**
All components are listed on AIIC, or are exempt.

16. OTHER INFORMATION

Additional information

RESPIRATORS: In general the use of respirators should be limited and engineering controls employed to avoid exposure. If respiratory equipment must be worn ensure correct respirator selection and training is undertaken. Remember that some respirators may be extremely uncomfortable when used for long periods. The use of air powered or air supplied respirators should be considered where prolonged or repeated use is necessary.

EXPOSURE CONTROL: If utilised in a closed system the potential for over exposure is reduced. If not used in a closed system, local exhaust ventilation is recommended to control exposure. Provide eye wash and safety shower in close proximity to points of potential exposure. Where the potential for an inhalation risk exists, an approved respirator may be required. Do not eat, store, consume food, tobacco or drink in areas where product is used.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

Prepared by

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[End of SDS]

NEWPARK DRILLING FLUIDS

SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **CALCIUM CHLORIDE POWDER 94-97%**

Synonyms CALCIUM CHLORIDE ANHYDRATE

1.2 Uses and uses advised against

Uses CONCRETE CONDITIONER ● DESICCANT ● DUST CONTROL AGENT ● FOOD ADDITIVE ● INDUSTRIAL APPLICATIONS

1.3 Details of the supplier of the product

Supplier name **NEWPARK DRILLING FLUIDS (AUSTRALIA) LTD**

Address 11 Alacrity Place, Henderson, WA, 6166, AUSTRALIA

Telephone +61 8 9410 8200

Fax +61 8 9410 8299

Website www.newpark.com

1.4 Emergency telephone numbers

Emergency 1800 127 406 (Australia); +64 4 917 9888 (International)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

Physical Hazards

Not classified as a Physical Hazard

Health Hazards

Serious Eye Damage / Eye Irritation: Category 2A

Environmental Hazards

Not classified as an Environmental Hazard

2.2 GHS Label elements

Signal word **WARNING**

Pictograms



Hazard statements

H319 Causes serious eye irritation.

Prevention statements

P264 Wash thoroughly after handling.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response statements

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337 + P313 If eye irritation persists: Get medical advice/attention.

Storage statements
None allocated.

Disposal statements
None allocated.

2.3 Other hazards
No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
CALCIUM CHLORIDE ANHYDROUS	10043-52-4	233-140-8	94 to 97%
SODIUM CHLORIDE	7647-14-5	231-598-3	1 to 5%
WATER	7732-18-5	231-791-2	1%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

Ingestion For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). If swallowed, do not induce vomiting.

First aid facilities Eye wash facilities and safety shower should be available.

4.2 Most important symptoms and effects, both acute and delayed
Irritating to the eyes and skin.

4.3 Immediate medical attention and special treatment needed
Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media
Use an extinguishing agent suitable for the surrounding fire.

5.2 Special hazards arising from the substance or mixture
Non flammable. May evolve toxic gases (chlorides) when heated to decomposition.

5.3 Advice for firefighters
Treat as per requirements for surrounding fires. Evacuate area and contact emergency services. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

5.4 Hazchem code
None allocated.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Clear area of all unprotected personnel. Contact emergency services where appropriate.

6.2 Environmental precautions
Prevent product from entering drains and waterways.

6.3 Methods of cleaning up
Contain spillage, then collect and place in suitable containers for reuse or disposal. Avoid generating dust.

6.4 Reference to other sections
See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool, dry, well ventilated area, removed from incompatible substances, heat or ignition sources and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use.

7.3 Specific end uses
No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters
Exposure standards

No exposure standards have been entered for this product.

Biological limits No Biological Limit Value allocated.

8.2 Exposure controls
Engineering controls Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended. Maintain dust levels below the recommended exposure standard.

PPE

Eye / Face	Wear dust-proof goggles.
Hands	Wear PVC or rubber gloves.
Body	When using large quantities or where heavy contamination is likely, wear coveralls.
Respiratory	Where an inhalation risk exists, wear a Class P1 (Particulate) respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	WHITE POWDER
Odour	ODOURLESS
Flammability	NON FLAMMABLE
Flash point	NOT RELEVANT
Boiling point	> 1600°C
Melting point	772°C
Evaporation rate	NOT RELEVANT
pH	7.0 to 9.0
Vapour density	NOT AVAILABLE
Specific gravity	2.15
Solubility (water)	590 kg/m³ (Approximately)
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT

9.1 Information on basic physical and chemical properties

Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

10. STABILITY AND REACTIVITY

10.1 Reactivity

Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability

Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions

Polymerization is not expected to occur.

10.4 Conditions to avoid

Avoid contact with incompatible substances.

10.5 Incompatible materials

Incompatible with acids (e.g. nitric acid), methyl vinyl ether, zinc/ galvanised metals, bromine trifluoride, boron oxide and calcium oxide. May react exothermically with water (i.e. releasing heat).

10.6 Hazardous decomposition products

May evolve toxic gases (chlorides) when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

Based on available data, the classification criteria are not met. Toxicity Data available for the ingredients:
CALCIUM CHLORIDE ANHYDROUS (10043-52-4):
LD50 (Ingestion): 1000 mg/kg (rat)
LD50 (Intraperitoneal): 210 mg/kg (mouse)
LD50 (Intravenous): 42 mg/kg (mouse)
LD50 (Subcutaneous): 823 mg/kg (mouse)
LDLo (Ingestion): 1384 mg/kg (rabbit)
LDLo (Intravenous): 150 mg/kg (guinea pig)
LDLo (Subcutaneous): 249 mg/kg (cat)
TDLo (Intravenous): 20 mg/kg/1 hour (woman)
SODIUM CHLORIDE (7647-14-5):
LC50 (Inhalation): > 42000 mg/m3/1 hour (rat)
LD50 (Ingestion): 3000 mg/kg (rat)
LD50 (Intraperitoneal): 2602 mg/kg (mouse)
LD50 (Intravenous): 645 mg/kg (mouse)
LD50 (Skin): > 10000 mg/kg (rabbit)
LD50 (Subcutaneous): 3000 mg/kg (mouse)
LDLo (Ingestion): 8000 mg/kg (rabbit)
LDLo (Intravenous): 300 mg/kg (guinea pig)
LDLo (Subcutaneous): 2160 mg/kg (guinea pig)
TDLo (Ingestion): 12357 mg/kg (human)

Information available for the ingredients:

Ingredient	Oral LD50	Dermal LD50	Inhalation LC50
CALCIUM CHLORIDE ANHYDROUS	2301 mg/kg (rat)	> 5000 mg/kg (rabbit)	--
SODIUM CHLORIDE	3000 mg/kg (rat)	> 10000 mg/kg (rabbit)	> 42000 mg/m³/1 hour (rat)

Additional ingredient toxicity values:

SODIUM CHLORIDE (7647-14-5)

LD50 (intraperitoneal)	2602 mg/kg (mouse)
LD50 (intravenous)	645 mg/kg (mouse)
LD50 (subcutaneous)	3000 mg/kg (mouse)
LDLo (intravenous)	300 mg/kg (guinea pig)
LDLo (oral)	8000 mg/kg (rabbit)
LDLo (subcutaneous)	2160 mg/kg (guinea pig)
TDLo (oral)	12357 mg/kg (human)

Skin	Not classified as a skin irritant. Contact may result in mechanical irritation, redness and rash.
Eye	Causes serious eye irritation. Contact may result in irritation, lacrimation, pain and redness.
Sensitisation	Not classified as causing skin or respiratory sensitisation.
Mutagenicity	Insufficient data available to classify as a mutagen.
Carcinogenicity	Insufficient data available to classify as a carcinogen.
Reproductive	Insufficient data available to classify as a reproductive toxin.
STOT - single exposure	Not classified as causing organ damage from single exposure.
STOT - repeated exposure	Not classified as causing organ damage from repeated exposure.
Aspiration	This product does not present an aspiration hazard.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

No information provided.

12.2 Persistence and degradability

Biodegradability does not pertain to inorganic substances.

12.3 Bioaccumulative potential

This product does not bioaccumulate.

12.4 Mobility in soil

No information provided.

12.5 Other adverse effects

No information provided.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal	Ensure product is covered with moist soil to prevent dust generation and dispose of to approved Council landfill. Contact the manufacturer/supplier for additional information (if required).
Legislation	Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE, IMDG OR IATA

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	None allocated.	None allocated.	None allocated.
14.2 Proper Shipping Name	None allocated.	None allocated.	None allocated.
14.3 Transport hazard class	None allocated.	None allocated.	None allocated.
14.4 Packing Group	None allocated.	None allocated.	None allocated.

14.5 Environmental hazards

No information provided.

14.6 Special precautions for user

Hazchem code None allocated.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

Inventory listings **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
All components are listed on AICS, or are exempt.

16. OTHER INFORMATION

Additional information

RESPIRATORS: In general the use of respirators should be limited and engineering controls employed to avoid exposure. If respiratory equipment must be worn ensure correct respirator selection and training is undertaken. Remember that some respirators may be extremely uncomfortable when used for long periods. The use of air powered or air supplied respirators should be considered where prolonged or repeated use is necessary.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

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[End of SDS]

NEWPARK DRILLING FLUIDS

SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **CAUSTIC SODA**

Synonyms SODIUM HYDROXIDE SOLID

1.2 Uses and uses advised against

Uses MANUFACTURE OF CHEMICALS ● REAGENT ● SCRUBBING AGENT

1.3 Details of the supplier of the product

Supplier name **NEWPARK DRILLING FLUIDS (AUSTRALIA) LTD**

Address 11 Alacrity Place, Henderson, WA, 6166, AUSTRALIA

Telephone +61 8 9410 8200

Fax +61 8 9410 8299

Website www.newpark.com

1.4 Emergency telephone numbers

Emergency 1800 127 406 (Australia); +64 4 917 9888 (International)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

Physical Hazards

Not classified as a Physical Hazard

Health Hazards

Skin Corrosion/Irritation: Category 1A

Environmental Hazards

Not classified as an Environmental Hazard

2.2 GHS Label elements

Signal word **DANGER**

Pictograms



Hazard statements

H314 Causes severe skin burns and eye damage.

Prevention statements

P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P264 Wash thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response statements

P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340	IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor/physician.
P321	Specific treatment is advised - see first aid instructions.
P363	Wash contaminated clothing before reuse.

Storage statements

P405	Store locked up.

Disposal statements

P501	Dispose of contents/container in accordance with relevant regulations.

2.3 Other hazards

No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
SODIUM HYDROXIDE	1310-73-2	215-185-5	>99%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area. To protect rescuer, use an Air-line respirator where an inhalation risk exists. Apply artificial respiration if not breathing.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

Ingestion For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). If swallowed, do not induce vomiting.

First aid facilities Eye wash facilities and safety shower should be available.

4.2 Most important symptoms and effects, both acute and delayed

Causes severe skin burns and eye damage.

4.3 Immediate medical attention and special treatment needed

CORROSIVE POISONING TREATMENT: Immediate treatment preferably in a hospital is mandatory. In treating corrosive poisoning, DO NOT INDUCE VOMITING; DO NOT ATTEMPT GASTRIC LAVAGE; and DO NOT ATTEMPT TO NEUTRALISE THE CORROSIVE SUBSTANCE. Vomiting will increase the severity of damage to the oesophagus as the corrosive substance will again come in contact with it. Attempting gastric lavage may result in perforating either the oesophagus or stomach. Immediately dilute the corrosive substance by having the patient drink milk or water. If the trachea has been damaged tracheostamy may be required. For oesophageal burns begin broad-spectrum antibiotics and corticosteroid therapy. Intravenous fluids will be required if oesophageal or gastric damage prevents ingestion of liquids. Long-range therapy will be directed toward preventing or treating oesophageal scars and strictures.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Use an extinguishing agent suitable for the surrounding fire. Use carbon dioxide or suitable dry chemical extinguisher. Do NOT use water.

5.2 Special hazards arising from the substance or mixture

Non flammable. May evolve flammable hydrogen gas in contact with some metals. Direct contact with water can produce a violent exothermic reaction.

5.3 Advice for firefighters

Treat as per requirements for surrounding fires. Evacuate area and contact emergency services. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

5.4 Hazchem code

2X

2 Fine Water Spray.

X Wear liquid-tight chemical protective clothing and breathing apparatus. Contain spill and run-off.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Allow only trained personnel wearing appropriate protective equipment to be involved in spill response. Avoid accidents, clean up immediately. Increase ventilation. Avoid walking through spilled product as it is slippery when spilt. Isolate the danger area. Use clean, non-sparking tools and equipment. Shut off all possible sources of ignition.

6.2 Environmental precautions

Prevent product from entering drains and waterways.

6.3 Methods of cleaning up

Mechanically collect as much of the spill as possible. Absorb with sand, earth or clay. Transfer to suitable, labelled, corrosion-resistant containers and dispose of promptly as hazardous waste. Spill on areas other than pavement, dirt or sand may be handled by removing the affected soils and placing into approved containers.

6.4 Reference to other sections

See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Ensure an eye bath and safety shower are available and ready for use. Observe good personal hygiene practices and recommended procedures. Wash thoroughly after handling. Take precautionary measures against static discharges by bonding and grounding equipment. Avoid contact with eyes, skin and clothing. Do not inhale product vapours. Avoid prolonged or repeated exposure. Do not smoke, eat or drink when handling product. Product can react violently with water and acids. Caustic solution generates heat when further diluted with water. Concentrations greater than 40%, the heat generated can raise temperatures above the boiling point resulting in sporadic, violent eruptions or spattering. Emergency showers and eye-washes must be available. When used in its various applications, the product must be prevented from coming into uncontrolled direct contact with other products such as acids and metals. Never neutralise the solid product.

7.2 Conditions for safe storage, including any incompatibilities

Store in a cool, dry, well-ventilated area. Keep containers tightly closed when not in use. Inspect regularly for deficiencies such as damage or leaks. Protect against physical damage. Store away from incompatible materials as listed in section 10. Store away from aluminium, tin, zinc and alloys (bronzes), chrome and lead. Protect from damp and kept apart from acids, halogenated hydrocarbons, nitroparaffins, etc. The floor must be waterproof and anti-slip. A water supply or source must be provided in the place of storage. Emergency showers and eye-washes must be available. Special conditions: Prevent the product from becoming damp or erated. Hygroscopic product. Becomes carbonated in contact with the air or moisture.

7.3 Specific end uses

No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m³	ppm	mg/m³
Sodium hydroxide (peak limitation)	SWA [AUS]	--	2 (Peak)	--	--

Biological limits

No biological limit values have been entered for this product.

8.2 Exposure controls

Engineering controls Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended. Maintain dust levels below the recommended exposure standard.

PPE

Eye / Face	Wear a faceshield and dust-proof goggles.
Hands	Wear PVC or rubber gloves.
Body	Wear coveralls and rubber boots and a PVC apron.
Respiratory	Where an inhalation risk exists, wear a Class P1 (Particulate) respirator. At high dust levels, wear an Air-line respirator or a Full-face Class P3 (Particulate) respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	WHITE DELIQUESCENT PEARLS
Odour	ODOURLESS
Flammability	NON FLAMMABLE
Flash point	NOT RELEVANT
Boiling point	1390°C
Melting point	318°C
Evaporation rate	NOT AVAILABLE
pH	13.5 (1 % solution)
Vapour density	NOT AVAILABLE
Specific gravity	2.12
Solubility (water)	1110 kg/m³ @ 20°C
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

10. STABILITY AND REACTIVITY

10.1 Reactivity

Highly exothermal reaction with strong acids. Reacts dangerously with acetic acid, allyl chloride, chlorine trifluoride, chloroform, methylic alcohol, chloronitrotoluene, chlorosulphonic acid, glyoxal, cyanohydrin, hydrochloric acid, hydrofluoric acid, hydroquinone, nitric acid, sulphuric acid and oleum, nitropropane, phosphorous, propiolactone, phosphorous pentoxide, tetrachlorobenzene, tetrahydrofuran, etc. Caustic soda forms salts with nitromethane and nitroparaffins that explode on impact. Heat is generated when mixed with water. Spattering and boiling can occur. Caustic soda solution reacts readily with various reducing sugars (ie: fructose, glactose, maltose, dry whey solids) to produce carbon monoxide. Caustic soda forms salts with nitromethane and nitroparaffins that explode on impact. Reacts with aluminium, tin, zinc and their alloys, copper, lead, etc. giving off hydrogen.

10.2 Chemical stability

Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions

Polymerization is not expected to occur.

10.4 Conditions to avoid

Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials

Incompatible with oxidising agents (e.g. hypochlorites), acids (e.g. nitric acid), metals, heat and ignition sources.

10.6 Hazardous decomposition products

Reacts with aluminium, tin, zinc and their alloys, copper, lead, etc. giving off hydrogen. When the product decomposes, toxic sodium oxide gases are evolved.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

Highly corrosive. This product has the potential to cause serious adverse health effects. Use safe work practices to avoid eye or skin contact and inhalation. Over exposure may result in severe burns with corrosive tissue damage. Upon dilution, the potential for corrosive effects may be reduced.

SODIUM HYDROXIDE (1310-73-2):
LD50 (Intraperitoneal): 40 mg/kg (mouse)
LDLo (Ingestion): 1.57 mg/kg (human)

Additional ingredient toxicity values:

SODIUM HYDROXIDE (1310-73-2)

LD50 (intraperitoneal)	40 mg/kg (mouse)
LDLo (oral)	500 mg/kg (rabbit)

Skin

Causes severe burns. Contact may result in irritation, redness, pain, rash, dermatitis and skin burns.

Eye

Causes severe burns. Contact may result in irritation, lacrimation, pain, redness and corneal burns with possible permanent eye damage.

Sensitisation

Not classified as causing skin or respiratory sensitisation.

Mutagenicity

Insufficient data available to classify as a mutagen. Both the in vitro and the in vivo genetic toxicity tests indicated no evidence of mutagenic activity. Furthermore the substance is not expected to be systemically available in the body under normal handling and use conditions and for this reason additional testing is considered unnecessary (EU RAR, 2007).

Carcinogenicity

Not classified as a carcinogen. Insufficient data available to classify as a carcinogen. Systemic carcinogenicity is not expected to occur because the substance is not expected to be systemically available in the body under normal handling and use conditions.

Reproductive

Not classified as a reproductive toxin. Insufficient data available to classify as a reproductive toxin. The substance is not expected to be systemically available in the body under normal handling and use conditions and for this reason it can be stated that the substance will not reach the foetus nor reach male and female reproductive organs. The substance is not expected to be systemically available in the body under normal handling and use conditions and for this reason additional testing is considered unnecessary.

STOT - single exposure

Over exposure may result in irritation of the nose and throat, with coughing. High level exposure may result in breathing difficulties.

STOT - repeated exposure

Not classified as causing organ damage from repeated exposure.

Aspiration

This product does not present an aspiration hazard.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

EC50 Ceriodaphnia: 40 mg/L.

No other valid studies available. The hazard of NaOH for the environment is caused by the hydroxyl ion (pH effect). For this reason the effect of NaOH on the organisms depends on the buffer capacity of the aquatic or terrestrial ecosystem (see also 3.1.2). Also the variation in acute toxicity for aquatic organisms can be explained for a significant extent by the variation in buffer capacity of the test medium. LC50 values ranged between 33 and 189 mg/L.

12.2 Persistence and degradability

Readily biodegradable. NaOH is a strong alkaline substance that dissociates completely in water to Na+ and OH-. High water solubility and low vapour pressure indicate that NaOH will be found predominantly in aquatic environment. This implies that it will not adsorb on particulate matter or surfaces. Atmospheric emissions as aerosols are rapidly neutralized by carbon dioxide and the salts will be washed out by rain.

12.3 Bioaccumulative potential

Does not bioaccumulate. Considering its high water solubility, NaOH is not expected to bioconcentrate in organisms. In addition, sodium is a naturally-occurring element that is prevalent in the environment and to which organisms are exposed regularly, for which they have some capacity to regulate the concentration in the organism.

12.4 Mobility in soil

High water solubility and mobility

12.5 Other adverse effects

WATER: If released to waterways, alkaline products may change the pH of the waterway. Fish will die if the pH reaches 10-11 (goldfish 10.9, bluegill 10.5). SOIL: May leach to groundwater with toxic effects on aquatic life as above. ATMOSPHERE: Not expected to reside in the atmosphere. Drops or particles released to atmosphere should be removed by gravity and/or be rained out.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal Collect without generating dust. Place in clean, sealed containers and dispose of to an approved landfill site. Contact the manufacturer/supplier for additional information (if required). The product can be neutralised using highly diluted hydrochloric acid, which should be added very slowly by specialised personnel wearing proper protection. Never neutralise the solid product.

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE



	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	1823	1823	1823
14.2 Proper Shipping Name	SODIUM HYDROXIDE, SOLID	SODIUM HYDROXIDE, SOLID	SODIUM HYDROXIDE, SOLID
14.3 Transport hazard class	8	8	8
14.4 Packing Group	II	II	II

14.5 Environmental hazards

No information provided.

14.6 Special precautions for user

Hazchem code 2X

GTEPG 8A1

EmS F-A, S-B

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule Classified as a Schedule 6 (S6) Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

Inventory listings **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
All components are listed on AICS, or are exempt.

16. OTHER INFORMATION

Additional information

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

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It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

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[End of SDS]

NEWPARK DRILLING FLUIDS

SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **CITRIC ACID**

Synonyms 2-HYDROXY-1,2,3-PROPANETRICARBOXYLIC ACID ● CITRIC ACID ANHYDROUS ● CITRIC ACID MONOHYDRATE

1.2 Uses and uses advised against

Uses INDUSTRIAL APPLICATIONS

1.3 Details of the supplier of the product

Supplier name **NEWPARK DRILLING FLUIDS (AUSTRALIA) LTD**

Address 11 Alacrity Place, Henderson, WA, 6166, AUSTRALIA

Telephone +61 8 9410 8200

Fax +61 8 9410 8299

Website www.newpark.com

1.4 Emergency telephone numbers

Emergency 1800 127 406 (Australia); +64 4 917 9888 (International)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

Physical Hazards

Not classified as a Physical Hazard

Health Hazards

Skin Corrosion/Irritation: Category 2
Serious Eye Damage / Eye Irritation: Category 2A
Specific Target Organ Toxicity (Single Exposure): Category 3 (Respiratory Irritation)

Environmental Hazards

Not classified as an Environmental Hazard

2.2 GHS Label elements

Signal word **WARNING**

Pictograms



Hazard statements

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

Prevention statements

P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P264	Wash thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Response statements

P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340	IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P321	Specific treatment is advised - see first aid instructions.
P362	Take off contaminated clothing and wash before re-use.

Storage statements

P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

Disposal statements

P501	Dispose of contents/container in accordance with relevant regulations.

2.3 Other hazards

No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
CITRIC ACID	77-92-9	201-069-1	>99%
WATER	7732-18-5	231-791-2	<1%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

Ingestion For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). If swallowed, do not induce vomiting.

First aid facilities Eye wash facilities and safety shower should be available.

4.2 Most important symptoms and effects, both acute and delayed

Irritating to the eyes, skin and respiratory system.

4.3 Immediate medical attention and special treatment needed

Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Dry agent, carbon dioxide, foam or water fog. Prevent contamination of drains or waterways.

5.2 Special hazards arising from the substance or mixture

Combustible. May evolve carbon oxides and hydrocarbons when heated to decomposition.

5.3 Advice for firefighters

Evacuate area and contact emergency services. Toxic gases may be evolved in a fire situation. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

5.4 Hazchem code

None allocated.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Ventilate area where possible.

6.2 Environmental precautions
Prevent product from entering drains and waterways.

6.3 Methods of cleaning up
Contain spillage, then collect and place in suitable containers for disposal. Avoid generating dust.

6.4 Reference to other sections
See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool, dry, well ventilated area, removed from moisture, incompatible substances and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use.

7.3 Specific end uses
No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters
Exposure standards

No exposure standards have been entered for this product.

Biological limits No Biological Limit Value allocated.

8.2 Exposure controls
Engineering controls Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended. Maintain dust levels below the recommended exposure standard.

PPE

Eye / Face	Wear dust-proof goggles.
Hands	Wear PVC or rubber gloves.
Body	When using large quantities or where heavy contamination is likely, wear coveralls.
Respiratory	At high dust levels, wear a Class P1 (Particulate) respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	WHITE CRYSTALLINE POWDER
Odour	ODOURLESS
Flammability	COMBUSTIBLE
Flash point	174°C
Boiling point	175°C (Decomposes)
Melting point	153°C

9.1 Information on basic physical and chemical properties

Evaporation rate	NOT AVAILABLE
pH	2.2 (0.1M Solution)
Vapour density	NOT AVAILABLE
Specific gravity	1.665
Solubility (water)	1330 kg/m³ @ 20°C
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT AVAILABLE
Lower explosion limit	NOT AVAILABLE
Partition coefficient	NOT AVAILABLE
Autoignition temperature	345°C
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

10. STABILITY AND REACTIVITY

10.1 Reactivity
Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability
Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions
Polymerization is not expected to occur.

10.4 Conditions to avoid
Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials
Incompatible with oxidising agents (e.g. hypochlorites) and alkalis (e.g. sodium hydroxide).

10.6 Hazardous decomposition products
May evolve carbon oxides and hydrocarbons when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity Based on available data, the classification criteria are not met.
LD50 (Ingestion): 3000 mg/kg (rat)
LD50 (Intraperitoneal): 290 mg/kg (rat)
LD50 (Intravenous): 42 mg/kg (mouse)
LDLo (Ingestion): 7000 mg/kg (rabbit)

Information available for the ingredients:

Ingredient	Oral LD50	Dermal LD50	Inhalation LC50
CITRIC ACID	3000 mg/kg (rat)	> 2000 mg/kg (rat)	--

Additional ingredient toxicity values:

CITRIC ACID (77-92-9)

LD50 (intraperitoneal)	290 mg/kg (rat)
LD50 (intravenous)	42 mg/kg (mouse)
LDLo (oral)	7000 mg/kg (rabbit)

Skin Irritating to the skin. Contact may result in irritation, redness, rash and dermatitis.

Eye Irritating to the eyes. Contact may result in irritation, lacrimation, pain and redness. May result in burns with prolonged contact.

Sensitisation Not classified as causing skin or respiratory sensitisation. However, citric acid has the potential to cause allergic effects.

Mutagenicity Insufficient data available to classify as a mutagen.

Carcinogenicity	Insufficient data available to classify as a carcinogen.
Reproductive	Insufficient data available to classify as a reproductive toxin.
STOT - single exposure	Irritating to the respiratory system. Over exposure may result in irritation of the nose and throat, with coughing.
STOT - repeated exposure	Not classified as causing organ damage from repeated exposure.
Aspiration	This product does not present an aspiration hazard.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

LC50 (Leuciscus idus melanotus): 440 mg/L/48hrs.
LC50 (Daphnia magna (Water flea)): 1.535 mg/L/24hrs.

12.2 Persistence and degradability

This product is readily biodegradable.

12.3 Bioaccumulative potential

This product does not bioaccumulate.

12.4 Mobility in soil

Citric acid is expected to have very high mobility in soil (HSDB).

12.5 Other adverse effects

No information provided.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal	Neutralise with lime, anion exchanger or similar. For small amounts, absorb with sand or similar and dispose of to an approved landfill site. Contact the manufacturer/supplier for additional information (if required).
Legislation	Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE, IMDG OR IATA

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	None allocated.	None allocated.	None allocated.
14.2 Proper Shipping Name	None allocated.	None allocated.	None allocated.
14.3 Transport hazard class	None allocated.	None allocated.	None allocated.
14.4 Packing Group	None allocated.	None allocated.	None allocated.

14.5 Environmental hazards

No information provided.

14.6 Special precautions for user

Hazchem code None allocated.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule	A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).
Classifications	Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

Inventory listings **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
All components are listed on AICS, or are exempt.

16. OTHER INFORMATION

Additional information

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

Prepared by

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[End of SDS]

NEWPARK DRILLING FLUIDS

SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **DEFOAM AP 400**

Synonyms DEFOAMER

1.2 Uses and uses advised against

Uses TREATMENT OF FOAMING IN DRILLING FLUIDS

1.3 Details of the supplier of the product

Supplier name **NEWPARK DRILLING FLUIDS (AUSTRALIA) LTD**

Address 11 Alacrity Place, Henderson, WA, 6166, AUSTRALIA

Telephone +61 8 9410 8200

Fax +61 8 9410 8299

Website www.newpark.com

1.4 Emergency telephone numbers

Emergency 1800 127 406 (Australia); +64 4 917 9888 (International)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

2.2 GHS Label elements

No signal word, pictograms, hazard or precautionary statements have been allocated.

2.3 Other hazards

No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
POLYETHYLENE GLYCOL	25322-68-3	500-038-2	45 to 60%
OCTAN-2-OL	123-96-6	204-667-0	40 to 55%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

Ingestion For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor (at once).

First aid facilities None allocated.

4.2 Most important symptoms and effects, both acute and delayed
Adverse effects not expected from this product under normal conditions of use.

4.3 Immediate medical attention and special treatment needed
Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media
Use an extinguishing agent suitable for the surrounding fire.

5.2 Special hazards arising from the substance or mixture
Non flammable. May evolve carbon oxides and hydrocarbons when heated to decomposition.

5.3 Advice for firefighters
Treat as per requirements for surrounding fires. Evacuate area and contact emergency services. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

5.4 Hazchem code
None allocated.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Clear area of all unprotected personnel. Ventilate area where possible. Contact emergency services where appropriate.

6.2 Environmental precautions
Prevent product from entering drains and waterways.

6.3 Methods of cleaning up
Contain spillage, then cover / absorb spill with non-combustible absorbent material (vermiculite, sand, or similar), collect and place in suitable containers for disposal. Eliminate all sources of ignition.

6.4 Reference to other sections
See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool, dry, well ventilated area, removed from incompatible substances, heat or ignition sources and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use. Check regularly for leaks or spills. Large storage areas should have appropriate ventilation systems.

7.3 Specific end uses
No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters
Exposure standards

No exposure standards have been entered for this product.

Biological limits

No biological limit values have been entered for this product.

8.2 Exposure controls

Engineering controls Avoid inhalation. Use in well ventilated areas.

PPE

Eye / Face	Wear splash-proof goggles.
Hands	Wear PVC or rubber gloves.
Body	When using large quantities or where heavy contamination is likely, wear coveralls.
Respiratory	Where an inhalation risk exists, wear a Type A (Organic vapour) respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	CLEAR COLOURLESS LIQUID
Odour	ODOURLESS
Flammability	NON FLAMMABLE
Flash point	NOT RELEVANT
Boiling point	100°C to 102°C
Melting point	NOT AVAILABLE
Evaporation rate	NOT AVAILABLE
pH	7 to 8
Vapour density	NOT AVAILABLE
Specific gravity	1.00 to 1.17
Solubility (water)	SOLUBLE
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

9.2 Other information

Freezing point	-7°C to 0°C

10. STABILITY AND REACTIVITY

10.1 Reactivity

Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability

Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions

Polymerization is not expected to occur.

10.4 Conditions to avoid

Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials

Incompatible with oxidising agents (e.g. hypochlorites), acids (e.g. nitric acid), heat and ignition sources.

10.6 Hazardous decomposition products

May evolve carbon oxides and hydrocarbons when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity This product is expected to be of low acute toxicity. Under normal conditions of use, adverse health effects are not anticipated.

Information available for the ingredients:

Ingredient	Oral LD50	Dermal LD50	Inhalation LC50
POLYETHYLENE GLYCOL	> 15,000 mg/kg (rat)	> 20,000 mg/kg (rabbit)	--
OCTAN-2-OL	--	2000 mg/kg (rat)	--

Skin Not classified as a skin irritant. Contact may cause temporary mild skin irritation.

Eye Not classified as an eye irritant. Contact may cause discomfort, lacrimation and redness.

Sensitisation Not classified as causing skin or respiratory sensitisation.

Mutagenicity Not classified as a mutagen.

Carcinogenicity Not classified as a carcinogen.

Reproductive Not classified as a reproductive toxin.

STOT - single exposure Not classified as causing organ damage from single exposure.

STOT - repeated exposure Not classified as causing organ damage from repeated exposure.

Aspiration Not classified as causing aspiration.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

No information provided.

12.2 Persistence and degradability

No information provided.

12.3 Bioaccumulative potential

No information provided.

12.4 Mobility in soil

No information provided.

12.5 Other adverse effects

No information provided.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal Dispose of to an approved landfill or waste processing site. Contact the manufacturer/supplier for additional information (if required).

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE, IMDG OR IATA

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	None allocated.	None allocated.	None allocated.
14.2 Proper Shipping Name	None allocated.	None allocated.	None allocated.
14.3 Transport hazard class	None allocated.	None allocated.	None allocated.
14.4 Packing Group	None allocated.	None allocated.	None allocated.

14.5 Environmental hazards

No information provided.

14.6 Special precautions for user

Hazchem code None allocated.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

Inventory listings **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
All components are listed on AICS, or are exempt.

16. OTHER INFORMATION

Additional information

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
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EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer
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LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

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It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

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Prepared by

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[End of SDS]

Driscal® D Polymer

ersion 1.10 evision ate 2018-09-20

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product information

Product Name : riscal Pol mer
Material : 1112534 1016818

Company : Chevron Phillips Chemical Compan P
rillin pecialties Compan C
10001 ix Pines rive
The oodlands T 77380

ocal : Chevron Phillips Chemicals ustralia Pte td
uite 409
685 urke oad
Camber ell ictoria
ustralia 3124
Hours o peration: 9:00 a.m. - 5:00 p.m.

e uests: 61 3 8080 5700
Technical n ormation: 61 3 8080 5700
esponsible Part : Product a et roup
mail:sds@cpchem.com

Emergency telephone:

Health:
866.442.9628 (North merica)
1.832.813.4984 (nternational)
61 3 8080 5700 (ustralia)

Transport:
CH MT C 800.424.9300 or 703.527.3887(int l)
sia: CH M TCH (612 9186 1132) China: 0532 8388 9090
P : 32.14.584545 (phone) or 32.14583516 (tele ax)
Mexico CH MT C 01-800-681-9531 (24 hours)
outh merica -Cotec nside razil: 0800.111.767 utside razil: 55.19.3467.1600
r entina: (54)-1159839431

esponsible epartment	:	Product a et and Toxicolo roup
-mail address	:	@CPChem.com
ebsite	:	.CPChem.com

SECTION 2: Hazards identification

Classification of the substance or mixture
Model Work Health and Safety Regulations 2011, Model Code of Practice for the Labelling of Workplace Hazardous Chemicals (2011), Guidance on the Classification of Hazardous Chemicals under the WHS Regulations (2012) (GHS 2009)

Classification

Not a hazardous substance or mixture.

Labeling

Not a hazardous substance or mixture.

SECTION 3: Composition/information on ingredients

non ms	:	Hi h Temperature Pol mer

Contains no hazardous in redients accordin to H .

SECTION 4: First aid measures

eneral advice	:	No hazards hich re uire special irst aid measures.
inhaled	:	unconscious place in recover position and seek medical advice. s mptoms persist call a ph sician.
n case o e e contact	:	emove contact lenses. Protect unharmed e e. e e irritation persists consult a specialist.
s allo ed	:	eep respirator tract clear. Never ive an thin b mouth to an unconscious person. s mptoms persist call a ph sician.

SECTION 5: Firefighting measures

Flash point	:	Not applicable
utoi nition temperature	:	No data available
peci ic hazards durin ire i htin	:	isks o i nition ollo ed b lame propa ation or secondar explosions can be caused b the accumulation o dust e. . on loors and led es.
pecial protective e uipment or ire- i hters	:	ear sel -contained breathin apparatus or ire i htin i necessar .
Further in ormation	:	tandard procedure or chemical ires. se extin uishin measures that are appropriate to local circumstances and the surroundin environment.

Fire and explosion protection	:	void eneratin dust ine dust dispersed in air in su icient concentrations and in the presence o an i nition source is a potential dust explosion hazard. Provide appropriate exhaust ventilation at places here dust is ormed.
Hazardous decomposition products	:	No data available.

SECTION 6: Accidental release measures

Personal precautions	:	void dust ormation.
nvironmental precautions	:	the product contaminates rivers and lakes or drains in orm respective authorities.
Methods or cleanin up	:	Pick up and arran e disposal ithout creatin dust. Clean up promptl b s eepin or vacuum. eep in suitable closed containers or disposal.
dditional advice	:	Contaminated sur aces ill be extremel slipper . void spilla e on loor as the product can become ver slipper hen et. eep up to prevent slippin hazard. ust deposits should not be allo ed to accumulate on sur aces as these ma orm an explosive mixture i the are released into the atmosphere in su icient concentration. void dispersal o dust in the air (i.e. clearin dust sur aces ith compressed air).

SECTION 7: Handling and storage

Handling

dvice on sa e handlin	:	For personal protection see section 8. mokin eatin and drinkin should be prohibited in the application area. lectrostatic char e ma accumulate and create a hazardous condition hen handlin this material. To minimize this hazard bondin and roundin ma be necessar but ma not b themselves be su icient.
dvice on protection a ainst ire and explosion	:	void eneratin dust ine dust dispersed in air in su icient concentrations and in the presence o an i nition source is a potential dust explosion hazard. Provide appropriate exhaust ventilation at places here dust is ormed.

Storage

e uirements or stora e areas and containers	:	lectrical installations orkin materials must compl ith the technolo ical sa et standards.
dvice on common stora e	:	No materials to be especiall mentioned.

SECTION 8: Exposure controls/personal protection

Engineering measures

Consider the potential hazards o this material (see ection 2) applicable exposure limits ob activities and other substances in the ork place hen desi nin en ineerin controls and selectin personal protective e uipment. en ineerin controls or ork practices are not ade uate to prevent exposure to harm ul levels o this material the personal protective e uipment listed belo is recommended. The user should read and understand all instructions and limitations supplied ith the e uipment since protection is usuall provided or a limited time or under certain circumstances.

Personal protective equipment

espirator protection	:	ear a supplied-air N H approved respirator unless ventilation or other en ineerin controls are ade uate to maintain minimal ox en content o 19.5 b volume under normal atmospheric pressure. ear a N H approved respirator that provides protection hen orkin ith this material i exposure to harm ul levels o airborne material ma occur such as:. ir-Puri in espirator or usts and Mists P100. se a positive pressure air-suppl in respirator i there is potential or uncontrolled release exposure levels are not kno n or other circumstances here air-puri in respirators ma not provide ade uate protection.
Hand protection	:	The suitabilit or a speci ic orkplace should be discussed ith the producers o the protective loves. Please observe the instructions re ardin permeabilit and breakthrou h time hich are provided b the supplier o the loves. lso take into consideration the speci ic local conditions under hich the product is used such as the dan er o cuts abrasion and the contact time. loves should be discarded and replaced i there is an indication o de radation or chemical breakthrou h.
e protection	:	e ash bottle ith pure ater. a et lasses.
kin and bod protection	:	Choose bod protection in relation to its t pe to the concentration and amount o dan erous substances and to the speci ic ork-place. ear as appropriate:. Protective suit. a et shoes.
H iene measures	:	eneral industrial h iene practice.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance

Form	:	Po der
Ph sical state	:	olid
Color	:	hite
dor	:	No odor
dor Threshold	:	No data available

Safety data

Flash point	:	Not applicable
o er explosion limit	:	No data available
pper explosion limit	:	No data available

xidizin properties	:	No
utoi nition temperature	:	No data available
Thermal decomposition	:	No data available
Molecular ei ht	:	Not applicable
pH	:	Not applicable
Pour point	:	No data available
oilin point boilin ran e	:	No data available
apor pressure	:	No data available
elative densit	:	1.44
ensit	:	No data available
ater solubilit	:	oluble
Partition coe icient: n-octanol ater	:	Po : 3
iscosit kinematic	:	No data available
elative vapor densit	:	No data available
vaporation rate	:	No data available

SECTION 10: Stability and reactivity

Chemical stability : This material is considered stable under normal ambient and anticipated stora e and handlin conditions o temperature and pressure.

Possibility of hazardous reactions

Hazardous reactions : Hazardous reactions: Hazardous pol merization does not occur.

Further in ormation: table under recommended stora e conditions. No hazards to be speciall mentioned.

Conditions to avoid : eneration o usts.

Thermal decomposition : No data available

Hazardous decomposition products : No data available

Other data : No decomposition i stored and applied as directed.

SECTION 11: Toxicological information

Driscal® D Polymer
Further information : The product contains no substances classi ied as hazardous to health in concentrations hich should be taken into account.

SECTION 12: Ecological information

iode radabilit : Takin into consideration the properties o several in redients the product is estimated not to be readil biode radable accordin to C classi ication.

limination in ormation (persistence and de radabilit)

ioaccumulation : ccumulation in a uatic or anisms is unlikel .

dditional ecolo ical in ormation : This material is not expected to be harm ul to a uatic or anisms.

Ecotoxicology Assessment

SECTION 13: Disposal considerations

The in ormation in this pertains onl to the product as shipped.

se material or its intended purpose or rec cle i possible. This material i it must be discarded ma meet the criteria o a hazardous aste as de ined b P under C (40 CF 261) or other tate and local re ulations. Measurement o certain ph sical properties and anal sis or re ulated components ma be necessar to make a correct determination. this material is classi ied as a hazardous aste ederal la re uires disposal at a licensed hazardous aste disposal acilit .

Contaminated packa in : mpt containers should be taken to an approved aste handlin site or rec clin or disposal.

SECTION 14: Transport information

The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).

Consult the appropriate domestic or international mode-speci ic and uantit -speci ic an erous oods e ulations or additional shippin description re uirements (e. . technical name or names etc.) There ore the in ormation sho n here ma not al a s a ree ith the bill o ladin shippin description or the material. Flashpoints or the material ma var sli htl bet een the and the bill o ladin .

US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)

N T T H M T N F
T N P T T N TH NC .

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)
N T T H M T N F
T N P T T N TH NC .

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)
N T T H M T N F
T N P T T N TH NC .

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))
N T T H M T N F
T N P T T N TH NC .

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))
N T T H M T N F
T N P T T N TH NC .

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)
N T T H M T N F
T N P T T N TH NC .

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

SECTION 15: Regulatory information

National legislation

tandard or the ni orm : No poison schedule number allocated
chedulin o Medicines and Poisons

Notification status

urope CH : n the inventor or in compliance ith the inventor
itzerland CH N : n the inventor or in compliance ith the inventor
nited tates o merica ( ) : n T C nventor T C
Canada : ll components o this product are on the Canadian

ustralia C : n the inventor or in compliance ith the inventor
Ne ealand N oC : n the inventor or in compliance ith the inventor
Japan NC : Not in compliance ith the inventor
orea C : Not in compliance ith the inventor
Philippines P CC : Not in compliance ith the inventor
China C C : This product contains one or more substances that have been noti ied under Ne ubstances Noti ication

la s. Ho ever onl CPChem and other independent noti iers are approved to be the importers o record.

SECTION 16: Other information

Further information

e ac Number : 244990

i ni icant chan es since the last version are hi hli hted in the mar in. This version replaces all previous versions.

The in ormation in this pertains onl to the product as shipped.

The in ormation provided in this a et ata heet is correct to the best o our kno led e in ormation and belie at the date o its publication. The in ormation iven is desi ned onl as a uidance or sa e handlin use processin stora e transportation disposal and release and is not to be considered a arrant or ualit speci ication. The in ormation relates onl to the speci ic material desi nated and ma not be valid or such material used in combination ith an other materials or in an process unless speci ied in the text.

e or le end to abbreviations and acron ms used in the sa et data sheet			
C H	merican Con erence o overnment ndustrial H ienists	50	ethal ose 50
C	ustralia nventor o Chemical ubstances		o est bserved dverse ect evel
	Canada omestic ubstances ist	NFP	National Fire Protection enc
N	Canada Non- omestic ubstances ist	N H	National nstitute or ccupational a et & Health
CN	Central Nervous stem	NTP	National Toxicolo Pro ram
C	Chemical bstract ervice	N loC	Ne ealand nventor o Chemicals
C50	ective Concentration	N	No bservable dverse ect evel
C50	ective Concentration 50	N C	No bserved ect Concentration
T	C eneric xposure cenario Tool	H	ccupational a et & Health dministration
C	uropean il ield pecialt Chemicals ssociation	P	Permissible xposure imit
N C	uropean nventor o xistin Chemical ubstances	P CC	Philippines nventor o Commercial Chemical ubstances
M	erman Maximum Concentration alues	P NT	Presumed Not Toxic
H	loball Harmonized stem	C	esource Conservation ecover ct
	reater Than or ual To	T	hort-term xposure imit
C50	nhibition Concentration 50		uper und mendments and eauthorization ct.
C	nternational enc or esearch on Cancer	T	Threshold imit alue
C C	nventor o xistin Chemical ubstances in China	T	Time ei hted vera e
NC	Japan nventor o xistin and Ne Chemical ubstances	T C	Toxic ubstance Control ct
C	orea xistin Chemical nventor	C	nkno n or ariable Composition Complex eaction Products and iolo ical Materials
	ess Than or ual To	HM	orkplace Hazardous Materials n ormation stem
C50	ethal Concentration 50		

NEWPARK DRILLING FLUIDS

SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **DSCO DEFOAM**

Synonyms 1093242, 1016819 - MATERIAL NUMBER

1.2 Uses and uses advised against

Uses DEFOAMER ● DEFOAMING AGENT

1.3 Details of the supplier of the product

Supplier name **NEWPARK DRILLING FLUIDS (AUSTRALIA) LTD**

Address 11 Alacrity Place, Henderson, WA, 6166, AUSTRALIA

Telephone +61 8 9410 8200

Fax +61 8 9410 8299

Website www.newpark.com

1.4 Emergency telephone numbers

Emergency 1800 127 406 (Australia); +64 4 917 9888 (International)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

2.2 GHS Label elements

No signal word, pictograms, hazard or precautionary statements have been allocated.

2.3 Other hazards

No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
POLYPROPYLENE GLYCOL	25322-69-4	500-039-8	>60%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

Ingestion For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor (at once).

First aid facilities Eye wash facilities and safety shower should be available.

4.2 Most important symptoms and effects, both acute and delayed

Adverse effects not expected from this product under normal conditions of use.

4.3 Immediate medical attention and special treatment needed
Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media
Dry agent, carbon dioxide or foam. Prevent contamination of drains and waterways.

5.2 Special hazards arising from the substance or mixture
Combustible. May evolve carbon oxides and hydrocarbons when heated to decomposition.

5.3 Advice for firefighters
Evacuate area and contact emergency services. Toxic gases may be evolved in a fire situation. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

5.4 Hazchem code
None allocated.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Clear area of all unprotected personnel. Ventilate area where possible. Contact emergency services where appropriate.

6.2 Environmental precautions
Prevent product from entering drains and waterways.

6.3 Methods of cleaning up
Contain spillage, then cover / absorb spill with non-combustible absorbent material (vermiculite, sand, or similar), collect and place in suitable containers for disposal.

6.4 Reference to other sections
See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool, dry, well ventilated area, removed from incompatible substances, heat or ignition sources and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use. Large storage areas should have appropriate ventilation systems. Store as a Class C2 Combustible Liquid (AS1940).

7.3 Specific end uses
No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters
Exposure standards

No exposure standards have been entered for this product.

Biological limits

No biological limit values have been entered for this product.

8.2 Exposure controls
Engineering controls Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended.

PPE

Eye / Face	Wear splash-proof goggles.
Hands	Wear PVC or rubber gloves.
Body	When using large quantities or where heavy contamination is likely, wear coveralls. In a laboratory situation, wear a laboratory coat.
Respiratory	Where an inhalation risk exists, wear a Type A (Organic vapour) respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	CLEAR TO LIGHT AMBER LIQUID
Odour	SLIGHT ODOUR
Flammability	CLASS C2 COMBUSTIBLE
Flash point	185°C
Boiling point	NOT AVAILABLE
Melting point	NOT AVAILABLE
Evaporation rate	NOT AVAILABLE
pH	NOT AVAILABLE
Vapour density	NOT AVAILABLE
Specific gravity	1.00
Solubility (water)	SLIGHTLY SOLUBLE
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT AVAILABLE
Lower explosion limit	NOT AVAILABLE
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE

10. STABILITY AND REACTIVITY

10.1 Reactivity

Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability

Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions

Polymerization is not expected to occur.

10.4 Conditions to avoid

Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials

Incompatible with oxidising agents (e.g. hypochlorites), acids (e.g. nitric acid), heat and ignition sources.

10.6 Hazardous decomposition products

May evolve carbon oxides and hydrocarbons when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity This product is expected to be of low acute toxicity. Under normal conditions of use, adverse health effects

are not anticipated.

Information available for the ingredients:

Ingredient	Oral LD50	Dermal LD50	Inhalation LC50
POLYPROPYLENE GLYCOL	300 - 57000 mg/kg (range)	--	--

Skin Not classified as a skin irritant. Contact may cause temporary mild skin irritation.

Eye Not classified as an eye irritant. Contact may cause discomfort, lacrimation and redness.

Sensitisation Not classified as causing skin or respiratory sensitisation.

Mutagenicity No evidence of mutagenic effects.

Carcinogenicity No evidence of carcinogenic effects.

Reproductive No relevant or reliable studies were identified.

STOT - single exposure Not classified as causing organ damage from single exposure.

STOT - repeated exposure Not classified as causing organ damage from repeated exposure.

Aspiration This product does not present an aspiration hazard.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

No information provided.

12.2 Persistence and degradability

No information provided.

12.3 Bioaccumulative potential

No information provided.

12.4 Mobility in soil

No information provided.

12.5 Other adverse effects

No information provided.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal For small amounts, absorb with sand, vermiculite or similar and dispose of to an approved landfill site. For large quantities, contact the manufacturer/supplier for additional information.

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE, IMDG OR IATA

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	None allocated.	None allocated.	None allocated.
14.2 Proper Shipping Name	None allocated.	None allocated.	None allocated.
14.3 Transport hazard class	None allocated.	None allocated.	None allocated.
14.4 Packing Group	None allocated.	None allocated.	None allocated.

14.5 Environmental hazards

No information provided.

14.6 Special precautions for user

Hazchem code None allocated.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

Inventory listings

AUSTRALIA: AICS (Australian Inventory of Chemical Substances)
All components are listed on AICS, or are exempt.
NEW ZEALAND: NZIoC (New Zealand Inventory of Chemicals)
All components are listed on the NZIoC inventory, or are exempt.

16. OTHER INFORMATION

Additional information

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

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[End of SDS]

NEWPARK DRILLING FLUIDS

SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **FLEXFIRM KA**

Synonyms POTASSIUM SILICATE POWDER

1.2 Uses and uses advised against

Uses DRILLING AID

1.3 Details of the supplier of the product

Supplier name **NEWPARK DRILLING FLUIDS (AUSTRALIA) LTD**

Address 11 Alacrity Place, Henderson, WA, 6166, AUSTRALIA

Telephone +61 8 9410 8200

Fax +61 8 9410 8299

Website www.newpark.com

1.4 Emergency telephone numbers

Emergency 1800 127 406 (Australia); +64 4 917 9888 (International)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

Physical Hazards

Not classified as a Physical Hazard

Health Hazards

Acute Toxicity: Oral: Category 4
Skin Corrosion/Irritation: Category 2
Serious Eye Damage / Eye Irritation: Category 2A
Specific Target Organ Toxicity (Single Exposure): Category 3 (Respiratory Irritation)
Specific Target Organ Toxicity (Repeated Exposure): Category 2

Environmental Hazards

Not classified as an Environmental Hazard

2.2 GHS Label elements

Signal word **WARNING**

Pictograms



Hazard statements

H302	Harmful if swallowed.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H373	May cause damage to organs through prolonged or repeated exposure.

Prevention statements

P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P264	Wash thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Response statements

P301 + P312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340	IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P314	Get medical advice/attention if you feel unwell.
P321	Specific treatment is advised - see first aid instructions.
P330	Rinse mouth.
P332 + P337 + P313	If skin or eye irritation occurs: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before re-use.

Storage statements

P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

Disposal statements

P501	Dispose of contents/container in accordance with relevant regulations.

2.3 Other hazards

No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
POTASSIUM SILICATE	1312-76-1	215-199-1	99%
QUARTZ (CRYSTALLINE SILICA)	14808-60-7	238-878-4	0.1 to 1%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

Ingestion For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). If swallowed, do not induce vomiting.

First aid facilities None allocated.

4.2 Most important symptoms and effects, both acute and delayed

Irritating to the eyes and skin.

4.3 Immediate medical attention and special treatment needed

Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Use an extinguishing agent suitable for the surrounding fire.

5.2 Special hazards arising from the substance or mixture

Non flammable. May evolve toxic gases if strongly heated.

5.3 Advice for firefighters
Treat as per requirements for surrounding fires. Evacuate area and contact emergency services. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

5.4 Hazchem code
None allocated.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Ventilate area where possible.

6.2 Environmental precautions
Prevent product from entering drains and waterways.

6.3 Methods of cleaning up
Contain spillage, then collect and place in suitable containers for disposal. Avoid generating dust.

6.4 Reference to other sections
See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool, dry, well ventilated area, removed from incompatible substances and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use. Check regularly for leaks or spills.

7.3 Specific end uses
No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters
Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m³	ppm	mg/m³
Quartz (respirable dust)	SWA [AUS]	--	0.1	--	--
Quartz (respirable dust)	SWA [Proposed]	--	0.05	--	--
Quartz (respirable dust)	WorkSafe VIC	--	0.05	--	--

Biological limits
No biological limit values have been entered for this product.

8.2 Exposure controls
Engineering controls Avoid inhalation. Use in well ventilated areas.

PPE

Eye / Face	Wear dust-proof goggles.
Hands	Wear PVC or rubber gloves.
Body	When using large quantities or where heavy contamination is likely, wear coveralls.
Respiratory	Where an inhalation risk exists, wear a Class P1 (Particulate) respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	WHITE POWDER
Odour	ODOURLESS
Flammability	NON FLAMMABLE
Flash point	NOT RELEVANT
Boiling point	NOT AVAILABLE
Melting point	NOT AVAILABLE
Evaporation rate	NOT AVAILABLE
pH	11.3 (50 % solution) (Approximately)
Vapour density	NOT AVAILABLE
Specific gravity	NOT AVAILABLE
Solubility (water)	SOLUBLE
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

10. STABILITY AND REACTIVITY

10.1 Reactivity

Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability

Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions

Polymerization is not expected to occur.

10.4 Conditions to avoid

Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials

Incompatible with oxidising agents (e.g. hypochlorites) and acids (e.g. nitric acid).

10.6 Hazardous decomposition products

May evolve toxic gases if heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity Harmful if swallowed.

Information available for the ingredients:

Ingredient	Oral LD50	Dermal LD50	Inhalation LC50
POTASSIUM SILICATE	1600 mg/kg (rat)	--	--

Skin Contact may result in irritation, redness, rash and dermatitis.

Eye Contact may result in irritation, lacrimation, pain and redness.

Sensitisation Not classified as causing skin or respiratory sensitisation.

Mutagenicity Not classified as a mutagen.

Carcinogenicity Crystalline silica is classified as carcinogenic to humans (IARC Group 1). However, there is a body of evidence supporting the fact that increased cancer risk would be limited to people already suffering from silicosis.

Reproductive Not classified as a reproductive toxin.

STOT - single exposure Over exposure may result in irritation of the nose and throat, with coughing. High level exposure may result in breathing difficulties.

STOT - repeated exposure Repeated exposure to respirable silica may result in pulmonary fibrosis (silicosis). Silicosis is a fibronodular lung disease caused by deposition in the lungs of fine respirable particles of crystalline silica. Principal symptoms of silicosis are coughing and breathlessness.

Aspiration Not classified as causing aspiration.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

The high pH when undiluted or unneutralized is acutely harmful to aquatic life. The following data is reported for chemically similar Sodium Silicates on a 100% solids basis: A 96 hour median tolerance for fish (Gambusia affnis) of 2320 ppm; a 96 hour median tolerance for water fleas (Daphnia magna) of 247 ppm; a 96 hour median tolerance for snail eggs (Lymnea) of 632 ppm; and a 96 hour median tolerance for Amphipoda of 160 ppm.

12.2 Persistence and degradability

This material is not persistent in aquatic systems.

12.3 Bioaccumulative potential

Neither silica nor potassium will appreciably bio-concentrate up the food chain.

12.4 Mobility in soil

Expected to be mobile in soil. Diluted material rapidly depolymerizes to yield dissolved silica in a form that is indistinguishable from natural dissolved silica.

12.5 Other adverse effects

No information provided.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal Collect without generating dust. Place in clean, sealed containers and dispose of to an approved landfill site. Contact the manufacturer/supplier for additional information (if required).

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE, IMDG OR IATA

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	None allocated.	None allocated.	None allocated.
14.2 Proper Shipping Name	None allocated.	None allocated.	None allocated.
14.3 Transport hazard class	None allocated.	None allocated.	None allocated.
14.4 Packing Group	None allocated.	None allocated.	None allocated.

14.5 Environmental hazards

No information provided.

14.6 Special precautions for user

Hazchem code None allocated.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule Classified as a Schedule 5 (S5) Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

Inventory listings **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
All components are listed on AICS, or are exempt.

16. OTHER INFORMATION

Additional information

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

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[End of SDS]

NEWPARK DRILLING FLUIDS

SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **FRAC ATTACK**

Synonyms FRAC-ATTACK

1.2 Uses and uses advised against

Uses LOST CIRCULATION MATERIAL

1.3 Details of the supplier of the product

Supplier name **NEWPARK DRILLING FLUIDS (AUSTRALIA) LTD**

Address 11 Alacrity Place, Henderson, WA, 6166, AUSTRALIA

Telephone +61 8 9410 8200

Fax +61 8 9410 8299

Website www.newpark.com

1.4 Emergency telephone numbers

Emergency 1800 127 406 (Australia); +64 4 917 9888 (International)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

Physical Hazards

Not classified as a Physical Hazard

Health Hazards

Skin Corrosion/Irritation: Category 2
Serious Eye Damage / Eye Irritation: Category 1
Specific Target Organ Toxicity (Single Exposure): Category 3 (Respiratory Irritation)

Environmental Hazards

Not classified as an Environmental Hazard

2.2 GHS Label elements

Signal word **DANGER**

Pictograms



Hazard statements

H315	Causes skin irritation.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.

Prevention statements

P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P264	Wash thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Response statements

P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340	IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor/physician.
P321	Specific treatment is advised - see first aid instructions.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before re-use.

Storage statements

P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

Disposal statements

P501	Dispose of contents/container in accordance with relevant regulations.

2.3 Other hazards

No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
CELLULOSE	9004-34-6	232-674-9	<30%
DIATOMACEOUS EARTH	61790-53-2	612-383-7	<15%
FULLERS EARTH	8031-18-3	617-052-0	<12%
CALCIUM OXIDE	1305-78-8	215-138-9	<10%
CALCIUM HYDROXIDE	1305-62-0	215-137-3	<5%
CRISTOBALITE	14464-46-1	238-455-4	<5%
QUARTZ (CRYSTALLINE SILICA)	14808-60-7	238-878-4	<3%
MAGNESIUM OXIDE	1309-48-4	215-171-9	<2%
1,3 BUTADIENE/STYRENE COPOLYMERS	9003-55-8	618-370-2	<50%
2-PROPENENITRILE-1,3-BUTADIENE RUBBER	9003-18-3	618-357-1	<50%
NATURAL RUBBER	9006-04-6	232-689-0	<50%
POLYISOPRENE	9003-31-0	618-362-9	<50%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

Ingestion For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). If swallowed, do not induce vomiting.

First aid facilities Eye wash facilities should be available.

4.2 Most important symptoms and effects, both acute and delayed

Irritating to the eyes and skin.

4.3 Immediate medical attention and special treatment needed

Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media
Use an extinguishing agent suitable for the surrounding fire.

5.2 Special hazards arising from the substance or mixture
Non flammable.

5.3 Advice for firefighters
Treat as per requirements for surrounding fires. Evacuate area and contact emergency services. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

5.4 Hazchem code
None allocated.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Ventilate area where possible.

6.2 Environmental precautions
Prevent product from entering drains and waterways.

6.3 Methods of cleaning up
Contain spillage, then collect and place in suitable containers for disposal. Avoid generating dust.

6.4 Reference to other sections
See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool, dry, well ventilated area, removed from incompatible substances and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use. Check regularly for leaks or spills.

7.3 Specific end uses
No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters
Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m³	ppm	mg/m³
Calcium hydroxide	SWA [AUS]	--	5	--	--
Calcium hydroxide	SWA [Proposed]	--	1	--	--
Calcium oxide	SWA [AUS]	--	2	--	--
Calcium oxide	SWA [Proposed]	--	1	--	--
Cellulose (paper fibre) (a)	SWA [AUS]	--	10	--	--
Cristobalite	SWA [AUS]	--	0.1	--	--
Diatomaceous earth (uncalcined) (a)	SWA [AUS]	--	10	--	--
Magnesium oxide (fume)	SWA [AUS]	--	10	--	--
Quartz (respirable dust)	SWA [AUS]	--	0.1	--	--
Quartz (respirable dust)	SWA [Proposed]	--	0.05	--	--
Quartz (respirable dust)	WorkSafe VIC	--	0.05	--	--

Biological limits
No biological limit values have been entered for this product.

8.2 Exposure controls

Engineering controls Avoid inhalation. Use in well ventilated areas. Maintain dust levels below the recommended exposure standard.

PPE

Eye / Face	Wear dust-proof goggles.
Hands	Wear PVC or rubber gloves.
Body	When using large quantities or where heavy contamination is likely, wear coveralls.
Respiratory	Where an inhalation risk exists, wear a Class P1 (Particulate) respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	BROWN/GREY POWDER
Odour	ODOURLESS
Flammability	NON FLAMMABLE
Flash point	NOT RELEVANT
Boiling point	NOT RELEVANT
Melting point	NOT AVAILABLE
Evaporation rate	NON VOLATILE
pH	ALKALINE
Vapour density	NOT AVAILABLE
Specific gravity	2.10
Solubility (water)	NEGLIGIBLE
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

9.2 Other information

% Volatiles	NOT RELEVANT

10. STABILITY AND REACTIVITY

10.1 Reactivity
Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability
Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions
Polymerization is not expected to occur.

10.4 Conditions to avoid
Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials

Incompatible with oxidising agents (e.g. hypochlorites) and acids (e.g. nitric acid).

10.6 Hazardous decomposition products

May evolve Fluorine, Oxygen Difluoride, Chlorine, Trifluoride and Hydrofluoric Acid when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

Toxicity Data available for the ingredients:
CALCIUM HYDROXIDE (1305-62-0):
LD50 (ingestion): 7300 mg/kg (mouse)
CRISTOBALITE (14464-46-1):
TCLo (inhalation) 16 mppcf/8hours/17.9 years (human-fibrosis)
QUARTZ (SILICA CRYSTALLINE) (14808-60-7):
LCLo (inhalation): 300 ug/m³/10 years (human)
TCLo (inhalation): 16 000 000 particles/ft3/8 hours/17.9 years (human-fibrosis)
CELLULOSE (9004-34-6):
LC50 (inhalation) > 5800 mg/m³/4 hours (rat)
LD50 (ingestion) > 5000 mg/kg (rat)
LD50 (intraperitoneal) > 31600 mg/kg (rat)
LD50 (skin) > 2000 mg/kg (rabbit)
MAGNESIUM OXIDE (1309-48-4):
TCLo (inhalation): 400 mg/kg (human)

Information available for the ingredients:

Ingredient	Oral LD50	Dermal LD50	Inhalation LC50
CELLULOSE	> 5000 mg/kg (rat)	> 2000 mg/kg (rabbit)	> 5800 mg/m³/4 hours (rat)
DIATOMACEOUS EARTH	> 5000 mg/kg (rat)	> 5000 mg/kg (rabbit)	--
CALCIUM HYDROXIDE	7300 mg/kg (mouse)	--	--

Additional ingredient toxicity values:

CELLULOSE (9004-34-6)
LD50 (intraperitoneal) > 31600 mg/kg (rat)

CRISTOBALITE (14464-46-1)
TCLo (inhalation) 16 mppcf/8hours/17.9 years (human-fibrosis)

Skin Irritating to the skin. Contact may result in irritation, redness, pain, rash, dermatitis and possible skin burns.

Eye Irritating to the eyes. Contact may result in irritation, lacrimation, pain, redness, conjunctivitis and possible burns.

Sensitisation Not classified as causing skin or respiratory sensitisation.

Mutagenicity Insufficient data available to classify as a mutagen.

Carcinogenicity Crystalline silica is classified as carcinogenic to humans (IARC Group 1). However, there is a body of evidence supporting the fact that increased cancer risk would be limited to people already suffering from silicosis.

Reproductive Insufficient data available to classify as a reproductive toxin.

STOT - single exposure Irritating to the respiratory system. Over exposure may result in irritation of the nose and throat, with coughing.

STOT - repeated exposure Not classified as causing organ damage from repeated exposure. Repeated exposure to crystalline silica may cause lung fibrosis (silicosis), however due to the low levels of respirable crystalline silica in this product, adverse health effects are not anticipated with normal use.

Aspiration Not classified as causing aspiration. Not relevant.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

The manufacturer reports that this product is harmful to aquatic life.

12.2 Persistence and degradability

No information provided.

12.3 Bioaccumulative potential
No information provided.

12.4 Mobility in soil
No information provided.

12.5 Other adverse effects
No information provided.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Waste disposal Collect without generating dust. Place in clean, sealed containers and dispose of to an approved landfill site. Contact the manufacturer/supplier for additional information (if required).

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE, IMDG OR IATA

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	None allocated.	None allocated.	None allocated.
14.2 Proper Shipping Name	None allocated.	None allocated.	None allocated.
14.3 Transport hazard class	None allocated.	None allocated.	None allocated.
14.4 Packing Group	None allocated.	None allocated.	None allocated.

14.5 Environmental hazards
No information provided.

14.6 Special precautions for user
Hazchem code None allocated.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
Poison schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

Inventory listings **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
All components are listed on AICS, or are exempt.

16. OTHER INFORMATION

Additional information PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

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It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

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Prepared by

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[End of SDS]

SAFETY DATA SHEET

GageTrol™

Issue Date 15-Mar-2017 **Revision date** 23-Mar-2022 **Version** 1.1 N

Section 1: IDENTIFICATION: PRODUCT INDENTIFIER AND CHEMICAL IDENTITY

Product identifier

Product Name a eTrol™

Product Code N F00018

Other means of identification

Pure substance/mixture ubstance

Recommended use of the chemical and restrictions on use

Recommended Use iltration control a ent

Uses advised against No in ormation available

Details of manufacturer or importer

Supplier
Ne park rillin Fluids (ustralia) T
11 lacrit Place
Henderson 6166
ustralia

For urther in ormation please contact

Contact Point Telephone: 61 8 9410 8200
Fax: 61 8 9410 8299
ebsite: .ne park.com

Emergency telephone number

mer enc telephone number (61)-290372994 (ustralia) (64)-98010034 (Ne ealand)

Section 2: HAZARD(S) IDENTIFICATION

GHS - Classification

Not a dan erous substance or mixture accordin to the loball Harmonized stem (H)

Label elements

Hazard statements
Not a dan erous substance or mixture accordin to the loball Harmonized stem (H)

Other hazards which do not result in classification

General Hazards

This substance does not meet the P T vPv criteria o CH annex

Section 3: COMPOSITION AND INFORMATION ON INGREDIENTS, IN ACCORDANCE WITH SCHEDULE 8

Substance

Chemical name	C No	ei ht-
Non-hazardous in redients	-	100

Section 4: FIRST AID MEASURES

Description of first aid measures

Emergency telephone number Poisons n ormation Center ustralia: 13 11 26
Poisons n ormation Center Ne ealand: 0800 764 766

Inhalation emove to resh air.

Eye contact inse thorou hl ith plent o ater or at least 15 minutes li tin lo er and upper e elids. Consult a ph sician.

Skin contact ash skin ith soap and ater.

Ingestion Clean mouth ith ater and drink a ter ards plent o ater.

Most important symptoms and effects, both acute and delayed

Symptoms No in ormation available.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat s mptomaticall .

Section 5: FIREFIGHTING MEASURES

Suitable Extinguishing Media

Suitable extinguishing media r chemical C 2 ater spra or re ular oam.

Unsuitable extinguishing media No in ormation available.

Specific hazards arising from the chemical

Thermal decomposition can lead to release o irritatin and toxic ases and vapors. o not allo run-o rom ire- i htin to enter drains or ater courses.

Hazardous combustion products Carbon oxides.

Special protective actions for fire-fighters

Special protective equipment for fire-fighters Fire i hters should ear sel -contained breathin apparatus and ull ire i htin turnout ear. se personal protection e uipment.

Hazchem code Not isted.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions nsure ade uate ventilation.

For emergency responders se personal protection recommended in ection 8.

Environmental precautions

Environmental precautions ee ection 12 or additional colo ical n ormation. o not lush into sur ace ater or sanitar se er s stem. Prevent product rom enterin drains.

Methods and material for containment and cleaning up

Methods for containment Prevent urther leaka e or spilla e i sa e to do so.

Methods for cleaning up Pick up and trans er to properl labeled containers.

Precautions to prevent secondary hazards

Prevention of secondary hazards Clean contaminated ob ects and areas thorou hl observin environmental re ulations.

Section 7: HANDLING AND STORAGE, INCLUDING HOW THE CHEMICAL MAY BE SAFELY USED

Precautions for safe handling

Advice on safe handling Handle in accordance ith ood industrial h iene and sa et practice. void eneration o dust. ash thorou hl a ter handlin . ash contaminated clothin be ore reuse.

General hygiene considerations o not eat drink or smoke hen usin this product. ash hands be ore breaks and a ter ork.

Conditions for safe storage, including any incompatibilities

Storage Conditions eep containers ti htl closed in a dr cool and ell-ventilated place.

Incompatible materials tron oxidizin a ents tron acids

Section 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Control parameters

Exposure Limits This product as supplied does not contain an hazardous materials ith occupational exposure limits established b the re ion speci ic re ulator bodies.

Biological occupational exposure limits Not applicable

Appropriate engineering controls

Engineering controls ho ers
e ash stations
entilation s stems.

Individual protection measures, such as personal protective equipment

Eye/face protection Ti ht sealin sa et o les.

Skin and body protection ear suitable protective clothin .

Respiratory protection n case o inade uate ventilation ear respirator protection.

Environmental exposure controls o not allo into an se er on the round or into an bod o ater.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	olid		
Appearance	Po der	**Odor**	li ht.
Color	- hite	**Odor threshold**	No in ormation available

Property	**Values**	**Remarks • Method**
pH	9.0 - 10.5	4 solution
Melting point / freezing point		Not applicable
Boiling point / boiling range		Not applicable
Flash point		Not applicable
Evaporation rate		No in ormation available
Flammability (solid, gas)		No in ormation available
Flammability Limit in Air		No in ormation available
Upper flammability limit:		No data available
Lower flammability limit:		No data available
Vapor pressure		No data available
Vapor density		No data available
Relative density	1.5	
Water solubility	oluble in ater	
Solubility(ies)		No in ormation available
Partition coefficient		No in ormation available
Autoignition temperature		No in ormation available
Hyphen		No in ormation available
Kinematic viscosity		Not applicable
Dynamic viscosity		Not applicable

Other information

Softening point	No in ormation available
Molecular weight	No in ormation available
VOC Content (%)	No in ormation available
Liquid Density	No in ormation available
Bulk density	30-45 lb t3 (480-720 k m^3)
Particle Size	No in ormation available
Particle Size Distribution	No in ormation available

Section 10: STABILITY AND REACTIVITY

Reactivity

Reactivity No in ormation available.

Chemical stability

Stability table under normal conditions.

Explosion data

Sensitivity to Mechanical Impact None.
Sensitivity to Static Discharge None.

Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processin .

Conditions to avoid

Conditions to avoid None kno n based on in ormation supplied.

Incompatible materials

Incompatible materials tron oxidizin a ents. tron acids.

Hazardous decomposition products

Hazardous Decomposition Products None kno n based on in ormation supplied.

Section 11: TOXICOLOGICAL INFORMATION

Acute toxicity

Information on likely routes of exposure

Product Information .

Inhalation peci ic test data or the substance or mixture is not available.

Eye contact peci ic test data or the substance or mixture is not available.

Skin contact peci ic test data or the substance or mixture is not available.

Ingestion peci ic test data or the substance or mixture is not available

Symptoms No in ormation available.

Numerical measures of toxicity - Product Information

Unknown acute toxicity 100 o the mixture consists o in redient(s) o unkno n toxicit

100 o the mixture consists o in redient(s) o unkno n acute oral toxicit
100 o the mixture consists o in redient(s) o unkno n acute dermal toxicit
100 o the mixture consists o in redient(s) o unkno n acute inhalation toxicit (as)
100 o the mixture consists o in redient(s) o unkno n acute inhalation toxicit (vapor)
100 o the mixture consists o in redient(s) o unkno n acute inhalation toxicit (dust mist)

See section 16 for terms and abbreviations

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation No in ormation available.

Serious eye damage/eye irritation No in ormation available.

Respiratory or skin sensitization No in ormation available.

Germ cell mutagenicity No in ormation available.

Carcinogenicity No in ormation available.

Reproductive toxicity No in ormation available.

STOT - single exposure No in ormation available.

STOT - repeated exposure No in ormation available.

Aspiration hazard No in ormation available.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity The environmental impact o this product has not been ull investi ated.

Unknown aquatic toxicity 0 o the mixture consists o component(s) o unkno n hazards to the a uatic environment.

Persistence and degradability

Persistence and degradability No in ormation available.

Bioaccumulative potential

Bioaccumulation No in ormation available.

Mobility

Mobility in soil No in ormation available.

Mobility No in ormation available.

Other adverse effects

Other adverse effects No in ormation available.

Section 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues/unused products ispose o in accordance ith local re ulations. ispose o aste in accordance ith environmental le islation.

Contaminated packaging o not reuse empt containers.

Section 14: TRANSPORT INFORMATION

ADG Not re ulated

IATA Not e ulated

IMDG Not e ulated

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
No in ormation available

Section 15: REGULATORY INFORMATION

Regulatory information

National regulations

Australia
ee section 8 or national exposure control parameters

Standard for Uniform Scheduling of Medicines and Poisons (SUSMP)
No poisons schedule number allocated

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
PICCS	Complies
AICS	Complies
NZIoC	Complies

Legend:
TSCA - nited tates Toxic ubstances Control ct ection 8(b) nventor
DSL/NDSL - Canadian omestic ubstances ist Non- omestic ubstances ist
EINECS/ELINCS - uropean nventor o xistin Chemical ubstances uropean ist o Noti ied Chemical ubstances
ENCS - Japan xistin and Ne Chemical ubstances
IECSC - China nventor o xistin Chemical ubstances
KECL - orean xistin and valuated Chemical ubstances
PICCS - Philippines nventor o Chemicals and Chemical ubstances
AICS - ustralian nventor o Chemical ubstances
NZIoC - Ne ealand nventor o Chemicals

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

Brunei Poison List Not applicable.

Section 16: ANY OTHER RELEVANT INFORMATION

Issue Date 15-Mar-2017

Revision date 23-Mar-2022

Revision Note
No in ormation available.

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

T	T (time- ei hted avera e)	T	T (hort Term xposure imit)
Ceilin	Maximum limit value		kin desi nation
C	Carcino en		

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End of Safety Data Sheet

NEWPARK DRILLING FLUIDS

SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **GEOVIS**

Synonyms DIUTAN GUM

1.2 Uses and uses advised against

Uses VISCOSITY MODIFIER

1.3 Details of the supplier of the product

Supplier name **NEWPARK DRILLING FLUIDS (AUSTRALIA) LTD**

Address 11 Alacrity Place, Henderson, WA, 6166, AUSTRALIA

Telephone +61 8 9410 8200

Fax +61 8 9410 8299

Website www.newpark.com

1.4 Emergency telephone numbers

Emergency 1800 127 406 (Australia); +64 4 917 9888 (International)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

2.2 GHS Label elements

No signal word, pictograms, hazard or precautionary statements have been allocated.

2.3 Other hazards

No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
D-GLUCURONO-6-DEOXY-L-MANNO-D-GLUCAN, ACETATE, CALCIUM MAGNESIUM POTASSIUM SODIUM SALT	595585-15-2	-	>50%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

Ingestion For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). If swallowed, do not induce vomiting. Ingestion is considered unlikely due to product form.

First aid facilities None allocated.

4.2 Most important symptoms and effects, both acute and delayed
Adverse effects not expected from this product under normal conditions of use.

4.3 Immediate medical attention and special treatment needed
Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media
Dry agent, carbon dioxide, foam or water fog. Prevent contamination of drains or waterways.

5.2 Special hazards arising from the substance or mixture
Combustible. May evolve toxic gases (carbon oxides, hydrocarbons) when heated to decomposition. Finely divided dust may form explosive mixtures with air.

5.3 Advice for firefighters
Evacuate area and contact emergency services. Toxic gases may be evolved in a fire situation. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

5.4 Hazchem code
None allocated.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Clear area of all unprotected personnel. Contact emergency services where appropriate.

6.2 Environmental precautions
Prevent product from entering drains and waterways.

6.3 Methods of cleaning up
Contain spillage, then collect and place in suitable containers for reuse or disposal. Avoid generating dust.

6.4 Reference to other sections
See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool, dry, well ventilated area, removed from incompatible substances and foodstuffs. Ensure containers are adequately labelled and tightly closed when not in use.

7.3 Specific end uses
No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters
Exposure standards

No exposure standards have been entered for this product.

Biological limits

No biological limit values have been entered for this product.

8.2 Exposure controls
Engineering controls Avoid inhalation. Use in well ventilated areas.

PPE

Eye / Face	Wear dust-proof goggles.
Hands	Wear PVC or rubber gloves.
Body	When using large quantities or where heavy contamination is likely, wear coveralls.
Respiratory	Where an inhalation risk exists, wear a Class P1 (Particulate) respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	WHITE TO TAN POWDER
Odour	SLIGHT ODOUR
Flammability	COMBUSTIBLE
Flash point	NOT RELEVANT
Boiling point	NOT AVAILABLE
Melting point	NOT AVAILABLE
Evaporation rate	NON VOLATILE
pH	NOT AVAILABLE
Vapour density	NOT AVAILABLE
Specific gravity	NOT AVAILABLE
Solubility (water)	SOLUBLE
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Partition coefficient	NOT AVAILABLE
Autoignition temperature	351°C
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

9.2 Other information

% Volatiles	0 %

10. STABILITY AND REACTIVITY

10.1 Reactivity

Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability

Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions

Polymerization is not expected to occur.

10.4 Conditions to avoid

Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials

Incompatible with oxidising agents (e.g. hypochlorites) and acids (e.g. nitric acid).

10.6 Hazardous decomposition products

May evolve toxic gases (carbon oxides, hydrocarbons) when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity This product is expected to be of low acute toxicity. Under normal conditions of use, adverse health effects are not anticipated.

Information available for the ingredients:

Ingredient	Oral LD50	Dermal LD50	Inhalation LC50
D-GLUCURONO-6-DEOXY-L-MANNO-D-GLUCAN, ACETATE, CALCIUM MAGNESIUM POTASSIUM SODIUM SALT	> 5000 mg/kg (rat)	--	--

Skin Not classified as a skin irritant. Contact may result in mild irritation. The hydrophilic nature of the notified polymer in powder form can contribute to mechanical irritation and collection in the eyes when dust is generated.

Eye Not classified as an eye irritant. Contact may cause discomfort, lacrimation and redness. The hydrophilic nature of the notified polymer in powder form can contribute to mechanical irritation and collection on the skin when dust is generated.

Sensitisation Not classified as causing skin or respiratory sensitisation.

Mutagenicity No evidence of mutagenic effects.

Carcinogenicity No evidence of carcinogenic effects.

Reproductive No relevant or reliable studies were identified.

STOT - single exposure Not classified as causing organ damage from single exposure. The hydrophilic nature of the notified polymer in powder form can contribute to mechanical irritation and collection in the airways when dust is generated.

STOT - repeated exposure Not classified as causing organ damage from repeated exposure.

Aspiration This product does not present an aspiration hazard.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

The notified polymer is not toxic to fish (rainbow trout), aquatic invertebrates (daphnia magna) and marine invertebrates (acartia tonsa) under test conditions.

12.2 Persistence and degradability

Considered readily biodegradable.

12.3 Bioaccumulative potential

No experimental results provided. However, based on the molecular weight, water solubility and Kow value the notified polymer is not expected to bioaccumulate.

12.4 Mobility in soil

No information provided.

12.5 Other adverse effects

No information provided.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal Ensure product is covered with moist soil to prevent dust generation and dispose of to approved Council landfill. Contact the manufacturer/supplier for additional information (if required).

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE, IMDG OR IATA

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	None allocated.	None allocated.	None allocated.
14.2 Proper Shipping Name	None allocated.	None allocated.	None allocated.
14.3 Transport hazard class	None allocated.	None allocated.	None allocated.
14.4 Packing Group	None allocated.	None allocated.	None allocated.

14.5 Environmental hazards

No information provided.

14.6 Special precautions for user

Hazchem code None allocated.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

Inventory listings **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
All components are listed on AICS, or are exempt.

16. OTHER INFORMATION

Additional information

RESPIRATORS: In general the use of respirators should be limited and engineering controls employed to avoid exposure. If respiratory equipment must be worn ensure correct respirator selection and training is undertaken. Remember that some respirators may be extremely uncomfortable when used for long periods. The use of air powered or air supplied respirators should be considered where prolonged or repeated use is necessary.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

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[End of SDS]

NEWPARK DRILLING FLUIDS

SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **IDCIDE-20**

Synonyms IDCIDE 20

1.2 Uses and uses advised against

Uses BIOCIDE ● DRILLING FLUID ADDITIVE ● WATER TREATMENT

1.3 Details of the supplier of the product

Supplier name **NEWPARK DRILLING FLUIDS (AUSTRALIA) LTD**

Address 11 Alacrity Place, Henderson, WA, 6166, AUSTRALIA

Telephone +61 8 9410 8200

Fax +61 8 9410 8299

Website www.newpark.com

1.4 Emergency telephone numbers

Emergency 1800 127 406 (Australia); +64 4 917 9888 (International)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

Physical Hazards

Not classified as a Physical Hazard

Health Hazards

Acute Toxicity: Oral: Category 4
Skin Corrosion/Irritation: Category 2
Skin Sensitisation: Category 1
Serious Eye Damage / Eye Irritation: Category 2A

Environmental Hazards

Not classified as an Environmental Hazard

2.2 GHS Label elements

Signal word **WARNING**

Pictograms



Hazard statements

H302	Harmful if swallowed.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.

Prevention statements

P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P264	Wash thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P272	Contaminated work clothing should not be allowed out of the workplace.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Response statements

P301 + P312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P321	Specific treatment is advised - see first aid instructions.
P330	Rinse mouth.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P362	Take off contaminated clothing and wash before re-use.

Storage statements

None allocated.

Disposal statements

P501	Dispose of contents/container in accordance with relevant regulations.

2.3 Other hazards

No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
TETRAKIS(HYDROXYMETHYL)PHOSPHONIUM SULPHATE(2:1)	55566-30-8	259-709-0	18 to 25%
WATER	7732-18-5	231-791-2	Remainder

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area. To protect rescuer, use a Type A (Organic vapour) respirator or an Air-line respirator (in poorly ventilated areas). Apply artificial respiration if not breathing.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

Ingestion For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor (at once).

First aid facilities Eye wash facilities should be available.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11 for more detailed information on health effects and symptoms.

4.3 Immediate medical attention and special treatment needed

Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Use an extinguishing agent suitable for the surrounding fire.

5.2 Special hazards arising from the substance or mixture

Non flammable. May evolve carbon oxides and hydrocarbons when heated to decomposition. May evolve carbon oxides, sulphur oxides and phosphates when heated to decomposition.

5.3 Advice for firefighters

Treat as per requirements for surrounding fires. Evacuate area and contact emergency services. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

5.4 Hazchem code

None allocated.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Clear area of all unprotected personnel. Ventilate area where possible. Contact emergency services where appropriate.

6.2 Environmental precautions

Prevent product from entering drains and waterways.

6.3 Methods of cleaning up

Contain spillage, then cover / absorb spill with non-combustible absorbent material (vermiculite, sand, or similar), collect and place in suitable containers for disposal.

6.4 Reference to other sections

See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities

Store in a cool, dry, well ventilated area, removed from incompatible substances, heat or ignition sources and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use. Large storage areas should have appropriate ventilation systems.

7.3 Specific end uses

No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Exposure standards

No exposure standards have been entered for this product.

Biological limits

No biological limit values have been entered for this product.

8.2 Exposure controls

Engineering controls Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended.

PPE

Eye / Face	Wear splash-proof goggles.
Hands	Wear PVC or rubber gloves.
Body	Wear coveralls. In a laboratory situation, wear a laboratory coat.
Respiratory	Where an inhalation risk exists, wear a Type A (Organic vapour) respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	COLOURLESS TO PALE YELLOW LIQUID
Odour	SLIGHT ODOUR
Flammability	NON FLAMMABLE
Flash point	NOT RELEVANT
Boiling point	> 100°C
Melting point	< 0°C
Evaporation rate	AS FOR WATER
pH	3.0 to 3.5
Vapour density	NOT AVAILABLE
Specific gravity	1.08
Solubility (water)	SOLUBLE
Vapour pressure	18 mm Hg @ 20°C
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

9.2 Other information

% Volatiles	> 60 % (Water)

10. STABILITY AND REACTIVITY

10.1 Reactivity

Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability

Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions

Polymerization is not expected to occur.

10.4 Conditions to avoid

Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials

Incompatible with oxidising agents (e.g. hypochlorites), acids (e.g. nitric acid), heat and ignition sources.

10.6 Hazardous decomposition products

May evolve carbon oxides and hydrocarbons when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity Harmful if swallowed.

Information available for the ingredients:

Ingredient	Oral LD50	Dermal LD50	Inhalation LC50
TETRAKIS(HYDROXYMETHYL)PHOSPHONIUM SULPHATE(2:1)	248 mg/kg (rat)	> 2000 mg/kg (rat)	5.5 mg/L/4hrs (rat)

Additional ingredient toxicity values:

TETRAKIS(HYDROXYMETHYL)PHOSPHONIUM SULPHATE(2:1) (55566-30-8)

TDLo (oral) 650 mg/kg/13 weeks - intermittent (rat)

Skin Contact may result in irritation, redness, pain and rash.

Eye	Contact may result in irritation, lacrimation, pain and redness.
Sensitisation	May cause an allergic skin reaction. This product is not classified as a respiratory sensitiser.
Mutagenicity	Not classified as a mutagen.
Carcinogenicity	Not classified as a carcinogen.
Reproductive	Not classified as a reproductive toxin.
STOT - single exposure	Over exposure may result in respiratory irritation, nausea, dizziness, drowsiness and headache.
STOT - repeated exposure	Not classified as causing organ damage from repeated exposure.
Aspiration	Not classified as causing aspiration.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

75% TETRAKIS(HYDROXYMETHYL)PHOSPHONIUM SULPHATE (55566-30-8):
LC50 (Rainbow Trout) = 119 mg/L/96 hr
LC50(Bluegill Sunfish) = 93 mg/L/ 96 hr
EC50 (Daphnia Magna) = 19 mg/L/48 hr
LC50 (Brown Shrimp) = 340 mg/L/96 hr
LC50 (Mysid Shrimp) = 9.5 mg/L/96 hr
LC50 (Sheepshead Minnow) = 94 mg/L/96 hr
LC50 (Jevenile Plaice) = 86 mg/L/96 hr

Waste Water management
EC50 (Activated Sludge) = 24 mg/L/3 hr

12.2 Persistence and degradability

This product is readily biodegradable.

12.3 Bioaccumulative potential

No information provided.

12.4 Mobility in soil

No information provided.

12.5 Other adverse effects

No information provided.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal For small amounts, absorb with sand, vermiculite or similar and dispose of to an approved landfill site. For large quantities, contact the manufacturer/supplier for additional information. Prevent contamination of drains and waterways as aquatic life may be threatened and environmental damage may result.

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE, IMDG OR IATA

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	None allocated.	None allocated.	None allocated.
14.2 Proper Shipping Name	None allocated.	None allocated.	None allocated.
14.3 Transport hazard class	None allocated.	None allocated.	None allocated.
14.4 Packing Group	None allocated.	None allocated.	None allocated.

14.5 Environmental hazards

No information provided.

14.6 Special precautions for user

Hazchem code None allocated.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

Inventory listings **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
All components are listed on AICS, or are exempt.

16. OTHER INFORMATION

Additional information

RESPIRATORS: In general the use of respirators should be limited and engineering controls employed to avoid exposure. If respiratory equipment must be worn ensure correct respirator selection and training is undertaken. Remember that some respirators may be extremely uncomfortable when used for long periods. The use of air powered or air supplied respirators should be considered where prolonged or repeated use is necessary.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

Prepared by

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[End of SDS]

NEWPARK DRILLING FLUIDS

SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **JK-161 LV**

Synonyms JK - 161 LV ● LOW MOLECULAR WEIGHT PHPA ● PARTIALLY HYDROLYZED POLYACRYLAMIDE ● PHPA

1.2 Uses and uses advised against

Uses ENCAPSULATING AGENT ● HIGH PERFORMANCE WBM

1.3 Details of the supplier of the product

Supplier name **NEWPARK DRILLING FLUIDS (AUSTRALIA) LTD**

Address 11 Alacrity Place, Henderson, WA, 6166, AUSTRALIA

Telephone +61 8 9410 8200

Fax +61 8 9410 8299

Website www.newpark.com

1.4 Emergency telephone numbers

Emergency 1800 127 406 (Australia); +64 4 917 9888 (International)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

2.2 GHS Label elements

No signal word, pictograms, hazard or precautionary statements have been allocated.

2.3 Other hazards

No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
ACRYLAMIDE, SODIUM ACRYLATE COPOLYMER	25085-02-3	607-529-1	>90%
WATER	7732-18-5	231-791-2	Remainder

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water.

Ingestion For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). If swallowed, do not induce vomiting.

First aid facilities Eye wash facilities and safety shower should be available.

4.2 Most important symptoms and effects, both acute and delayed
See Section 11 for more detailed information on health effects and symptoms.

4.3 Immediate medical attention and special treatment needed
Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media
Use an extinguishing agent suitable for the surrounding fire.

5.2 Special hazards arising from the substance or mixture
Non flammable. May evolve toxic gases (carbon/ nitrogen oxides, amines, ammonia, hydrocarbons) when heated to decomposition.

5.3 Advice for firefighters
Evacuate area and contact emergency services. Toxic gases may be evolved in a fire situation. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

5.4 Hazchem code
None allocated.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Clear area of all unprotected personnel. Contact emergency services where appropriate.

6.2 Environmental precautions
Prevent product from entering drains and waterways.

6.3 Methods of cleaning up
Contain spillage, then collect and place in suitable containers for reuse or disposal. Avoid generating dust.

6.4 Reference to other sections
See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool, dry, well ventilated area, removed from incompatible substances and foodstuffs. Ensure containers are adequately labelled and tightly closed when not in use.

7.3 Specific end uses
No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters
Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m³	ppm	mg/m³
Acrylamide	SWA [AUS]	--	0.03	--	--

Biological limits No Biological Limit Value allocated.

8.2 Exposure controls

Engineering controls Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended.

PPE

Eye / Face	Wear dust-proof goggles.
Hands	Wear PVC or rubber gloves.
Body	When using large quantities or where heavy contamination is likely, wear coveralls.
Respiratory	Where an inhalation risk exists, wear a Class P1 (Particulate) respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	WHITE GRANULAR SOLID
Odour	ODOURLESS
Flammability	NON FLAMMABLE
Flash point	NOT RELEVANT
Boiling point	NOT AVAILABLE
Melting point	NOT AVAILABLE
Evaporation rate	NOT AVAILABLE
pH	NOT AVAILABLE
Vapour density	NOT AVAILABLE
Specific gravity	0.8
Solubility (water)	10 g/L
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

10. STABILITY AND REACTIVITY

10.1 Reactivity

Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability

Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions

Polymerization is not expected to occur.

10.4 Conditions to avoid

Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials

Incompatible with oxidising agents (e.g. hypochlorites) and acids (e.g. nitric acid).

10.6 Hazardous decomposition products

May evolve toxic gases (carbon/ nitrogen oxides, amines, ammonia, hydrocarbons) when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity	This product is expected to be of low acute toxicity. Under normal conditions of use, adverse health effects are not anticipated. LD50 rat (oral): > 2,000 mg/kg (OECD Guideline 401).
Skin	Low irritant. Prolonged or repeated contact may result in mild irritation, rash and dermatitis.
Eye	Low to moderate irritant. Contact may result in mild irritation, lacrimation and redness.
Sensitisation	Not classified as causing skin or respiratory sensitisation. However, allergic reactions are possible.
Mutagenicity	Not classified as a mutagen.
Carcinogenicity	This product may contain trace amounts of residual acrylamide, which is classified as a probable human carcinogen (IARC Group 2A). However, due to the very low levels present, adverse health effects are not anticipated with normal use.
Reproductive	Not classified as a reproductive toxin.
STOT - single exposure	Not classified as causing organ damage from single exposure.
STOT - repeated exposure	Not classified as causing organ damage from repeated exposure.
Aspiration	Not classified as causing aspiration.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

(10000 ppm test concentration) (EPA-821-R-02-012)
Mysidopsis bahia = 48hr LC50 = 16.2 mg/L.
Menidia beryllina = 48hr LC50 = 34.2 mg/L.
Scophthalmus Maximus = 96hr LC50 > 1000 mg/L.
Skeletonemia costatum = 72hr EC50 = 393 mg/L [NOEC = 118 mg/L]
Acartia tonsa = 48 hr EC50 = 393 mg/L [NOEC = 112 mg/L]
Corophium Volutator = 10 Day LC50 = 9338 mg/Kg [NOEC = 1000 mg/Kg

12.2 Persistence and degradability

Not readily biodegradable (by OECD criteria).

12.3 Bioaccumulative potential

Based on its structural properties, the polymer is not biologically available. Accumulation in organisms is not to be expected.

12.4 Mobility in soil

No information provided.

12.5 Other adverse effects

No information provided.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal	Dispose of to an approved landfill or waste processing site. Contact the manufacturer/supplier for additional information (if required).
Legislation	Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE, IMDG OR IATA

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	None allocated.	None allocated.	None allocated.
14.2 Proper Shipping Name	None allocated.	None allocated.	None allocated.
14.3 Transport hazard class	None allocated.	None allocated.	None allocated.
14.4 Packing Group	None allocated.	None allocated.	None allocated.

14.5 Environmental hazards

No information provided.

14.6 Special precautions for user

Hazchem code None allocated.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

Inventory listings **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
All components are listed on AICS, or are exempt.

16. OTHER INFORMATION

Additional information

ACRYLIC - ACRYLAMIDE RESINS: These resins are generally of low toxicity. Toxicity increases with presence of significant concentrations of acrylic - acrylamide monomers. These monomers have been linked with the development of skin sensitisation.

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HEALTH EFFECTS FROM EXPOSURE:
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Abbreviations

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[End of SDS]

Safety Data Sheet

LC-LUBE™ FINE

1 . Identification of the material and supplier

Product identifier : LC-LUBE™ FINE

Product code : 5188DF

ADG : -

Product type : Powder.

Identified uses : Lost Circulation Material

Supplier's details :
Baker Hughes
Level 14, 216 St Georges Terrace
Perth
Western Australia 6000

Tel: +618 9215 0601
Fax: +618 9215 0698

Emergency telephone number :
CHEMTREC Emergency Telephone Numbers (Australasia Geomarket):
- Australia: (02) 9037 2994
- New Zealand: 9801 0034
- PNG: +(61) 2 9037 2994

- UK: +(44) 870-820-0418
- USA: +(1) 703-527-3887 (CHEMTREC International 24 hour)

2 . Hazards identification

Classification of the substance or mixture : Not classified.

GHS label elements

Signal word : No signal word.

Hazard statements : No known significant effects or critical hazards.

Precautionary statements

Prevention : Not applicable.

Response : Not applicable.

Storage : Not applicable.

Disposal : Not applicable.

Precautionary statements (Code) :

Supplemental label elements : Not applicable.

Other hazards which do not result in classification : Handling and/or processing of this material may generate a dust which can cause mechanical irritation of the eyes, skin, nose and throat.

3 . Composition/information on ingredients

Substance/mixture : Substance

CAS number : 7782-42-5

Ingredient name	% (w/w)	CAS number
Natural graphite	60 - 100	7782-42-5

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

4 . First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

Ingestion : Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.

Inhalation : Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : irritation,redness

Inhalation : respiratory tract irritation,coughing

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

5 . Firefighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : No specific fire or explosion hazard.

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Hazardous thermal decomposition products : carbon dioxide,carbon monoxide

Hazchem code : -

6 . Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing dust. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and material for containment and cleaning up

Small spill : Move containers from spill area. Vacuum or sweep up material and place in a designated, labelled waste container. Dispose of via a licensed waste disposal contractor.

Large spill : Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labelled waste container. Avoid creating dusty conditions and prevent wind dispersal. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

7 . Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Avoid breathing dust.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7 . Handling and storage

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

8 . Exposure controls/personal protection

The information in this section contains generic advice and guidance. Information is provided based on typical anticipated uses of the product. Additional measures might be required for bulk handling or other uses that could significantly increase worker exposure or environmental releases.

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Natural graphite	**Safe Work Australia (Australia, 1/2014).** TWA: 3 mg/m³ 8 hours. Form: Respirable dust

Appropriate engineering controls : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields. If operating conditions cause high dust concentrations to be produced, use dust goggles.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

9 . Physical and chemical properties

Appearance

Physical state	:	Solid. [Powder.]
Colour	:	Grey. to Black. [Dark]
Odour	:	Odourless.
Odour threshold	:	Not available.
pH	:	6.5 to 10.5 [Conc. (% w/w): 10% - (H2O)]
Melting point	:	>2000°C (>3632°F)
Boiling point	:	Not available.
Flash point	:	Closed cup: Not applicable.
Evaporation rate	:	Not available.
Flammability (solid, gas)	:	Not available.
Lower and upper explosive (flammable) limits	:	Not available.
Vapour pressure	:	0.18 kPa (1.33 mm Hg)
Vapour density	:	Not available.
Relative density	:	2.25
Solubility	:	Insoluble in the following materials: cold water.
Partition coefficient: n-octanol/water	:	Not available.
Auto-ignition temperature	:	Not available.
Decomposition temperature	:	>250°C (>482°F)
Viscosity	:	Not available.

10 . Stability and reactivity

Reactivity	:	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	:	The product is stable.
Possibility of hazardous reactions	:	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	:	No specific data.
Incompatible materials	:	Not available.
Hazardous decomposition products	:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 . Toxicological information

Information on toxicological effects

Acute toxicity

Conclusion/Summary	:	No known significant effects or critical hazards.

Irritation/Corrosion

Conclusion/Summary

Skin	:	No known significant effects or critical hazards.
Eyes	:	No known significant effects or critical hazards.
Respiratory	:	No known significant effects or critical hazards.

Sensitisation

Conclusion/Summary

Skin	:	No known significant effects or critical hazards.
Respiratory	:	No known significant effects or critical hazards.

Mutagenicity

Conclusion/Summary	:	No known significant effects or critical hazards.

Carcinogenicity

11 . Toxicological information

Conclusion/Summary : No known significant effects or critical hazards.

Reproductive toxicity

Conclusion/Summary : No known significant effects or critical hazards.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Not available.			

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Not available.			

Aspiration hazard

Name	Result
Not available.	

Information on likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.

Inhalation : Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : irritation,redness

Inhalation : respiratory tract irritation,coughing

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

General : Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

11 . Toxicological information

Fertility effects : No known significant effects or critical hazards.

12 . Ecological information

Toxicity : No known significant effects or critical hazards.

Persistence and degradability

Not available.

Other adverse effects : No known significant effects or critical hazards.

13 . Disposal considerations

Disposal methods : Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

14 . Transport information

International transport regulations

Regulatory information	UN number	Proper shipping name	Transport hazard class(es)	PG*	Label
ADR/RID	Not regulated.	-	-	-	
ADG	Not regulated.	-	-	-	
IMDG	Not regulated.	-	-	-	
IATA	Not regulated.	-	-	-	

PG* : Packing group

Regulatory information	Environmental hazards	Additional information**
ADR/RID Class	No.	**Hazchem code** -
ADG Class	No.	**Hazchem code** -
IMDG Class	No.	-
IATA Class	No.	-

Additional information**: A • in the Hazchem code indicates that Alcohol Resistant Foam is the preferred extinguishing medium. If not available, use the extinguishing medium indicated by the number in the Hazchem code.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of Marpol and the IBC Code : Not available.

15 . Regulatory information

Standard Uniform Schedule of Medicine and Poisons

Not regulated.

Model Work Health and Safety Regulations - Scheduled Substances

Australia inventory (AICS) : All components are listed or exempted.

References : **National Code of Practice for the Control of Workplace Hazardous Substances. National Code of Practice for the Labelling of Workplace Substances. National Code of Practice for the Preparation of Material Safety Data Sheets. Approved Criteria for Classifying Hazardous Substances.**

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Inform Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

16 . Other information

History

Date of printing : 6 September 2017.

Date of issue/Date of revision : 6 September 2017

Date of previous issue : 24 February 2016

Version : 2

Key to abbreviations : ADG = Australian Dangerous Goods
ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
NOHSC = National Occupational Health and Safety Commission
SUSMP = Standard Uniform Schedule of Medicine and Poisons
UN = United Nations

Procedure used to derive the classification

Classification	Justification
Not classified.	

References : Not available.

Indicates information that has changed from previously issued version.

Disclaimer

16 . Other information

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

NEWPARK DRILLING FLUIDS

SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **MAGNESIUM OXIDE**

Synonyms CALCINED MAGNESIA ● MAGNESIA ● MAGOXI16 / 27 - PRODUCT CODE

1.2 Uses and uses advised against

Uses DRILLING FLUID ADDITIVE ● PH INDICATOR

1.3 Details of the supplier of the product

Supplier name **NEWPARK DRILLING FLUIDS (AUSTRALIA) LTD**

Address 11 Alacrity Place, Henderson, WA, 6166, AUSTRALIA

Telephone +61 8 9410 8200

Fax +61 8 9410 8299

Website www.newpark.com

1.4 Emergency telephone numbers

Emergency 1800 127 406 (Australia); +64 4 917 9888 (International)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

2.2 GHS Label elements

No signal word, pictograms, hazard or precautionary statements have been allocated.

2.3 Other hazards

No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
MAGNESIUM OXIDE	1309-48-4	215-171-9	>94%
CALCIUM OXIDE	1305-78-8	215-138-9	<3.5%
SILICON DIOXIDE (SILICA, AMORPHOUS)	7631-86-9	231-545-4	<2.5%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

Ingestion For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). If swallowed, do not induce vomiting.

First aid facilities Eye wash facilities and safety shower should be available.

4.2 Most important symptoms and effects, both acute and delayed
See Section 11 for more detailed information on health effects and symptoms.

4.3 Immediate medical attention and special treatment needed
Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media
Use an extinguishing agent suitable for the surrounding fire.

5.2 Special hazards arising from the substance or mixture
Non flammable. May evolve magnesium oxides when heated to decomposition.

5.3 Advice for firefighters
Treat as per requirements for surrounding fires. Evacuate area and contact emergency services. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

5.4 Hazchem code
None allocated.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Ventilate area where possible.

6.2 Environmental precautions
Prevent product from entering drains and waterways.

6.3 Methods of cleaning up
Contain spillage, then collect and place in suitable containers for disposal. Avoid generating dust.

6.4 Reference to other sections
See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool, dry, well ventilated area, removed from incompatible substances and foodstuffs. Ensure product is adequately labelled, protected from physical damage and sealed when not in use.

7.3 Specific end uses
No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters
Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m³	ppm	mg/m³
Calcium oxide	SWA [AUS]	--	2	--	--
Calcium oxide	SWA [Proposed]	--	1	--	--
Fumed silica (respirable dust)	SWA [AUS]	--	2	--	--
Magnesium oxide (fume)	SWA [AUS]	--	10	--	--

Biological limits
No biological limit values have been entered for this product.

8.2 Exposure controls

Engineering controls Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended.

PPE

Eye / Face	Wear dust-proof goggles.
Hands	Wear PVC or rubber gloves.
Body	Not required under normal conditions of use.
Respiratory	Where an inhalation risk exists, wear a Class P1 (Particulate) respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	WHITE GRANULES
Odour	ODOURLESS
Flammability	NON FLAMMABLE
Flash point	NOT RELEVANT
Boiling point	3600°C
Melting point	2800°C
Evaporation rate	NOT AVAILABLE
pH	NOT AVAILABLE
Vapour density	NOT AVAILABLE
Specific gravity	3.6 - 3.7
Solubility (water)	SLIGHTLY SOLUBLE
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

9.2 Other information

% Volatiles	0 %

10. STABILITY AND REACTIVITY

10.1 Reactivity
Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability
Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions
Polymerization is not expected to occur.

10.4 Conditions to avoid
Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials

Incompatible (violently) with interhalogens (e.g. bromine pentafluoride, chlorine trifluoride) and phosphorus pentachloride. May ignite or explode when heated with aluminium powder. Also incompatible with acids (e.g. nitric acid) and dampness as material hydrates.

10.6 Hazardous decomposition products

May evolve magnesium oxides when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity Based on available data, the classification criteria are not met.

Information available for the ingredients:

Ingredient	Oral LD50	Dermal LD50	Inhalation LC50
SILICON DIOXIDE (SILICA, AMORPHOUS)	3160 mg/kg (rat)	--	--

Skin Contact may result in irritation, redness, rash and dermatitis.

Eye Contact may result in irritation, lacrimation, pain and redness.

Sensitisation Not classified as causing skin or respiratory sensitisation.

Mutagenicity Not classified as a mutagen.

Carcinogenicity Not classified as a carcinogen.

Reproductive Not classified as a reproductive toxin.

STOT - single exposure Not classified as causing organ damage from single exposure. However, over exposure may result in irritation of the nose and throat, with coughing.

STOT - repeated exposure Not classified as causing organ damage from repeated exposure.

Aspiration Not classified as causing aspiration.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

No information provided.

12.2 Persistence and degradability

The methods for determining the biological degradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential

Not expected to bioaccumulate.

12.4 Mobility in soil

No information provided.

12.5 Other adverse effects

No information provided.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal For small amounts, cover with moist sand, vermiculite or similar to avoid dust hazard and dispose of to an approved landfill site. Contact the manufacturer/supplier for additional information if disposing of large quantities (if required).

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE, IMDG OR IATA

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	None allocated.	None allocated.	None allocated.
14.2 Proper Shipping Name	None allocated.	None allocated.	None allocated.
14.3 Transport hazard class	None allocated.	None allocated.	None allocated.
14.4 Packing Group	None allocated.	None allocated.	None allocated.

14.5 Environmental hazards

No information provided.

14.6 Special precautions for user

Hazchem code None allocated.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

Inventory listings **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
All components are listed on AICS, or are exempt.

16. OTHER INFORMATION

Additional information

EXPOSURE STANDARDS - TIME WEIGHTED AVERAGES: Exposure standards are established on the premise of an 8 hour work period of normal intensity, under normal climatic conditions and where a 16 hour break between shifts exists to enable the body to eliminate absorbed contaminants. In the following circumstances, exposure standards must be reduced: Strenuous work conditions; hot, humid climates; high altitude conditions; extended shifts (which increase the exposure period and shorten the period of recuperation).

RESPIRATORS: In general the use of respirators should be limited and engineering controls employed to avoid exposure. If respiratory equipment must be worn ensure correct respirator selection and training is undertaken. Remember that some respirators may be extremely uncomfortable when used for long periods. The use of air powered or air supplied respirators should be considered where prolonged or repeated use is necessary.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

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[End of SDS]

SAFETY DATA SHEET

Monoethylene Glycol (MEG)

NDF00270 **Revision Date** 01-Mar-2019 **Version** 1.1

Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Code N F00270
Product Name Monoeth lene l col (M)

Contains th lene l col

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended Use h drate-control additive

Uses advised against No in ormation available

1.3. Details of the supplier of the safety data sheet

upplier Ne park rillin Fluids (ustralia) T
11 lacrit Place
Henderson 6166
ustralia

For urther in ormation please contact

Contact Point Telephone: 61 8 9410 8200
Fax: 61 8 9410 8299
ebsite: .ne park.com

1.4. Emergency telephone number

mer enc telephone number 1800 127 406 (ustralia) 64 4 917 9888 (nternational)

Section 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Acute toxicity - Oral	Cate or 4 - (H302)
Specific target organ toxicity (repeated exposure)	Cate or 2 - (H373)

Classification according to Directive 67/548/EEC or 1999/45/EC
Full text of R-phrases: see section 16

Hazard symbols
n - Harm ul

R-code(s)
n 22

2.2. Label elements

Product identifier
203-473-3
Contains th lene l col



Signal word
arnin

Hazard statements
H302 - Harm ul i s allo ed
H373 - Ma cause dama e to or ans throu h prolon ed or repeated exposure

Precautionary Statements - EU (§28, 1272/2008)
P260 - o not breathe dust ume as mist vapors spra
P314 - et medical advice attention i ou eel un ell
P501 - ispose o contents container to industrial incineration plant

2.3. Other hazards
Harm ul to a uatic li e

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Chemical Name	CAS No	Weight-%	Classification according to Directive 67/548/EEC or 1999/45/EC	Classification according to Regulation (EC) No. 1272/2008 [CLP]
th lene l col	107-21-1	100	n 22	cute Tox. 4 (H302) T T 2 (H373)

Full text of R-phrases: see section 16

Full text of H- and EUH-phrases: see section 16

Section 4: FIRST AID MEASURES

4.1. Description of first aid measures

General advice
s mptoms persist call a ph sician. o not breathe dust ume as mist vapors spra . o not et in e es on skin or on clothin .

Inhalation
emove to resh air. Call a ph sician. breathin is irre ular or stopped administer arti icial respiration. void direct contact ith skin. se barrier to ive mouth-to-mouth resuscitation.

Skin contact
ash skin ith soap and ater. emove contaminated clothin and shoes. ash contaminated clothin be ore reuse. et medical attention i irritation develops and persists.

Eye contact
mmediatel lush ith plent o ater. ter initial lushin remove an contact lenses and continue lushin or at least 15 minutes. eep e e ide open hile rinsin . s mptoms persist call a ph sician.

Ingestion
inse mouth. rink plent o ater. s mptoms persist call a ph sician. o N T induce vomitin .

Self-protection of the first aider
se personal protective e uipment as re uired.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms No in ormation available.

4.3. Indication of any immediate medical attention and special treatment needed

Note to physicians Treat s mptomaticall .

Section 5: FIRE FIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media
r chemical C 2 alcohol-resistant oam or ater spra .

Unsuitable extinguishing media
No in ormation available

5.2. Special hazards arising from the substance or mixture

Thermal decomposition can lead to release o irritatin and toxic ases and vapors

Hazardous combustion products Carbon oxides.

5.3. Advice for firefighters

ear sel -contained breathin apparatus and protective suit. se personal protective e uipment as re uired.

Section 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions
nsure ade uate ventilation especiall in con ined areas. eep people a a rom and up ind o spill leak.

For emergency responders
n the case o vapor ormation use a respirator ith an approved ilter.

6.2. Environmental precautions

Prevent entr into ater a s se ers basements or con ined areas. o not lush into sur ace ater or sanitar se er s stem. ee ection 12 or additional colo ical n ormation.

6.3. Methods and material for containment and cleaning up

Methods for containment Prevent urther leaka e or spilla e i sa e to do so. ike to collect lar e li uid spills.

Methods for cleaning up se personal protective e uipment as re uired. se a non-combustible material like vermiculite or sand to soak up the product and place into a container or later disposal. se clean non-sparkin tools to collect absorbed material.

6.4. Reference to other sections

ee section 13 or more in ormation.

Section 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Advice on safe handling
ash contaminated clothin be ore reuse. Handle in accordance ith ood industrial h iene and sa et practice. ash thorou hl

a ter handlin .

General Hygiene Considerations
Handle in accordance ith ood industrial h iene and sa et practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions
eep container ti htl closed in a dr and ell-ventilated place. eep out o the reach o children.

7.3. Specific end use(s)

Risk Management Methods (RMM)
The in ormation re uired is contained in this Material a et ata heet.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Chemical Name	Australia	European Union	United Kingdom	France	Spain	Germany
th lene l col 107-21-1	10 m m³ 20 ppm 52 m m³ 40 ppm T 104 m m³ T	T 20 ppm T 52 m m³ T 40 ppm T 104 m m³	T : 10 m m³ T : 20 ppm T : 52 m m³ T : 40 ppm T : 104 m m³ T : 30 m m³ k	T : 20 ppm T : 52 m m³ T : 40 ppm T : 104 m m³	T : 20 ppm T : 52 m m³ T : 40 ppm T : 104 m m³ v a d rmica	T : 10 ppm T : 26 m m³ Ceilin Peak: 20 ppm Ceilin Peak: 52 m m³ kin

Chemical Name	Italy	Portugal	Netherlands	Finland	Denmark
th lene l col 107-21-1	T : 20 ppm T : 52 m m³ T : 40 ppm T : 104 m m³ pelle	T : 20 ppm T : 52 m m³ T : 40 ppm T : 104 m m³ Ceilin : 100 m m³ P	T : 52 m m³ T : 10 m m³ T : 104 m m³ H	T : 20 ppm T : 50 m m³ T : 40 ppm T : 100 m m³ iho	T : 10 ppm T : 26 m m³ T : 10 m m³ H

Chemical Name	Austria	Switzerland	Poland	Norway	Ireland
th lene l col 107-21-1	T : 10 ppm T : 26 m m³ T 20 ppm T 52 m m³ H	T : 10 ppm T : 26 m m³ T : 20 ppm T : 52 m m³ H	T : 50 m m³ T : 15 m m³	T : 20 ppm T : 52 m m³ T : 104 m m³ T : 40 ppm H	T : 10 m m³ T : 20 ppm T : 52 m m³ T : 40 ppm T : 30 m m³ T : 104 m m³ k

Derived No Effect Level (DNEL) No in ormation available

Predicted No Effect Concentration (PNEC) No in ormation available.

8.2. Exposure controls

Engineering Controls nsure ade uate ventilation especiall in con ined areas.

Personal protective equipment

Eye/face protection Ti ht sealin sa et o les.

Skin and body protection uitable protective clothin .

Environmental exposure controls o not allo into an se er on the round or into an bod o ater.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state	i uid		
Appearance	li uid	**Odor**	No in ormation available
Color	colorless	**Odor threshold**	No data available

Property	**Values**	**Remarks • Method**
pH		No data available
Melting point / freezing point	-13 C 9 F	
Boiling point / boiling range	196 C 385 F	
Flash point	111 C 232 F	
Evaporation rate	1	
Flammability (solid, gas)		No data available
Flammability Limit in Air		
Upper flammability limit:		No data available
Lower flammability limit:		No data available
Vapor pressure		No data available
Vapor density		No data available
Specific Gravity	1.11	
Water solubility	Miscible in ater	
Solubility(ies)		No in ormation available
Partition coefficient		No data available
Autoignition temperature	400 C 752 F	
Decomposition temperature		No data available
Kinematic viscosity		No data available
Dynamic viscosity		No data available
Explosive properties	Not an explosive	
Oxidizing properties	Not applicable	

9.2. Other information

Softening point	Not applicable
Molecular weight	No data available
VOC Content (%)	Not applicable
Density	No data available
Bulk density	Not applicable

Section 10: STABILITY AND REACTIVITY

10.1. Reactivity

No data available.

10.2. Chemical stability

table under normal conditions.

xplosion data

ensitivit to Mechanical mpact	None.
ensitivit to tatic ischar e	None.

10.3. Possibility of hazardous reactions

Possibility of Hazardous Reactions
None under normal processin .

10.4. Conditions to avoid

xtremes o temperature and direct sunli ht. ncompatible materials.

10.5. Incompatible materials

tron oxidizin a ents. tron acids. tron bases. ldeh des. luminum.

10.6. Hazardous decomposition products

None under normal use conditions.

Section 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Acute toxicity

Product Information
Product does not present an acute toxicit hazard based on kno n or supplied in ormation.

National Regulations	No data available.
Eye contact	No data available.
Skin contact	No data available.
Ingestion	No data available.

Unknown acute toxicity 0 o the mixture consists o in redient(s) o unkno n toxicit .

The following values are calculated based on chapter 3.1 of the GHS document
ATEmix (oral) 500.00 m k

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
th lene l col	4700 m k (at)	10600 m k (at) 9530 k (abbit)	

Skin corrosion/irritation None kno n.

Serious eye damage/eye irritation None kno n.

Sensitization None kno n.

Germ cell mutagenicity None kno n.

Carcinogenicity None kno n.

Reproductive toxicity None kno n.

STOT - single exposure None kno n.

STOT - repeated exposure Causes dama e to or ans throu h prolon ed or repeated exposure i s allo ed.

Target Organ Effects kidne .

Aspiration hazard No in ormation available.

Section 12: ECOLOGICAL INFORMATION

12.1. Toxicity

0 o the mixture consists o component(s) o unkno n hazards to the a uatic environment

Chemical Name	Algae/aquatic plants	Fish	Crustacea
th lene l col	6500 - 13000: 96 h Pseudokirchneriella subcapitata m C50	14 - 18: 96 h ncorh nchus m kiss m C50 static 40000 - 60000: 96 h Pimephales promelas m C50 static 16000: 96 h Poecilia reticulata m C50 static 27540: 96 h epomis macrochirus m C50 static 40761: 96 h ncorh nchus m kiss m C50 static 41000: 96 h ncorh nchus m kiss m C50	46300: 48 h aphnia ma na m C50

12.2. Persistence and degradability

No in ormation available.

12.3. Bioaccumulative potential

.

Chemical Name	Partition coefficient
th lene l col	-1.93

12.4. Mobility in soil

Mobility in soil
No in ormation available.

12.5. Results of PBT and vPvB assessment

No in ormation available.

12.6. Other adverse effects

No in ormation available

Section 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from residues/unused products isposal should be in accordance ith applicable re ional national and local la s and re ulations.

Contaminated packaging mproper disposal or reuse o this container ma be dan erous and ille al.

Other Information aste codes should be assi ned b the user based on the application or hich the product as used.

Section 14: TRANSPORT INFORMATION

IMDG
14.1 UN/ID no Not re ulated
14.2 Proper shipping name Not re ulated

14.3 Hazard Class	Not re ulated
14.4 Packing Group	Not re ulated
14.5 Marine pollutant	Not applicable
14.6 Special Provisions	None
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	No in ormation available

RID

14.1 UN/ID no	Not re ulated
14.2 Proper shipping name	Not re ulated
14.3 Hazard Class	Not re ulated
14.4 Packing Group	Not re ulated
14.5 Environmental hazard	Not applicable
14.6 Special Provisions	None

ADR

14.1 UN/ID no	Not re ulated
14.2 Proper shipping name	Not re ulated
14.3 Hazard Class	Not re ulated
14.4 Packing Group	Not re ulated
14.5 Environmental hazard	Not applicable
14.6 Special Provisions	None

ICAO (air)

14.1 UN/ID no	Not re ulated
14.2 Proper shipping name	Not re ulated
14.3 Hazard Class	Not re ulated
14.4 Packing Group	Not re ulated
14.5 Environmental hazard	Not applicable
14.6 Special Provisions	None

IATA

14.1 UN/ID no	Not re ulated
14.2 Proper shipping name	Not re ulated
14.3 Hazard Class	Not re ulated
14.4 Packing Group	Not re ulated
14.5 Environmental hazard	Not applicable
14.6 Special Provisions	None

HAZCHEM Emergency Action Code
No in ormation available

Section 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations

Australia
ee section 8 or national exposure control parameters

Carcinogenicity

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies

ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies
NZIoC	Complies

Legend:

TSCA - nited tates Toxic ubstances Control ct ection 8(b) nventor
DSL/NDSL - Canadian omestic ubstances ist Non- omestic ubstances ist
EINECS/ELINCS - uropean nventor o xistin Chemical ubstances uropean ist o Noti ied Chemical ubstances
ENCS - Japan xistin and Ne Chemical ubstances
IECSC - China nventor o xistin Chemical ubstances
KECL - orean xistin and valuated Chemical ubstances
PICCS - Philippines nventor o Chemicals and Chemical ubstances
AICS - ustralian nventor o Chemical ubstances
NZIoC - Ne ealand nventor o Chemicals

15.2. Chemical safety assessment

No in ormation available

Section 16: OTHER INFORMATION

Full text of R-phrases referred to under sections 2 and 3
22 - Harm ul i s allo ed

Full text of H-Statements referred to under section 3
H302 - Harm ul i s allo ed
H373 - Ma cause dama e to or ans throu h prolon ed or repeated exposure i inhaled

Issue Date 18-Ma -2017

Revision Date 01-Mar-2019

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

Disclaimer
According to Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006, as amended by Regulation (EU) No. 2015/830.
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End of Safety Data Sheet

NEWPARK DRILLING FLUIDS

SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **MICROFLOW**

Synonyms MICRO FLOW

1.2 Uses and uses advised against

Uses DRILLING FLUID ADDITIVE

1.3 Details of the supplier of the product

Supplier name **NEWPARK DRILLING FLUIDS (AUSTRALIA) LTD**

Address 11 Alacrity Place, Henderson, WA, 6166, AUSTRALIA

Telephone +61 8 9410 8200

Fax +61 8 9410 8299

Website www.newpark.com

1.4 Emergency telephone numbers

Emergency 1800 127 406 (Australia); +64 4 917 9888 (International)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

Physical Hazards

Flammable Liquids: Category 3

Health Hazards

Skin Sensitisation: Category 1B
Serious Eye Damage / Eye Irritation: Category 2A
Specific Target Organ Toxicity (Single Exposure): Category 3 (Narcotic Effects)

Environmental Hazards

Not classified as an Environmental Hazard

2.2 GHS Label elements

Signal word **WARNING**

Pictograms



Hazard statements

H226	Flammable liquid and vapour.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.

Prevention statements

P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting equipment.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P264	Wash thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Response statements

P303 + P361 + P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340	IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P321	Specific treatment is advised - see first aid instructions.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P337 + P313	If eye irritation persists: Get medical advice/attention.
P363	Wash contaminated clothing before reuse.
P370 + P378	In case of fire: Use appropriate media for extinction.

Storage statements

P403 + P233 + P235	Store in a well-ventilated place. Keep cool. Keep container tightly closed.
P405	Store locked up.

Disposal statements

P501	Dispose of contents/container in accordance with relevant regulations.

2.3 Other hazards

No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
SWEET ORANGE OIL	68647-72-3	614-678-6	20 to 60%
ISOPROPYL ALCOHOL	67-63-0	200-661-7	15 to 50%

Ingredient Notes Terpenes (Sweet Orange Oil) may appear as CAS# 94266-47-4.

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

Ingestion For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). If swallowed, do not induce vomiting.

First aid facilities Eye wash facilities should be available.

4.2 Most important symptoms and effects, both acute and delayed

Irritating to the eyes. Vapours may cause drowsiness and dizziness.

4.3 Immediate medical attention and special treatment needed

Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media
Dry agent, carbon dioxide or foam. Prevent contamination of drains and waterways.

5.2 Special hazards arising from the substance or mixture
Flammable. May evolve carbon oxides and hydrocarbons when heated to decomposition. Eliminate all ignition sources including cigarettes, open flames, spark producing switches/tools, heaters, naked lights, pilot lights, mobile phones, etc when handling. Earth containers when dispensing fluids.

5.3 Advice for firefighters
Evacuate area and contact emergency services. Toxic gases may be evolved in a fire situation. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

5.4 Hazchem code
●3Y
●3 Alcohol Resistant Foam is the preferred firefighting medium but, if it is not available, normal foam can be used.
Y Risk of violent reaction or explosion. Wear full fire kit and breathing apparatus. Contain spill and run-off.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Clear area of all unprotected personnel. Ventilate area where possible. Contact emergency services where appropriate.

6.2 Environmental precautions
Prevent product from entering drains and waterways.

6.3 Methods of cleaning up
Contain spillage, then cover / absorb spill with non-combustible absorbent material (vermiculite, sand, or similar), collect and place in suitable containers for disposal.

6.4 Reference to other sections
See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool, dry, well ventilated area, removed from incompatible substances, heat or ignition sources and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use. Large storage areas should be bunded and have appropriate ventilation systems.

7.3 Specific end uses
No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters
Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m³	ppm	mg/m³
Isopropyl alcohol	SWA [AUS]	400	983	500	1230

Biological limits

Ingredient	Determinant	Sampling Time	BEI
ISOPROPYL ALCOHOL	Acetone in urine	End of shift at end of workweek	40 mg/L

Reference: ACGIH Biological Exposure Indices

8.2 Exposure controls

Engineering controls Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical explosion proof extraction ventilation is recommended. Flammable/explosive vapours may accumulate in poorly ventilated areas. Vapours are heavier than air and may travel some distance to an ignition source and flash back. Maintain vapour levels below the recommended exposure standard.

PPE

Eye / Face	Wear splash-proof goggles.
Hands	Wear nitrile or neoprene gloves.
Body	When using large quantities or where heavy contamination is likely, wear coveralls.
Respiratory	Where an inhalation risk exists, wear a Type A (Organic vapour) respirator. If spraying, wear a Type A-Class P1 (Organic gases/vapours and Particulate) respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	CLEAR TO OPAQUE MILKY WHITE LIQUID
Odour	CITRUS ODOUR
Flammability	FLAMMABLE
Flash point	25°C
Boiling point	154.4°C
Melting point	NOT AVAILABLE
Evaporation rate	NOT AVAILABLE
pH	NOT AVAILABLE
Vapour density	NOT AVAILABLE
Specific gravity	0.917 - 0.977
Solubility (water)	SOLUBLE
Vapour pressure	18 mm Hg @ 20°C
Upper explosion limit	6.1 %
Lower explosion limit	0.7 %
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

9.2 Other information

% Volatiles	55 - 75 %

10. STABILITY AND REACTIVITY

10.1 Reactivity

Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability

Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions

Polymerization is not expected to occur.

10.4 Conditions to avoid

Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials

Incompatible with oxidising agents (e.g. hypochlorites), acids (e.g. nitric acid), metals, heat and ignition sources.

10.6 Hazardous decomposition products

May evolve carbon oxides and hydrocarbons when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity May be harmful if swallowed. Oral Toxicity: An oral LD50 in mice of 3600 mg/kg has been reported for isopropanol.

Information available for the ingredients:

Ingredient	Oral LD50	Dermal LD50	Inhalation LC50
ISOPROPYL ALCOHOL	> 2000 mg/kg (rat) (NICNAS)	> 2000 mg/kg (rat) (NICNAS)	> 20 mg/L (rat) (NICNAS)

Skin Not classified as a skin irritant. Prolonged or repeated contact may result in irritation, rash and dermatitis.

Eye Causes serious eye irritation. Contact may result in irritation, lacrimation, pain and redness.

Sensitisation May cause an allergic skin reaction. This product is not classified as a respiratory sensitiser.

Mutagenicity Insufficient data available to classify as a mutagen.

Carcinogenicity Isopropyl alcohol is not classifiable as to its carcinogenicity to humans (IARC Group 3).

Reproductive Not classified as a reproductive toxin. Insufficient data available to classify as a reproductive toxin.

STOT - single exposure Over exposure may result in irritation of the nose and throat, coughing and headache. High level exposure may result in nausea, dizziness and drowsiness.

STOT - repeated exposure Not classified as causing organ damage from repeated exposure. However, repeated exposure to some solvents have been reported to cause adverse effects to the central nervous system (CNS), liver and kidney.

Aspiration Not classified as causing aspiration.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Not expected to be dangerous to the aquatic environment.

12.2 Persistence and degradability

This product is readily biodegradable.

12.3 Bioaccumulative potential

This product is not expected to bioaccumulate.

12.4 Mobility in soil

Relatively volatile and would therefore readily evaporate from dry soil and surfaces.

12.5 Other adverse effects

No information provided.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal For small amounts, absorb with sand, vermiculite or similar and dispose of to an approved landfill site. Contact the manufacturer/supplier for additional information if disposing of large quantities (if required). Prevent contamination of drains and waterways as aquatic life may be threatened and environmental damage may result.

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE



	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	1993	1993	1993
14.2 Proper Shipping Name	FLAMMABLE LIQUID, N.O.S. (Contains isopropyl alcohol)	FLAMMABLE LIQUID, N.O.S. (Contains isopropyl alcohol)	FLAMMABLE LIQUID, N.O.S. (Contains isopropyl alcohol)
14.3 Transport hazard class	3	3	3
14.4 Packing Group	III	III	III

14.5 Environmental hazards

Not a Marine Pollutant

14.6 Special precautions for user

Hazchem code ●3Y

GTEPG 3A1

EmS F-E, S-E

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

Inventory listings **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
All components are listed on AICS, or are exempt.

16. OTHER INFORMATION

Additional information

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

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[End of SDS]

NEWPARK DRILLING FLUIDS

SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **DYNAFIBER (TM) AP (F, M, C)**

Synonyms NDFT 376 ● NDFT 377

1.2 Uses and uses advised against

Uses LOST CIRCULATION MATERIAL

1.3 Details of the supplier of the product

Supplier name **NEWPARK DRILLING FLUIDS (AUSTRALIA) LTD**

Address 11 Alacrity Place, Henderson, WA, 6166, AUSTRALIA

Telephone +61 8 9410 8200

Fax +61 8 9410 8299

Website www.newpark.com

1.4 Emergency telephone numbers

Emergency 1800 127 406 (Australia); +64 4 917 9888 (International)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

2.2 GHS Label elements

No signal word, pictograms, hazard or precautionary statements have been allocated.

2.3 Other hazards

No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
ORGANIC FIBRE(S)	9004-34-6	232-674-9	100%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

Ingestion For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). Due to product form and application, ingestion is considered unlikely.

First aid facilities None allocated.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11 for more detailed information on health effects and symptoms.

4.3 Immediate medical attention and special treatment needed
Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media
Dry agent, carbon dioxide, foam or water fog. Prevent contamination of drains or waterways.

5.2 Special hazards arising from the substance or mixture
Combustible. May evolve carbon oxides and hydrocarbons when heated to decomposition.

5.3 Advice for firefighters
Evacuate area and contact emergency services. Toxic gases may be evolved in a fire situation. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

5.4 Hazchem code
None allocated.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Clear area of all unprotected personnel. Contact emergency services where appropriate.

6.2 Environmental precautions
Prevent product from entering drains and waterways.

6.3 Methods of cleaning up
Contain spillage, then collect and place in suitable containers for reuse or disposal. Avoid generating dust.

6.4 Reference to other sections
See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool, dry, well ventilated area, removed from incompatible substances, heat or ignition sources and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use. Check regularly for leaks or spills. Large storage areas should have appropriate ventilation systems.

7.3 Specific end uses
No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters
Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m³	ppm	mg/m³
Cellulose (paper fibre) (a)	SWA [AUS]	--	10	--	--

Biological limits
No biological limit values have been entered for this product.

8.2 Exposure controls

Engineering controls Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical explosion proof extraction ventilation is recommended. Maintain dust levels below the recommended exposure standard.

PPE

Eye / Face	Wear dust-proof goggles.
Hands	Wear PVC or rubber gloves.
Body	Not required under normal conditions of use.
Respiratory	Where an inhalation risk exists, wear a Class P1 (Particulate) respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	YELLOW TO BROWN SOLID
Odour	SLIGHT ODOUR
Flammability	COMBUSTIBLE
Flash point	NOT AVAILABLE
Boiling point	NOT AVAILABLE
Melting point	NOT AVAILABLE
Evaporation rate	NOT AVAILABLE
pH	7 to 8
Vapour density	NOT AVAILABLE
Specific gravity	0.9 to 1.2
Solubility (water)	INSOLUBLE
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT AVAILABLE
Lower explosion limit	NOT AVAILABLE
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

10. STABILITY AND REACTIVITY

10.1 Reactivity

Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability

Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions

Polymerization is not expected to occur.

10.4 Conditions to avoid

Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials

Incompatible with oxidising agents (e.g. hypochlorites), acids (e.g. nitric acid), heat and ignition sources.

10.6 Hazardous decomposition products

May evolve carbon oxides and hydrocarbons when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity This product is expected to be of low acute toxicity. Under normal conditions of use, adverse health effects are not anticipated.

Information available for the ingredients:

Ingredient	Oral LD50	Dermal LD50	Inhalation LC50
ORGANIC FIBRE(S)	> 5000 mg/kg (rat)	> 2000 mg/kg (rabbit)	> 5800 mg/m³/4 hours (rat)

Skin Not classified as a skin irritant. Skin irritation is not anticipated under normal conditions of use.

Eye Not classified as an eye irritant. Eye irritation is not anticipated under normal conditions of use.

Sensitisation Not classified as causing skin or respiratory sensitisation.

Mutagenicity Not classified as a mutagen.

Carcinogenicity Not classified as a carcinogen.

Reproductive Not classified as a reproductive toxin.

STOT - single exposure Not classified as causing organ damage from single exposure.

STOT - repeated exposure Not classified as causing organ damage from repeated exposure.

Aspiration Not relevant.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

No information provided.

12.2 Persistence and degradability

No information provided.

12.3 Bioaccumulative potential

No information provided.

12.4 Mobility in soil

No information provided.

12.5 Other adverse effects

No information provided.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal Reuse or recycle where possible. Alternatively, ensure product is covered with moist soil to prevent dust generation and dispose of to an approved landfill site. Contact the manufacturer/supplier for additional information (if required).

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE, IMDG OR IATA

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	None allocated.	None allocated.	None allocated.
14.2 Proper Shipping Name	None allocated.	None allocated.	None allocated.
14.3 Transport hazard class	None allocated.	None allocated.	None allocated.
14.4 Packing Group	None allocated.	None allocated.	None allocated.

14.5 Environmental hazards

No information provided.

14.6 Special precautions for user

Hazchem code None allocated.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

Inventory listings **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
All components are listed on AICS, or are exempt.

16. OTHER INFORMATION

Additional information

EXPOSURE STANDARDS - TIME WEIGHTED AVERAGES: Exposure standards are established on the premise of an 8 hour work period of normal intensity, under normal climatic conditions and where a 16 hour break between shifts exists to enable the body to eliminate absorbed contaminants. In the following circumstances, exposure standards must be reduced: Strenuous work conditions; hot, humid climates; high altitude conditions; extended shifts (which increase the exposure period and shorten the period of recuperation).

COMBUSTIBLE - EXPLOSIVE CARBONACEOUS DUST: Carbonaceous/organic dusts have the potential, with dispersion, to present an explosion hazard if an ignition source exists. All equipment used to handle, transfer or store this product MUST BE cleaned thoroughly prior to cutting, welding, drilling or exposure to any other form of heat or ignition sources. If bulk stored, containers should be ventilated on a routine basis to avoid vapour accumulation (where applicable, eg for flocculants).

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

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It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

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Email: info@rmt.com.au
Web: www.rmtglobal.com

[End of SDS]

HALLIBURTON

SAFETY DATA SHEET

PAC™-R

Revision Date: 30- pr-2020 **Revision Number:** 30

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Non-Hazardous accordin to the criteria o the 3rd evised dition o the loball Harmonised stem o Classi ication and abellin o Chemicals (H) Non- an erous oods accordin to the criteria o .

1.1. Product Identifier

Product Name PAC™-R

Other means of Identification

Synonyms None

Hazardous Material Number: HM003725

Recommended use of the chemical and restrictions on use

Recommended Use Fluid oss dditive

Uses advised against No in ormation available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton aroid ustralia Pt . td.
15 Marriott oad Jandakot 6164
ustralia
CN Number: 009 000 775
Telephone Number: 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address dunexchem@halliburton.com

Emergency phone number

61 1 800 686 951
lobal ncident esponse ccess Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour ervice: - 13 11 26
Police or Fire ri ade: - 000 (exchan e): - 1100

2. Hazard Identification

Statement of Hazardous Nature Non-Hazardous accordin to the criteria o the 3rd evised dition o the loball Harmonised stem o Classi ication and abellin o Chemicals (H) Non- an erous oods accordin to the criteria o .

Classification of the hazardous chemical

Not classi ied

Label elements, including precautionary statements

Hazard Pictograms

Signal Word Not Hazardous

Hazard Statements: Not Classi ied

Precautionary Statements

Prevention None
Response None
Storage None
Disposal None

Contains

Substances	**CAS Number**
Contains no hazardous substances in concentrations above cut-o values accordin to the competent authorit	N

Other hazards which do not result in classification

ust can orm an explosive mixture in air
This substance is not considered to be persistent bioaccumulatin nor toxic (P T).
This substance is not considered to be ver persistent nor ver bioaccumulatin (vPv).

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
Contains no hazardous substances in concentrations above cut-o values accordin to the competent authorit	N	60 - 100	Not classi ied

4. First aid measures

Description of necessary first aid measures

Inhalation inhaled remove rom area to resh air. et medical attention i respirator irritation develops or i breathin becomes di icult.

Eyes n case o contact immediatel lush e es ith plent o ater or at least 15 minutes and et medical attention i irritation persists.

Skin ash ith soap and ater. et medical attention i irritation persists.

Ingestion nder normal conditions irst aid procedures are not re uired.

Symptoms caused by exposure

No si ni icant hazards expected.

Medical Attention and Special Treatment

Notes to Physician Treat s mptomaticall

5. Fire Fighting Measures

Suitable extinguishing equipment

Suitable Extinguishing Media

ater o carbon dioxide oam dr chemical.

Extinguishing media which must not be used for safety reasons

None kno n.

Specific hazards arising from the chemical

Special exposure hazards in a fire

ecomposition in ire ma produce harm ul ases. r anic dust in the presence o an i nition source can be explosive in hi h concentrations. ood housekeepin practices are re uired to minimize this potential.

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters

Full protective clothin and approved sel -contained breathin apparatus re uired or ire i htin personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

se appropriate protective e uipment. void creatin and breathin dust. void contact ith skin e es and clothin . nsure ade uate ventilation.

6.2. Environmental precautions

Prevent rom enterin se ers ater a s or lo areas.

6.3. Methods and material for containment and cleaning up

coop up and remove.

7. Handling and storage

7.1. Precautions for safe handling

Handling Precautions

void creatin or inhalin dust. void dust accumulations. nsure ade uate ventilation. ash hands a ter use. aunder contaminated clothin be ore reuse. lipper hen et. se appropriate protective e uipment.

Hygiene Measures

Handle in accordance ith ood industrial h iene and sa et practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information

tore a a rom oxidizers. tore in a dr location. Product has a shel li e o 36 months.

Other Guidelines

No in ormation available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring

Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
Contains no hazardous substances in concentrations above cut-o values accordin to the competent authorit	N	Not applicable	Not applicable

Appropriate engineering controls

Engineering Controls ell ventilated area to control dust levels. ocal exhaust ventilation should be used in areas ithout ood cross ventilation.

Personal protective equipment (PPE)

Personal Protective Equipment en ineerin controls and ork practices cannot prevent excessive exposures the selection and proper use o personal protective e uipment should be determined b an industrial h ienist or other uali ied pro essional based on the speci ic application o this product.

Respiratory Protection Not normall needed. ut i si ni icant exposures are possible then the ollo in respirator is recommended:

ust mist respirator. (N95 P2 P3)

Hand Protection Normal ork loves.

Skin Protection Normal ork coveralls.

Eye Protection ear sa et lasses or o les to protect a ainst exposure.

Other Precautions None kno n.

Environmental Exposure Controls o not allo material to contaminate round ater s stem.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: olid Po der
Color hite to o hite
Odor: dorless
Odor Threshold: No in ormation available

Propert emarks - Method	alues
pH:	6.5-9 (1)
Freezing Point / Range	No data available
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	No data available
Flash Point	221 C 430 F
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	1.6
Water Solubility	oluble in ater
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	400 C 752 F
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No in ormation available
Oxidizing Properties	No in ormation available

9.2. Other information

VOC Content (%)	No data available
Bulk Density	40-55 lbs t3

10. Stability and Reactivity

10.1. Reactivity
Not expected to be reactive.
10.2. Chemical stability
table
10.3. Possibility of hazardous reactions
ill Not ccur
10.4. Conditions to avoid
None anticipated
10.5. Incompatible materials
tron oxidizers.
10.6. Hazardous decomposition products
Carbon monoxide and carbon dioxide.

11. Toxicological Information

Information on routes of exposure
Principle Route of Exposure e or skin contact inhalation.

Symptoms related to exposure
Most Important Symptoms/Effects
No si ni icant hazards expected.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Contains no hazardous substances in	N	No data available	No data available	No data available

concentrations above cut-o values accordin to the competent authorit				

Immediate, delayed and chronic health effects from exposure

Inhalation Ma cause mild respirator irritation.
Eye Contact None kno n.
Skin Contact None kno n.
Ingestion None kno n.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at reater than 0.1 are chronic health hazards.

Exposure Levels
No data available

Interactive effects
None kno n.

Data limitations
No data available

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	C Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Contains no hazardous substances in concentrations above cut-o values accordin to the competent authorit	N	No in ormation available	No in ormation available	No in ormation available	No in ormation available

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Contains no hazardous substances in concentrations above cut-o values accordin to the competent authorit	N	No in ormation available

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Contains no hazardous substances in concentrations above cut-o values accordin to the competent authorit	N	No in ormation available

12.4. Mobility in soil

isperses rapidl in air

Substances	CAS Number	Mobility
Contains no hazardous substances in concentrations above cut-o values accordin to the competent authorit	N	No in ormation available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain an kno n or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

ur in a licensed land ill accordin to ederal state and local re ulations.

Disposal of any contaminated packaging

Follo all applicable national or local re ulations.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Special precautions during transport

None

HazChem Code

None llocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	ll components are listed on the C or are sub ect to a relevant exemption permit or assessment certi icate.
New Zealand Inventory of	ll components are listed on the N oC or are sub ect to a relevant exemption permit or

Chemicals	assessment certi icate.
US TSCA Inventory	ll components listed on inventor or are exempt.
Canadian Domestic Substances List (DSL)	ll components listed on inventor or are exempt.

Poisons Schedule number
None llocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	oes not appl .
Stockholm Convention - Persistent Organic Pollutants:	oes not appl
Rotterdam Convention - Prior Informed Consent:	oes not appl .
Basel Convention - Hazardous Waste:	oes not appl .

16. Other information

Date of preparation or review

Revision Date: 30- pr-2020

Revision Note
sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
None

Additional information

For additional in ormation on the use o this product contact our local Halliburton representative.

For uestions about the a et ata heet or this or other Halliburton products contact Chemical te ardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
m m^3 - milli ram cubic meter
mm - millimeter
mmH - millimeter mercur
- ei ht ei ht
d - da

Key literature references and sources for data
.Chem .com
N CC

Disclaimer Statement

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End of Safety Data Sheet

NEWPARK DRILLING FLUIDS

SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **POLYDRILL**

Synonym(s) POLY DRILL

1.2 Uses and uses advised against

Use(s) ADDITIVE • DRILLING FLUID ADDITIVE

1.3 Details of the supplier of the product

Supplier name **NEWPARK DRILLING FLUIDS (AUSTRALIA) LTD**

Address 11 Alacrity Place, Henderson, WA, 6166, AUSTRALIA

Telephone +61 8 9410 8200

Fax +61 8 9410 8299

Website www.newpark.com

1.4 Emergency telephone number(s)

Emergency 1800 127 406 (Australia); +64 3 3530199 (International)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO AUSTRALIAN WHS REGULATIONS

2.2 Label elements

No signal word, pictograms, hazard or precautionary statements have been allocated.

2.3 Other hazards

No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
SULPHONATED ORGANIC POLYMER	-	-	100%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

Ingestion For advice, contact a Poison Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). If swallowed, do not induce vomiting. Ingestion is considered unlikely due to product form.

First aid facilities Eye wash facilities and safety shower should be available.

4.2 Most important symptoms and effects, both acute and delayed
Adverse effects not expected from this product under normal conditions of use.

4.3 Immediate medical attention and special treatment needed
Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media
Dry agent, carbon dioxide, foam or water fog. Prevent contamination of drains and waterways.

5.2 Special hazards arising from the substance or mixture
Combustible. May evolve toxic gases (carbon oxides, hydrocarbons) when heated to decomposition. Finely divided dust may form explosive mixtures with air.

5.3 Advice for firefighters
Evacuate area and contact emergency services. Toxic gases may be evolved in a fire situation. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

5.4 Hazchem code
None allocated.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Clear area of all unprotected personnel. Contact emergency services where appropriate.

6.2 Environmental precautions
Prevent product from entering drains and waterways.

6.3 Methods of cleaning up
Contain spillage, then collect and place in suitable containers for reuse or disposal. Avoid generating dust.

6.4 Reference to other sections
See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool, dry, well ventilated area, removed from incompatible substances and foodstuffs. Ensure containers are adequately labelled and tightly closed when not in use.

7.3 Specific end use(s)
No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters
Exposure standards

No exposure standards have been entered for this product.

Biological limits

No biological limit values have been entered for this product.

8.2 Exposure controls
Engineering controls Avoid inhalation. Use in well ventilated areas.

PPE

Eye / Face	Wear dust-proof goggles.
Hands	Wear PVC or rubber gloves.
Body	When using large quantities or where heavy contamination is likely, wear coveralls.
Respiratory	Where an inhalation risk exists, wear a Class P1 (Particulate) respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	RED BROWN POWDER
Odour	CHARACTERISTIC ODOUR
Flammability	COMBUSTIBLE
Flash point	NOT RELEVANT
Boiling point	> 370°C
Melting point	NOT AVAILABLE
Evaporation rate	NOT AVAILABLE
pH	7 to 9 (150 g/L)
Vapour density	NOT AVAILABLE
Specific gravity	1.8
Solubility (water)	320 g/L
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

10. STABILITY AND REACTIVITY

10.1 Reactivity

Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability

Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions

Polymerization is not expected to occur.

10.4 Conditions to avoid

Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials

Incompatible with oxidising agents (e.g. hypochlorites) and acids (e.g. nitric acid).

10.6 Hazardous decomposition products

May evolve carbon oxides and hydrocarbons when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity **Information available for the product:**

This product is expected to be of low toxicity. Under normal conditions of use, adverse health effects are not anticipated.

Information available for the ingredient(s):

Ingredient	Oral Toxicity (LD50)	Dermal Toxicity (LD50)	Inhalation Toxicity (LC50)
SULPHONATED ORGANIC POLYMER	> 5000 mg/kg (rat)	--	--

Skin Not classified as a skin irritant. Contact may result in mild irritation.

Eye Not classified as an eye irritant. Contact may cause discomfort, lacrimation and redness.

Sensitization This product is not known to be a skin or respiratory sensitiser.

Mutagenicity No evidence of mutagenic effects.

Carcinogenicity No evidence of carcinogenic effects.

Reproductive No evidence of reproductive effects.

STOT – single exposure No known effects from this product.

STOT – repeated exposure No known effects from this product.

Aspiration This product does not present an aspiration hazard.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No information provided.

12.2 Persistence and degradability
This product is not readily biodegradable.

12.3 Bioaccumulative potential
No information provided.

12.4 Mobility in soil
No information provided.

12.5 Other adverse effects
No information provided.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Waste disposal Ensure product is covered with moist soil to prevent dust generation and dispose of to approved Council landfill. Contact the manufacturer/supplier for additional information (if required).

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE, IMDG OR IATA

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	None Allocated	None Allocated	None Allocated
14.2 Proper Shipping Name	None Allocated	None Allocated	None Allocated
14.3 Transport hazard class	None Allocated	None Allocated	None Allocated
14.4 Packing Group	None Allocated	None Allocated	None Allocated

14.5 Environmental hazards No information provided

14.6 Special precautions for user

Hazchem code None Allocated

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

The classifications and phrases listed below are based on the Approved Criteria for Classifying Hazardous Substances [NOHSC: 1008(2004)].

Hazard codes None allocated.

Risk phrases None allocated.

Safety phrases None allocated.

Inventory listing(s) **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
All components are listed on AICS, or are exempt.

16. OTHER INFORMATION

Additional information

RESPIRATORS: In general the use of respirators should be limited and engineering controls employed to avoid exposure. If respiratory equipment must be worn ensure correct respirator selection and training is undertaken. Remember that some respirators may be extremely uncomfortable when used for long periods. The use of air powered or air supplied respirators should be considered where prolonged or repeated use is necessary.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a ChemAlert report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

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Fax: +61 8 9322 1794
Email: info@rmt.com.au
Web: www.rmt.com.au.

[End of SDS]

NEWPARK DRILLING FLUIDS

SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **POTASSIUM CHLORIDE**

Synonyms KCL ● MURIATE OF POTASH ● POTASH ● SYLVITE

1.2 Uses and uses advised against

Uses DRILLING FLUID ADDITIVE ● FERTILISER ● INHIBITOR

1.3 Details of the supplier of the product

Supplier name **NEWPARK DRILLING FLUIDS (AUSTRALIA) LTD**

Address 11 Alacrity Place, Henderson, WA, 6166, AUSTRALIA

Telephone +61 8 9410 8200

Fax +61 8 9410 8299

Website www.newpark.com

1.4 Emergency telephone numbers

Emergency 1800 127 406 (Australia); +64 4 917 9888 (International)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

2.2 GHS Label elements

No signal word, pictograms, hazard or precautionary statements have been allocated.

2.3 Other hazards

No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
POTASSIUM CHLORIDE	7447-40-7	231-211-8	>97%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

Ingestion For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). If swallowed, do not induce vomiting.

First aid facilities Eye wash facilities should be available.

4.2 Most important symptoms and effects, both acute and delayed

Adverse effects not expected from this product under normal conditions of use.

4.3 Immediate medical attention and special treatment needed
Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media
Use an extinguishing agent suitable for the surrounding fire.

5.2 Special hazards arising from the substance or mixture
Non flammable. May evolve toxic gases (potassium oxides, chlorides) when heated to decomposition.

5.3 Advice for firefighters
Evacuate area and contact emergency services. Toxic gases may be evolved in a fire situation. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

5.4 Hazchem code
None allocated.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS.

6.2 Environmental precautions
Prevent product from entering drains and waterways.

6.3 Methods of cleaning up
Contain spillage, then collect and place in suitable containers for disposal. Avoid generating dust.

6.4 Reference to other sections
See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool, dry, well ventilated area, removed from incompatible substances and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use.

7.3 Specific end uses
No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters
Exposure standards

No exposure standards have been entered for this product.

Biological limits

No biological limit values have been entered for this product.

8.2 Exposure controls
Engineering controls Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended.

PPE

Eye / Face	At high dust levels, wear dust-proof goggles.
Hands	With prolonged use, wear PVC or rubber or cotton gloves.
Body	With prolonged use, wear coveralls.
Respiratory	At high dust levels, wear a Class P1 (Particulate) respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	WHITE SOLID
Odour	ODOURLESS
Flammability	NON FLAMMABLE
Flash point	NOT RELEVANT
Boiling point	1413°C
Melting point	773°C
Evaporation rate	NOT AVAILABLE
pH	NOT AVAILABLE
Vapour density	NOT AVAILABLE
Specific gravity	2.0
Solubility (water)	340 g/L @ 20°C
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

10. STABILITY AND REACTIVITY

10.1 Reactivity

Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability

Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions

Polymerization will not occur.

10.4 Conditions to avoid

Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials

Potassium chloride is not in general strongly reactive. Violent reaction with BrF3 and with a mixture of sulfuric acid potassium permanganate mixture (NTP, 1992). Reacts with concentrated sulfuric acid to generate fumes of hydrogen chloride. Incompatible with oxidising agents.

10.6 Hazardous decomposition products

May evolve toxic gases (potassium oxides, chlorides) when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity May be harmful if swallowed in large quantities. Additional toxicity data for potassium chloride:
LD50 (Intraperitoneal): 620 mg/kg (mouse)
LD50 (Intravenous): 117 mg/kg (mouse)
LDLo (Ingestion): 20 mg/kg (man)
LDLo (Intraperitoneal): 900 mg/kg (guinea pig)
LDLo (Intravenous): 77 mg/kg (guinea pig)

LDLo (Subcutaneous): 2120 mg/kg (frog)
TDLo (Ingestion): 60 mg/kg/days (woman)

Information available for the ingredients:

Ingredient	Oral LD50	Dermal LD50	Inhalation LC50
POTASSIUM CHLORIDE	2600 mg/kg (rat)	--	--

Skin Not classified as a skin irritant. Contact may result in mild irritation and rash.

Eye Contact may cause discomfort, lacrimation and redness.

Sensitisation Not classified as causing skin or respiratory sensitisation.

Mutagenicity No evidence of mutagenic effects.

Carcinogenicity No evidence of carcinogenic effects.

Reproductive No relevant or reliable studies were identified.

STOT - single exposure Acute potassium poisoning via ingestion is rare as a large single dose usually induces vomiting, and potassium is rapidly excreted by the body, however this product does have the potential to cause cardiovascular disorders.

STOT - repeated exposure Not classified as causing organ damage from repeated exposure.

Aspiration Not relevant.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

In short-term acute toxicity tests with fish, daphnia and algae the following results were found (lowest test result values): Ictalurus punctulus 48h-LC50 = 720 mg/l; Daphnia magna: 48h-LC50 = 177 mg/l; Nitzschia linearis: 120 h-EC50 = 1337 mg/l. A chronic reproductive test with the invertebrate Daphnia magna gave a LOEC of 101 mg/l. All the studies compiled on the acute and chronic aquatic toxicity were > 100 mg/L. Thus it is concluded that KCl is not hazardous to freshwater organisms. Taking into considerations the background concentrations of KCl in seawater (380 mg/l K+ and 19,000 mg/l Cl-), it is concluded that there is no reason for further investigations of KCl on marine species. The low concern for the environment is supported by the absence of a bioaccumulation potential for the substance.

12.2 Persistence and degradability

Biodegradability does not pertain to inorganic substances.

12.3 Bioaccumulative potential

Does not bioaccumulate.

12.4 Mobility in soil

No impact if small amount is released to the soil.

12.5 Other adverse effects

No information provided.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal Collect and place in sealable containers and dispose of to an approved landfill site. Contact the manufacturer/supplier for additional information (if required).

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE, IMDG OR IATA

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	None allocated.	None allocated.	None allocated.
14.2 Proper Shipping Name	None allocated.	None allocated.	None allocated.
14.3 Transport hazard class	None allocated.	None allocated.	None allocated.
14.4 Packing Group	None allocated.	None allocated.	None allocated.

14.5 Environmental hazards

No information provided.

14.6 Special precautions for user

Hazchem code None allocated.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

Inventory listings **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
All components are listed on AICS, or are exempt.

16. OTHER INFORMATION

Additional information

RESPIRATORS: In general the use of respirators should be limited and engineering controls employed to avoid exposure. If respiratory equipment must be worn ensure correct respirator selection and training is undertaken. Remember that some respirators may be extremely uncomfortable when used for long periods. The use of air powered or air supplied respirators should be considered where prolonged or repeated use is necessary.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

Prepared by

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[End of SDS]

NEWPARK DRILLING FLUIDS

SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **QUICKSEAL (F,M,C)**

Synonyms QUICKSEAL

1.2 Uses and uses advised against

Uses DRILLING FLUID ADDITIVE

1.3 Details of the supplier of the product

Supplier name **NEWPARK DRILLING FLUIDS (AUSTRALIA) LTD**

Address 11 Alacrity Place, Henderson, WA, 6166, AUSTRALIA

Telephone +61 8 9410 8200

Fax +61 8 9410 8299

Website www.newpark.com

1.4 Emergency telephone numbers

Emergency 1800 127 406 (Australia); +64 4 917 9888 (International)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

2.2 GHS Label elements

No signal word, pictograms, hazard or precautionary statements have been allocated.

2.3 Other hazards

No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
CELLULOSE	9004-34-6	232-674-9	100%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water.

Ingestion For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). If swallowed, do not induce vomiting.

First aid facilities None allocated.

4.2 Most important symptoms and effects, both acute and delayed

Adverse effects not expected from this product under normal conditions of use.

4.3 Immediate medical attention and special treatment needed
Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media
Dry agent, carbon dioxide, foam or water fog. Prevent contamination of drains or waterways.

5.2 Special hazards arising from the substance or mixture
Combustible. May evolve carbon oxides and hydrocarbons when heated to decomposition. Dust may form explosive mixtures with air.

5.3 Advice for firefighters
Evacuate area and contact emergency services. Toxic gases may be evolved in a fire situation. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Difficult to extinguish once burning.

5.4 Hazchem code
None allocated.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS.

6.2 Environmental precautions
Prevent product from entering drains and waterways.

6.3 Methods of cleaning up
Moisten with water to prevent a dust hazard and place in sealable containers for disposal.

6.4 Reference to other sections
See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool, dry, well ventilated area, removed from incompatible substances, heat or ignition sources and foodstuffs. Ensure containers are labelled, protected from light, freezing or physical damage and tightly sealed when not in use. Keep out of reach of children.

7.3 Specific end uses
No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters
Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m³	ppm	mg/m³
Cellulose (paper fibre) (a)	SWA [AUS]	--	10	--	--

Biological limits No Biological Limit Value allocated.

8.2 Exposure controls
Engineering controls Avoid inhalation. Use in well ventilated areas.

PPE

Eye / Face	Wear dust-proof goggles.
Hands	Wear PVC or rubber gloves.
Body	When using large quantities or where heavy contamination is likely, wear coveralls.
Respiratory	Where an inhalation risk exists, wear a Class P1 (Particulate) respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	YELLOW TO BROWN SOLID
Odour	SLIGHT ODOUR
Flammability	COMBUSTIBLE
Flash point	NOT AVAILABLE
Boiling point	NOT RELEVANT
Melting point	NOT AVAILABLE
Evaporation rate	NOT AVAILABLE
pH	7 to 8
Vapour density	NOT AVAILABLE
Specific gravity	0.9 - 1.2
Solubility (water)	INSOLUBLE
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

10. STABILITY AND REACTIVITY

10.1 Reactivity

Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability

Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions

Polymerization is not expected to occur.

10.4 Conditions to avoid

Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials

Incompatible with calcium oxides, bleaching powder, perchlorates, perchloric acid, sodium chlorate, fluorine, nitric acid, sodium nitrate and sodium nitrite.

10.6 Hazardous decomposition products

May evolve carbon oxides and hydrocarbons when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity This product is expected to be of low acute toxicity. Under normal conditions of use, adverse health effects are not anticipated.
Acute Oral Toxicity: LD50 (oral) > 5000 mg/kg (rats).
Acute Dermal Toxicity: LD50 (dermal) > 2000 mg/kg (rats).
Acute Inhalation Toxicity: LC50 (Inhalation) = 5800 mg/m3/4hrs (rat).

Information available for the ingredients:

Ingredient	Oral LD50	Dermal LD50	Inhalation LC50
CELLULOSE	> 5000 mg/kg (rat)	> 2000 mg/kg (rabbit)	> 5800 mg/m³/4 hours (rat)

Additional ingredient toxicity values:

CELLULOSE (9004-34-6)
LD50 (intraperitoneal) > 31600 mg/kg (rat)

Skin Not classified as a skin irritant. Contact may result in mechanical irritation, redness and rash.

Eye Not classified as an eye irritant. However, this product may cause mechanical eye irritation with redness and lacrimation.

Sensitisation Not classified as causing skin or respiratory sensitisation.

Mutagenicity No evidence of mutagenic effects.

Carcinogenicity No evidence of carcinogenic effects.

Reproductive No relevant or reliable studies were identified.

STOT - single exposure Not classified as causing organ damage from single exposure.

STOT - repeated exposure Not classified as causing organ damage from repeated exposure.

Aspiration This product does not present an aspiration hazard.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
Low toxicity to aquatic organisms.

12.2 Persistence and degradability
This product is readily biodegradable.

12.3 Bioaccumulative potential
This product is not expected to bioaccumulate.

12.4 Mobility in soil
No information provided.

12.5 Other adverse effects
No information provided.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal Reuse where possible. No special precautions are normally required when handling this product.

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE, IMDG OR IATA

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	None allocated.	None allocated.	None allocated.
14.2 Proper Shipping Name	None allocated.	None allocated.	None allocated.
14.3 Transport hazard class	None allocated.	None allocated.	None allocated.
14.4 Packing Group	None allocated.	None allocated.	None allocated.

14.5 Environmental hazards

No information provided.

14.6 Special precautions for user

Hazchem code None allocated.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

Inventory listings **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
All components are listed on AICS, or are exempt.

16. OTHER INFORMATION

Additional information

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
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EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

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It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

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Prepared by

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[End of SDS]

NEWPARK DRILLING FLUIDS

SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **SAPP**

Synonyms DISODIUM DIHYDROGEN PYROPHOSPHATE ● DISODIUM PYROPHOSPHATE

1.2 Uses and uses advised against

Uses ACIDIFIER ● BUFFERING AGENT

1.3 Details of the supplier of the product

Supplier name **NEWPARK DRILLING FLUIDS (AUSTRALIA) LTD**

Address 11 Alacrity Place, Henderson, WA, 6166, AUSTRALIA

Telephone +61 8 9410 8200

Fax +61 8 9410 8299

Website www.newpark.com

1.4 Emergency telephone numbers

Emergency 1800 127 406 (Australia); +64 4 917 9888 (International)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

2.2 GHS Label elements

No signal word, pictograms, hazard or precautionary statements have been allocated.

2.3 Other hazards

No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
DISODIUM PYROPHOSPHATE	7758-16-9	231-835-0	100%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water.

Ingestion For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor (at once).

First aid facilities Eye wash facilities and safety shower should be available.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11 for more detailed information on health effects and symptoms.

4.3 Immediate medical attention and special treatment needed
Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media
Use an extinguishing agent suitable for the surrounding fire.

5.2 Special hazards arising from the substance or mixture
Non flammable. May evolve toxic gases (phosphorus oxides) when heated to decomposition.

5.3 Advice for firefighters
Evacuate area and contact emergency services. Toxic gases may be evolved in a fire situation. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

5.4 Hazchem code
None allocated.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Ventilate area where possible.

6.2 Environmental precautions
Prevent product from entering drains and waterways.

6.3 Methods of cleaning up
Contain spillage, then collect and place in suitable containers for disposal. Avoid generating dust.

6.4 Reference to other sections
See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool, dry, well ventilated area, removed from incompatible substances and foodstuffs. Ensure containers are adequately labelled and tightly closed when not in use.

7.3 Specific end uses
No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters
Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m³	ppm	mg/m³
Nuisance dust	SWA [AUS]	--	10	--	--

Biological limits

No biological limit values have been entered for this product.

8.2 Exposure controls
Engineering controls Avoid inhalation. Use in well ventilated areas.

PPE

Eye / Face	Wear dust-proof goggles.
Hands	Wear PVC or rubber gloves.
Body	When using large quantities or where heavy contamination is likely, wear coveralls.
Respiratory	Where an inhalation risk exists, wear a Class P1 (Particulate) respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	WHITE POWDER
Odour	SLIGHT ODOUR
Flammability	NON FLAMMABLE
Flash point	NOT RELEVANT
Boiling point	NOT AVAILABLE
Melting point	> 600°C
Evaporation rate	NOT AVAILABLE
pH	4 - 5 (10% Solution)
Vapour density	NOT AVAILABLE
Specific gravity	1.35 - 1.41
Solubility (water)	119 g/L
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

10. STABILITY AND REACTIVITY

10.1 Reactivity

Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability

Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions

Polymerization is not expected to occur.

10.4 Conditions to avoid

Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials

Incompatible with oxidising agents (e.g. hypochlorites) and acids (e.g. nitric acid).

10.6 Hazardous decomposition products

May evolve toxic gases (phosphorus oxides) when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity Low toxicity. Ingestion of large quantities may result in nausea, vomiting and gastrointestinal irritation.

Ingestion of large quantities may also result in serious disturbances in calcium metabolism.

LD50 (Ingestion): 2650 mg/kg (mouse)
LD50 (Intraperitoneal): 1 g/kg (mouse)
LD50 (Intravenous): 59 mg/kg (mouse)
LD50 (Subcutaneous): 480 mg/kg (mouse)

Information available for the ingredients:

Ingredient	Oral LD50	Dermal LD50	Inhalation LC50
DISODIUM PYROPHOSPHATE	2650 mg/kg (mouse)	> 2000 mg/kg (rat)	> 0.58 mg/L/4hrs (rat)

Additional ingredient toxicity values:

DISODIUM PYROPHOSPHATE (7758-16-9)
LD50 (intraperitoneal) 1 g/kg (mouse)
LD50 (intravenous) 59 mg/kg (mouse)
LD50 (subcutaneous) 480 mg/kg (mouse)

Skin Low to moderate irritant. Prolonged or repeated contact may result in irritation and rash.

Eye Low to moderate irritant. Contact may result in mild irritation, lacrimation and redness.

Sensitisation Not classified as causing skin or respiratory sensitisation.

Mutagenicity Not classified as a mutagen.

Carcinogenicity Not classified as a carcinogen.

Reproductive Not classified as a reproductive toxin.

STOT - single exposure Low irritant. Over exposure may result in irritation of the nose and throat, with coughing.

STOT - repeated exposure Not classified as causing organ damage from repeated exposure.

Aspiration This product does not present an aspiration hazard.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No information provided.

12.2 Persistence and degradability
Biodegradability does not pertain to inorganic substances.

12.3 Bioaccumulative potential
Does not bioaccumulate.

12.4 Mobility in soil
No information provided.

12.5 Other adverse effects
No information provided.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal Dispose of to an approved landfill or waste processing site. Contact the manufacturer/supplier for additional information (if required).

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE, IMDG OR IATA

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	None allocated.	None allocated.	None allocated.
14.2 Proper Shipping Name	None allocated.	None allocated.	None allocated.
14.3 Transport hazard class	None allocated.	None allocated.	None allocated.
14.4 Packing Group	None allocated.	None allocated.	None allocated.

14.5 Environmental hazards

No information provided.

14.6 Special precautions for user

Hazchem code None allocated.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

Inventory listings **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
All components are listed on AICS, or are exempt.

16. OTHER INFORMATION

Additional information

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

Prepared by

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[End of SDS]

NEWPARK DRILLING FLUIDS

SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **SODA ASH**

Synonyms SODA ASH DENSE ● SODIUM CARBONATE

1.2 Uses and uses advised against

Uses DRILLING AID

1.3 Details of the supplier of the product

Supplier name **NEWPARK DRILLING FLUIDS (AUSTRALIA) LTD**

Address 11 Alacrity Place, Henderson, WA, 6166, AUSTRALIA

Telephone +61 8 9410 8200

Fax +61 8 9410 8299

Website www.newpark.com

1.4 Emergency telephone numbers

Emergency 1800 127 406 (Australia); +64 4 917 9888 (International)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

Physical Hazards

Not classified as a Physical Hazard

Health Hazards

Serious Eye Damage / Eye Irritation: Category 1
Specific Target Organ Toxicity (Single Exposure): Category 3 (Respiratory Irritation)

Environmental Hazards

Not classified as an Environmental Hazard

2.2 GHS Label elements

Signal word **DANGER**

Pictograms



Hazard statements

H318 Causes serious eye damage.
H335 May cause respiratory irritation.

Prevention statements

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response statements

P304 + P340	IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor/physician.

Storage statements

P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

Disposal statements

P501	Dispose of contents/container in accordance with relevant regulations.

2.3 Other hazards

No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
SODIUM CARBONATE	497-19-8	207-838-8	>97%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

Ingestion For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). If swallowed, do not induce vomiting.

First aid facilities Eye wash facilities should be available.

4.2 Most important symptoms and effects, both acute and delayed

Irritating to the eyes and skin.

4.3 Immediate medical attention and special treatment needed

Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Use an extinguishing agent suitable for the surrounding fire.

5.2 Special hazards arising from the substance or mixture

Non flammable. May evolve toxic gases if strongly heated.

5.3 Advice for firefighters

Treat as per requirements for surrounding fires. Evacuate area and contact emergency services. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

5.4 Hazchem code

None allocated.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Ventilate area where possible.

6.2 Environmental precautions
Prevent product from entering drains and waterways.

6.3 Methods of cleaning up
Contain spillage, then collect and place in suitable containers for disposal. Avoid generating dust.

6.4 Reference to other sections
See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool, dry, well ventilated area, removed from incompatible substances and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use. Check regularly for leaks or spills.

7.3 Specific end uses
No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters
Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m³	ppm	mg/m³
Sodium Carbonate (total dust)	SWA [AUS]	--	10	--	--

Biological limits
No biological limit values have been entered for this product.

8.2 Exposure controls
Engineering controls Avoid inhalation. Use in well ventilated areas.

PPE

Eye / Face	Wear dust-proof goggles.
Hands	Wear PVC or rubber gloves.
Body	When using large quantities or where heavy contamination is likely, wear coveralls.
Respiratory	Where an inhalation risk exists, wear a Class P1 (Particulate) respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	WHITE POWDER
Odour	ODOURLESS
Flammability	NON FLAMMABLE
Flash point	NOT RELEVANT
Boiling point	NOT AVAILABLE
Melting point	854°C
Evaporation rate	NOT AVAILABLE
pH	NOT AVAILABLE

9.1 Information on basic physical and chemical properties

Vapour density	NOT AVAILABLE
Specific gravity	2.533
Solubility (water)	170 g/L
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

10. STABILITY AND REACTIVITY

10.1 Reactivity

Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability

Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions

Polymerization is not expected to occur.

10.4 Conditions to avoid

Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials

Incompatible with oxidising agents (e.g. hypochlorites) and acids (e.g. nitric acid).

10.6 Hazardous decomposition products

May evolve toxic gases if heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity May be harmful if swallowed.

Information available for the ingredients:

Ingredient	Oral LD50	Dermal LD50	Inhalation LC50
SODIUM CARBONATE	> 2000 mg/kg (rat) (NICNAS)	> 2000 mg/kg (rat) (NICNAS)	> 2000 mg/m³ (rat) (NICNAS)

Additional ingredient toxicity values:

SODIUM CARBONATE (497-19-8)

LD50 (intraperitoneal) 117 mg/kg (mouse)

LD50 (subcutaneous) 2210 mg/kg (mouse)

Skin Contact may result in irritation, redness, rash and dermatitis.

Eye Contact may result in irritation, lacrimation, pain, redness and possible permanent damage.

Sensitisation Not classified as causing skin or respiratory sensitisation.

Mutagenicity Not classified as a mutagen.

Carcinogenicity Not classified as a carcinogen.

Reproductive Not classified as a reproductive toxin.

STOT - single exposure Over exposure may result in irritation of the nose and throat, with coughing. High level exposure may result in breathing difficulties.

STOT - repeated exposure Not classified as causing organ damage from repeated exposure. Carbonate ions are neutralised under physiological conditions to form bicarbonate ions and/or carbon dioxide, which are major products of all human metabolic activities; therefore, systemic toxicity is not expected.

Aspiration Not classified as causing aspiration.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Fishes, Lepomis macrochirus, LC50, 96 h, 300 mg/l. Crustaceans, Ceriodaphnia dubia, EC50, 48 h, 200 - 227 mg/l.

12.2 Persistence and degradability

Not applicable for inorganic substances. The methods for determining the biological degradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential

Not expected to bioaccumulate.

12.4 Mobility in soil

If sodium carbonate is emitted to soil it can escape to atmosphere as carbon dioxide, precipitate as a metal carbonate, form complexes or stay in solution.

12.5 Other adverse effects

WATER: If released to waterways, alkaline products may change the pH of the waterway. Fish will die if the pH reaches 10-11 (goldfish 10.9, bluegill 10.5). SOIL: May leach to groundwater with toxic effects on aquatic life as above. ATMOSPHERE: Not expected to reside in the atmosphere. Drops or particles released to atmosphere should be removed by gravity and/or be rained out.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal Collect without generating dust. Place in clean, sealed containers and dispose of to an approved landfill site. Contact the manufacturer/supplier for additional information (if required).

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE, IMDG OR IATA

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	None allocated.	None allocated.	None allocated.
14.2 Proper Shipping Name	None allocated.	None allocated.	None allocated.
14.3 Transport hazard class	None allocated.	None allocated.	None allocated.
14.4 Packing Group	None allocated.	None allocated.	None allocated.

14.5 Environmental hazards

No information provided.

14.6 Special precautions for user

Hazchem code None allocated.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

Inventory listings **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
All components are listed on AICS, or are exempt.

16. OTHER INFORMATION

Additional information

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

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Prepared by

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[End of SDS]

NEWPARK DRILLING FLUIDS

SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **SODIUM BICARBONATE**

Synonyms BAKING SODA ● BICARBONATE OF SODA ● CARBONIC ACID, MONOSODIUM SALT ● MONOSODIUM CARBONATE ● SODIUM ACID CARBONATE ● SODIUM HYDROGEN CARBONATE

1.2 Uses and uses advised against

Uses PH CONTROL

1.3 Details of the supplier of the product

Supplier name **NEWPARK DRILLING FLUIDS (AUSTRALIA) LTD**

Address 11 Alacrity Place, Henderson, WA, 6166, AUSTRALIA

Telephone +61 8 9410 8200

Fax +61 8 9410 8299

Website www.newpark.com

1.4 Emergency telephone numbers

Emergency 1800 127 406 (Australia); +64 4 917 9888 (International)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

2.2 GHS Label elements

No signal word, pictograms, hazard or precautionary statements have been allocated.

2.3 Other hazards

No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
SODIUM BICARBONATE	144-55-8	205-633-8	>99%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water.

Ingestion For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor (at once).

First aid facilities Eye wash facilities should be available.

4.2 Most important symptoms and effects, both acute and delayed

No adverse health effects expected if the product is handled in accordance with the SDS and the product label.

4.3 Immediate medical attention and special treatment needed
Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media
Use an extinguishing agent suitable for the surrounding fire.

5.2 Special hazards arising from the substance or mixture
Non flammable. May evolve carbon oxides and hydrocarbons when heated to decomposition.

5.3 Advice for firefighters
Treat as per requirements for surrounding fires. Evacuate area and contact emergency services. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

5.4 Hazchem code
None allocated.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS.

6.2 Environmental precautions
Prevent product from entering drains and waterways.

6.3 Methods of cleaning up
Contain spillage, then collect and place in suitable containers for disposal. Avoid generating dust.

6.4 Reference to other sections
See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool, dry, well ventilated area, removed from incompatible substances and foodstuffs. Ensure packages are adequately labelled, protected from physical damage and sealed when not in use.

7.3 Specific end uses
No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters
Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m³	ppm	mg/m³
Sodium Bicarbonate (total dust)	SWA [AUS]	--	10	--	--

Biological limits

No biological limit values have been entered for this product.

8.2 Exposure controls
Engineering controls Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended.

PPE

Eye / Face	When using large quantities or where heavy contamination is likely, wear dust-proof goggles.
Hands	When using large quantities or where heavy contamination is likely, wear PVC or rubber gloves.
Body	Not required under normal conditions of use.
Respiratory	Where an inhalation risk exists, wear a Class P1 (Particulate) respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	WHITE POWDER
Odour	ODOURLESS
Flammability	NON FLAMMABLE
Flash point	NOT RELEVANT
Boiling point	NOT AVAILABLE
Melting point	854°C
Evaporation rate	NOT AVAILABLE
pH	8 (1% Solution)
Vapour density	NOT AVAILABLE
Specific gravity	2.533
Solubility (water)	170 g/L @ 25°C
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

10. STABILITY AND REACTIVITY

10.1 Reactivity

Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability

Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions

Polymerization is not expected to occur.

10.4 Conditions to avoid

Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials

Incompatible with acids (e.g. nitric acid).

10.6 Hazardous decomposition products

May evolve carbon oxides and hydrocarbons when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity This product is expected to be of low acute toxicity. Under normal conditions of use, adverse health effects are not anticipated. Sodium bicarbonate can neutralise the gastric juices in the stomach. During neutralisation, carbon dioxide gas is evolved and may cause stretching of the stomach, and with very large doses possible damage or rupture.

LD50 (Ingestion): 3360 mg/kg (mouse)
LC50 (inhalation): 4.74 mg/L (rat)

Information available for the ingredients:

Ingredient	Oral LD50	Dermal LD50	Inhalation LC50
SODIUM BICARBONATE	> 4000 mg/kg (rat)	--	> 4.74 mg/L/4.5hrs (rat)

Skin Not classified as a skin irritant. Prolonged or repeated contact may result in mild irritation.

Eye Not classified as an eye irritant. Contact may result in mild irritation, lacrimation and redness.

Sensitisation Not classified as causing skin or respiratory sensitisation.

Mutagenicity Not classified as a mutagen.

Carcinogenicity Not classified as a carcinogen.

Reproductive Not classified as a reproductive toxin.

STOT - single exposure Not classified as causing organ damage from single exposure.

STOT - repeated exposure Not classified as causing organ damage from repeated exposure.

Aspiration Not relevant.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

LC50 (Oncorhynchus mykiss) = 7.700 mg/l/96hrs.
LC50 (Lepomis macrochirus) = 7.100 mg/l/96hrs.
EC50 (Crustaceans, Daphnia magna) = 4.100 mg/l/48hrs
LOEC (Crustaceans, Daphnia magna) = 3.100 mg/l/48hrs.

12.2 Persistence and degradability

Biodegradability does not pertain to inorganic substances.

12.3 Bioaccumulative potential

Does not bioaccumulate.

12.4 Mobility in soil

High mobility in water and soil/sediments.

12.5 Other adverse effects

This product is not anticipated to cause adverse effects to animal or plant life if released to the environment in small quantities.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal Dispose of to an approved landfill or waste processing site. Contact the manufacturer/supplier for additional information (if required).

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE, IMDG OR IATA

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	None allocated.	None allocated.	None allocated.
14.2 Proper Shipping Name	None allocated.	None allocated.	None allocated.
14.3 Transport hazard class	None allocated.	None allocated.	None allocated.
14.4 Packing Group	None allocated.	None allocated.	None allocated.

14.5 Environmental hazards

No information provided.

14.6 Special precautions for user

Hazchem code None allocated.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

Inventory listings **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
All components are listed on AICS, or are exempt.

16. OTHER INFORMATION

Additional information

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

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Prepared by

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Web: www.rmtglobal.com

[End of SDS]

NEWPARK DRILLING FLUIDS

SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **SPA**

Synonym(s) SODIUM POLYACRYLATE

1.2 Uses and uses advised against

Use(s) DRILLING FLUID ADDITIVE

1.3 Details of the supplier of the product

Supplier name **NEWPARK DRILLING FLUIDS (AUSTRALIA) LTD**

Address 11 Alacrity Place, Henderson, WA, 6166, AUSTRALIA

Telephone +61 8 9410 8200

Fax +61 8 9410 8299

Website www.newpark.com

1.4 Emergency telephone number(s)

Emergency 1800 127 406 (Australia); +64 3 3530199 (International)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO AUSTRALIAN WHS REGULATIONS

2.2 Label elements

No signal word, pictograms, hazard or precautionary statements have been allocated.

2.3 Other hazards

No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
ACRYLATE - ACRYLAMIDE COPOLYMER	-	-	100%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water.

Ingestion For advice, contact a Poison Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). If swallowed, do not induce vomiting.

First aid facilities Eye wash facilities and safety shower should be available.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11 for more detailed information on health effects and symptoms.

4.3 Immediate medical attention and special treatment needed
Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media
Use an extinguishing agent suitable for the surrounding fire.

5.2 Special hazards arising from the substance or mixture
Non flammable. May evolve toxic gases (carbon/ nitrogen oxides, amines, ammonia, hydrocarbons) when heated to decomposition. As with many solids, any dust that is generated may be explosive if mixed with air in critical proportions and in the presence of a source of ignition.

5.3 Advice for firefighters
Evacuate area and contact emergency services. Toxic gases may be evolved in a fire situation. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

5.4 Hazchem code
None allocated.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Clear area of all unprotected personnel. Contact emergency services where appropriate.

6.2 Environmental precautions
Prevent product from entering drains and waterways.

6.3 Methods of cleaning up
Contain spillage, then collect and place in suitable containers for reuse or disposal. Avoid generating dust.

6.4 Reference to other sections
See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool, dry, well ventilated area, removed from incompatible substances and foodstuffs. Ensure containers are adequately labelled and tightly closed when not in use.

7.3 Specific end use(s)
No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters
Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m³	ppm	mg/m³
Acrylamide	SWA (AUS)	--	0.03	--	--

Biological limits No Biological Limit Value allocated.

8.2 Exposure controls

Engineering controls Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended.

PPE

Eye / Face	Wear dust-proof goggles.
Hands	Wear PVC or rubber gloves.
Body	When using large quantities or where heavy contamination is likely, wear coveralls.
Respiratory	Where an inhalation risk exists, wear a Class P1 (Particulate) respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	CREAM GRANULAR SOLID
Odour	SLIGHT ODOUR
Flammability	NON FLAMMABLE
Flash point	NOT RELEVANT
Boiling point	NOT AVAILABLE
Melting point	NOT AVAILABLE
Evaporation rate	NOT AVAILABLE
pH	NOT AVAILABLE
Vapour density	NOT AVAILABLE
Specific gravity	0.8
Solubility (water)	10 g/L
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

9.2 Other information

% Volatiles	5 - 10 %

10. STABILITY AND REACTIVITY

10.1 Reactivity

Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability

Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions

Polymerization is not expected to occur.

10.4 Conditions to avoid

Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials

Incompatible with oxidising agents (e.g. hypochlorites) and acids (e.g. nitric acid).

10.6 Hazardous decomposition products

May evolve toxic gases (carbon/ nitrogen oxides, amines, ammonia, hydrocarbons) when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity	**Information available for the product:** This product is expected to be of low toxicity. Based on available data, the classification criteria are not met.
Skin	Not classified as a skin irritant. Prolonged or repeated contact may result in mild irritation, rash and dermatitis.
Eye	Not classified as an eye irritant. Contact may result in mild irritation, lacrimation and redness.
Sensitization	This product is not known to be a skin or respiratory sensitiser.
Mutagenicity	Insufficient data available to classify as a mutagen.
Carcinogenicity	Insufficient data available to classify as a carcinogen. This product may contain trace amounts of residual acrylamide, which is classified as a probable human carcinogen (IARC Group 2A). However, due to the very low levels present, adverse health effects are not anticipated with normal use.
Reproductive	Insufficient data available to classify as a reproductive toxin.
STOT – single exposure	Not classified as causing organ effects from single exposure.
STOT – repeated exposure	Not classified as causing organ effects from repeated exposure.
Aspiration	This product is not classified as causing aspiration.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

(10000 ppm test concentration) (EPA-821-R-02-012) Mysidopsis Bahia = 48HR LC50 = 16.2 mg/L. Menidia Beryllina = 48hr LC50 = 34.2 mg/L. Scophthalmus Maximus = 96hr LC50 > 1000 mg/L. Skeletonemia Costatum = 72hr EC50 = 393 mg/L [NOEC = 118 mg/L] Acartia Tonsa = 48hr EC50 = 393 mg/L [NOEC = 112 mg/L] Corophium Volutator = 10 day LC50 = 9338 mg/Kg [NOEC = 1000 mg/Kg]

12.2 Persistence and degradability

No information provided.

12.3 Bioaccumulative potential

No information provided.

12.4 Mobility in soil

No information provided.

12.5 Other adverse effects

No information provided.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal	Dispose of to an approved landfill or waste processing site. Contact the manufacturer/supplier for additional information (if required).
Legislation	Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE, IMDG OR IATA

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	None Allocated	None Allocated	None Allocated
14.2 Proper Shipping Name	None Allocated	None Allocated	None Allocated
14.3 Transport hazard class	None Allocated	None Allocated	None Allocated
14.4 Packing Group	None Allocated	None Allocated	None Allocated

14.5 Environmental hazards No information provided

14.6 Special precautions for user

Hazchem code None Allocated

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

The classifications and phrases listed below are based on the Approved Criteria for Classifying Hazardous Substances [NOHSC: 1008(2004)].

Hazard codes None allocated.

Risk phrases None allocated.

Safety phrases None allocated.

Inventory listing(s) **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
All components are listed on AICS, or are exempt.

16. OTHER INFORMATION

Additional information

ACRYLIC - ACRYLAMIDE RESINS: These resins are generally of low toxicity. Toxicity increases with presence of significant concentrations of acrylic - acrylamide monomers. These monomers have been linked with the development of skin sensitisation.

RESPIRATORS: In general the use of respirators should be limited and engineering controls employed to avoid exposure. If respiratory equipment must be worn ensure correct respirator selection and training is undertaken. Remember that some respirators may be extremely uncomfortable when used for long periods. The use of air powered or air supplied respirators should be considered where prolonged or repeated use is necessary.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a ChemAlert report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

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[End of SDS]

NEWPARK DRILLING FLUIDS

SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **STRATA-VANGUARD**

Synonyms STRATA VANGUARD

1.2 Uses and uses advised against

Uses DRILLING FLUID ADDITIVE

1.3 Details of the supplier of the product

Supplier name **NEWPARK DRILLING FLUIDS (AUSTRALIA) LTD**

Address 11 Alacrity Place, Henderson, WA, 6166, AUSTRALIA

Telephone +61 8 9410 8200

Fax +61 8 9410 8299

Website www.newpark.com

1.4 Emergency telephone numbers

Emergency 1800 127 406 (Australia); +64 4 917 9888 (International)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

2.2 GHS Label elements

No signal word, pictograms, hazard or precautionary statements have been allocated.

2.3 Other hazards

No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
CELLULOSE	9004-34-6	232-674-9	<30%
DIATOMACEOUS EARTH, FLUX CALCINED	68855-54-9	272-489-0	<15%
FULLERS EARTH	8031-18-3	617-052-0	<10%
LIMESTONE (CALCIUM CARBONATE)	1317-65-3	215-279-6	<10%
CRISTOBALITE	14464-46-1	238-455-4	<5%
QUARTZ (CRYSTALLINE SILICA)	14808-60-7	238-878-4	<2%
MAGNESIUM OXIDE	1309-48-4	215-171-9	<1%
1,3 BUTADIENE/STYRENE COPOLYMERS	9003-55-8	618-370-2	<50%
2-PROPENENITRILE-1,3-BUTADIENE RUBBER	9003-18-3	618-357-1	<50%
NATURAL RUBBER	9006-04-6	232-689-0	<50%
POLYISOPRENE	9003-31-0	618-362-9	<50%
POLYETHYLENE	9002-88-4	618-339-3	<3%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye	If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.
Inhalation	If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.
Skin	If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.
Ingestion	For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). If swallowed, do not induce vomiting.
First aid facilities	None allocated.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11 for more detailed information on health effects and symptoms.

4.3 Immediate medical attention and special treatment needed

Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Use an extinguishing agent suitable for the surrounding fire.

5.2 Special hazards arising from the substance or mixture

Non flammable. May evolve toxic gases if strongly heated.

5.3 Advice for firefighters

No fire or explosion hazard exists.

5.4 Hazchem code

None allocated.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Clear area of all unprotected personnel. Contact emergency services where appropriate.

6.2 Environmental precautions

Prevent product from entering drains and waterways.

6.3 Methods of cleaning up

Contain spillage, then collect and place in suitable containers for reuse or disposal. Avoid generating dust.

6.4 Reference to other sections

See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities

Store in a cool, dry, well ventilated area, removed from incompatible substances and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use.

7.3 Specific end uses

No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m³	ppm	mg/m³
Calcium carbonate (Limestone, Marble, Whiting)	SWA [AUS]	--	10	--	--
Cellulose (paper fibre) (a)	SWA [AUS]	--	10	--	--
Cristobalite	SWA [AUS]	--	0.1	--	--
Magnesium oxide (fume)	SWA [AUS]	--	10	--	--
Quartz (respirable dust)	SWA [AUS]	--	0.1	--	--
Quartz (respirable dust)	SWA [Proposed]	--	0.05	--	--
Quartz (respirable dust)	WorkSafe VIC	--	0.05	--	--

Biological limits

No biological limit values have been entered for this product.

8.2 Exposure controls

Engineering controls Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended. Maintain dust levels below the recommended exposure standard.

PPE

Eye / Face Wear dust-proof goggles.

Hands Wear PVC or rubber gloves.

Body When using large quantities or where heavy contamination is likely, wear coveralls.

Respiratory Where an inhalation risk exists, wear a Class P1 (Particulate) respirator. At high dust levels, wear a Powered Air Purifying Respirator (PAPR) with Class P3 (Particulate) filter or a Full-face Class P3 (Particulate) respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	TAN COLOURED POWDER
Odour	MILD ODOUR
Flammability	NON FLAMMABLE
Flash point	NOT AVAILABLE
Boiling point	NOT AVAILABLE
Melting point	NOT AVAILABLE
Evaporation rate	NOT AVAILABLE
pH	6.3 (5% Suspension)
Vapour density	NOT AVAILABLE
Specific gravity	2.1
Solubility (water)	INSOLUBLE
Vapour pressure	1 mm Hg @ 20°C
Upper explosion limit	NOT AVAILABLE
Lower explosion limit	NOT AVAILABLE
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

10. STABILITY AND REACTIVITY

10.1 Reactivity
Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability
Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions
Polymerization is not expected to occur.

10.4 Conditions to avoid
Avoid contact with incompatible substances.

10.5 Incompatible materials
Incompatible with acids (e.g. nitric acid). Also incompatible with oxygen difluoride, chlorine and trifluoride.

10.6 Hazardous decomposition products
May evolve toxic gases if heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

Toxicity Data available for the ingredients:
CRISTOBALITE (14464-46-1):
TCLo (inhalation) 16 mppcf/8hours/17.9 years (human-fibrosis)
QUARTZ (SILICA CRYSTALLINE) (14808-60-7):
LCLo (inhalation) 300 ug/m³/10 years (human)
TCLo (inhalation) 16 000 000 particles/ft3/8 hours/17.9 years (human-fibrosis)
CELLULOSE (9004-34-6):
LC50 (inhalation) > 5800 mg/m³/4 hours (rat)
LD50 (ingestion) > 5000 mg/kg (rat)
LD50 (intraperitoneal) > 31600 mg/kg (rat)
LD50 (skin) > 2000 mg/kg (rabbit)
POLYETHYLENE (9002-88-4):
LDLo (ingestion) 3000 mg/kg (rat)
MAGNESIUM OXIDE (1309-48-4):
TCLo (inhalation) 400 mg/kg (human)

Information available for the ingredients:

Ingredient	Oral LD50	Dermal LD50	Inhalation LC50
CELLULOSE	> 5000 mg/kg (rat)	> 2000 mg/kg (rabbit)	> 5800 mg/m³/4 hours (rat)
LIMESTONE (CALCIUM CARBONATE)	> 5000 mg/kg (rat)	--	--

Additional ingredient toxicity values:

CELLULOSE (9004-34-6)
LD50 (intraperitoneal) > 31600 mg/kg (rat)

CRISTOBALITE (14464-46-1)
TCLo (inhalation) 16 mppcf/8hours/17.9 years (human-fibrosis)

POLYETHYLENE (9002-88-4)
LDLo (oral) 3000 mg/kg (rat)

Skin Not classified as a skin irritant. Contact may result in mechanical irritation.

Eye Not classified as an eye irritant. Contact may result in mechanical irritation.

Sensitisation Not classified as causing skin or respiratory sensitisation.

Mutagenicity No evidence of mutagenic effects.

Carcinogenicity Not classified as a carcinogen. Crystalline silica is classified as carcinogenic to humans (IARC Group 1). However, there is a body of evidence supporting the fact that increased cancer risk would be limited to people already suffering from silicosis.

Reproductive No relevant or reliable studies were identified.

STOT - single exposure No known effects from this product.

STOT - repeated exposure Not classified as causing organ damage from repeated exposure. Adverse health effects associated with silica, such as the development of silicosis (lung fibrosis), is not anticipated unless prolonged and repeated exposure to respirable silica quartz dust occurs.

Aspiration This product does not present an aspiration hazard.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
This product is not anticipated to cause adverse effects to animal or plant life if released to the environment in small quantities.

12.2 Persistence and degradability
Not applicable.

12.3 Bioaccumulative potential
This product is not expected to bioaccumulate.

12.4 Mobility in soil
This product has low mobility in soil.

12.5 Other adverse effects
No information provided.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Waste disposal Ensure product is covered with moist soil to prevent dust generation and dispose of to approved Council landfill. Contact the manufacturer/supplier for additional information (if required).

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE, IMDG OR IATA

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	None allocated.	None allocated.	None allocated.
14.2 Proper Shipping Name	None allocated.	None allocated.	None allocated.
14.3 Transport hazard class	None allocated.	None allocated.	None allocated.
14.4 Packing Group	None allocated.	None allocated.	None allocated.

14.5 Environmental hazards
No information provided.

14.6 Special precautions for user
Hazchem code None allocated.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
Poison schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

Inventory listings **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
All components are listed on AICS, or are exempt.

16. OTHER INFORMATION

Additional information

RESPIRATORS: In general the use of respirators should be limited and engineering controls employed to avoid exposure. If respiratory equipment must be worn ensure correct respirator selection and training is undertaken. Remember that some respirators may be extremely uncomfortable when used for long periods. The use of air powered or air supplied respirators should be considered where prolonged or repeated use is necessary.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

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[End of SDS]

SAFETY DATA SHEET

TRIETHANOLAMINE

Issue Date 08- u -2022 **Revision date** 08- u -2022 **Version** 1
N

Section 1: IDENTIFICATION: PRODUCT INDENTIFIER AND CHEMICAL IDENTITY

Product identifier

Product Name T TH N M N

Product Code N F00931

Other means of identification

Pure substance/mixture Mixture

Recommended use of the chemical and restrictions on use

Recommended Use No in ormation available

Uses advised against No in ormation available

Details of manufacturer or importer

Supplier
Ne park rillin Fluids (ustralia) T
11 lacrit Place
Henderson 6166
ustralia

For urther in ormation please contact

Contact Point Telephone: 61 8 9410 8200
Fax: 61 8 9410 8299
ebsite: .ne park.com

Emergency telephone number

mer enc telephone number (61)-290372994 (ustralia) (64)-98010034 (Ne ealand)

Section 2: HAZARD(S) IDENTIFICATION

GHS - Classification

Acute toxicity - Oral	Cate or 4 - (H302)
Skin corrosion/irritation	Cate or 2 - (H315)
Serious eye damage/eye irritation	Cate or 1 - (H318)
Carcinogenicity	Cate or 2 - (H351)
Specific target organ toxicity (repeated exposure)	Cate or 2 - (H373)

Label elements

xclamation mark
Health hazard

Corrosion



Signal word
an er

Hazard statements
H302 - Harm ul i s allo ed
H315 - Causes skin irritation
H318 - Causes serious e e dama e
H351 - uspected o causin cancer
H373 - Ma cause dama e to or ans throu h prolon ed or repeated exposure

Precautionary Statements - Prevention
btain special instructions be ore use
o not handle until all sa et precautions have been read and understood
se personal protective e uipment as re uired
ash ace hands and an exposed skin thorou hl a ter handlin
o not eat drink or smoke hen usin this product
o not breathe dust ume as mist vapors spra

Precautionary Statements - Response
F exposed or concerned: et medical advice attention
F N : inse cautiousl ith ater or several minutes. emove contact lenses i present and eas to do. Continue rinsin
mmediatel call a P N C NT or doctor ph sician
F N N: ash ith plent o soap and ater
skin irritation occurs: et medical advice attention
Take o contaminated clothin and ash be ore reuse
F : Call a P N C NT or doctor ph sician i ou eel un ell
inse mouth

Precautionary Statements - Storage
tore locked up

Precautionary Statements - Disposal
ispose o contents container to an approved aste disposal plant

Other hazards which do not result in classification
Toxic to a uatic li e ith lon lastin e ects
Toxic to a uatic li e

General Hazards
No in ormation available

Section 3: COMPOSITION AND INFORMATION ON INGREDIENTS, IN ACCORDANCE WITH SCHEDULE 8

Substance

Not applicable

Mixture

Chemical name	C No	ei ht-	CH re istration number
Triethanolamine	102-71-6	60	01-2119486482-31-xxxx
iethanolamine	111-42-2	10-30	01-2119488930-28-

Section 4: FIRST AID MEASURES

Description of first aid measures

General advice ho this sa et data sheet to the doctor in attendance. mmediate medical attention is re uired. F exposed or concerned: et medical advice attention.

Emergency telephone number Poisons n ormation Center ustralia: 13 11 26
Poisons n ormation Center Ne ealand: 0800 764 766

Inhalation emove to resh air. et medical attention immediatel i s mptoms occur.

Eye contact et immediate medical advice attention. inse immediatel ith plent o ater also under the e elids or at least 15 minutes. emove contact lenses i present and eas to do. Continue rinsin . eep e e ide open hile rinsin . o not rub a ected area.

Skin contact ash o immediatel ith soap and plent o ater or at least 15 minutes. et medical attention i irritation develops and persists.

Ingestion o N T induce vomitin . Clean mouth ith ater and drink a ter ards plent o ater. Never ive an thin b mouth to an unconscious person. Call a ph sician.

Self-protection of the first aider void contact ith skin e es or clothin . ear personal protective clothin (see section 8).

Most important symptoms and effects, both acute and delayed

Symptoms urnin sensation.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat s mptomaticall .

Section 5: FIREFIGHTING MEASURES

Suitable Extinguishing Media

Suitable extinguishing media r chemical. Foam. Carbon dioxide (C 2).

Unsuitable extinguishing media No in ormation available.

Specific hazards arising from the chemical

Thermal decomposition can lead to release o irritatin and toxic ases and vapors. o not allo run-o rom ire- i htin to enter drains or ater courses.

Special protective actions for fire-fighters

Special protective equipment for fire-fighters Fire i hters should ear sel -contained breathin apparatus and ull ire i htin turnout ear. se personal protection e uipment.

Hazchem code Not isted.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions void contact ith skin e es or clothin . se personal protective e uipment as re uired. nsure ade uate ventilation. vacuate personnel to sa e areas.

Other Information e er to protective measures listed in ections 7 and 8.

For emergency responders se personal protection recommended in ection 8.

Environmental precautions

Environmental precautions Prevent urther leaka e or spilla e i sa e to do so.

Methods and material for containment and cleaning up

Methods for containment Prevent urther leaka e or spilla e i sa e to do so.

Methods for cleaning up Pick up and trans er to properl labeled containers.

Precautions to prevent secondary hazards

Prevention of secondary hazards Clean contaminated ob ects and areas thorou hl observin environmental re ulations.

Section 7: HANDLING AND STORAGE, INCLUDING HOW THE CHEMICAL MAY BE SAFELY USED

Precautions for safe handling

Advice on safe handling Handle in accordance ith ood industrial h iene and sa et practice. ash thorou hl a ter handlin . ash contaminated clothin be ore reuse.

General hygiene considerations void contact ith skin e es or clothin . ear suitable loves and e e ace protection. o not eat drink or smoke hen usin this product. ash hands be ore breaks and immediatel a ter handlin the product.

Conditions for safe storage, including any incompatibilities

Storage Conditions eep containers ti htl closed in a dr cool and ell-ventilated place. eep out o the reach o children. tore locked up.

Section 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Control parameters

Exposure Limits

Chemical name	ustralia
Triethanolamine 102-71-6	5 m m³
iethanolamine 111-42-2	3 ppm 13 m m³

Biological occupational exposure limits Not applicable

Appropriate engineering controls

Engineering controls ho ers
e ash stations
entilation s stems.

Individual protection measures, such as personal protective equipment

Eye/face protection Ti ht sealin sa et o les.

Skin and body protection ear suitable protective clothin . on sleeved clothin .

Hand protection ear suitable loves. mpervious loves.

Respiratory protection n case o inade uate ventilation ear respirator protection.

Environmental exposure controls o not allo into an se er on the round or into an bod o ater.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	i uid		
Appearance	li uid	**Odor**	Mild. ammonia like.
Color	No in ormation available	**Odor threshold**	No in ormation available

Property	**Values**	**Remarks • Method**
pH	10.5	1 solution
Melting point / freezing point	12 C	No in ormation available
Boiling point / boiling range	335 C	
Flash point	190 C	
Evaporation rate		No in ormation available
Flammability (solid, gas)		No in ormation available
Flammability Limit in Air		No in ormation available
Upper flammability limit:		No data available
Lower flammability limit:		No data available
Vapor pressure	1 kPa @ 20 C	No data available
Vapor density	4.80 (ir 1)	No data available
Relative density	1.123	No in ormation available
Water solubility	oluble in ater	
Solubility(ies)		No in ormation available
Partition coefficient		No in ormation available
Autoignition temperature		No in ormation available
Hyphen		No in ormation available
Kinematic viscosity		
Dynamic viscosity	450 mPa s @ 25 C	

Other information

Softening point	No in ormation available
Molecular weight	No in ormation available
VOC Content (%)	No in ormation available
Liquid Density	No in ormation available
Bulk density	No in ormation available
Particle Size	No in ormation available
Particle Size Distribution	No in ormation available

Section 10: STABILITY AND REACTIVITY

Reactivity

Reactivity No in ormation available.

Chemical stability

Stability table under normal conditions.

Explosion data

Sensitivity to Mechanical Impact None.
Sensitivity to Static Discharge None.

Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processin .

Conditions to avoid

Conditions to avoid None kno n based on in ormation supplied.

Incompatible materials

Incompatible materials None kno n based on in ormation supplied.

Incompatible materials tron acids. tron bases. tron oxidizin a ents.

Hazardous decomposition products

Hazardous Decomposition Products None kno n based on in ormation supplied.

Section 11: TOXICOLOGICAL INFORMATION

Acute toxicity

Information on likely routes of exposure

Product Information

Inhalation peci ic test data or the substance or mixture is not available. Ma cause irritation o respirator tract.

Eye contact peci ic test data or the substance or mixture is not available. everel irritatin to e es. Causes serious e e dama e. Ma cause burns. Ma cause irreversible dama e to e es. (based on components).

Skin contact peci ic test data or the substance or mixture is not available. Causes skin irritation. (based on components).

Ingestion peci ic test data or the substance or mixture is not available n estion ma cause astrointestinal irritation nausea vomitin and diarrhea Harm ul i s allo ed (based on components)

Symptoms edness. urnin . Ma cause blindness. Ma cause redness and tearin o the e es.

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral) 1 303.70 m k
ATEmix (dermal) 16 587.60 m k

Unknown acute toxicity 0 o the mixture consists o in redient(s) o unkno n toxicit

0 o the mixture consists o in redient(s) o unkno n acute oral toxicit
0 o the mixture consists o in redient(s) o unkno n acute dermal toxicit
0 o the mixture consists o in redient(s) o unkno n acute inhalation toxicit (as)
0 o the mixture consists o in redient(s) o unkno n acute inhalation toxicit (vapor)
0 o the mixture consists o in redient(s) o unkno n acute inhalation toxicit (dust mist)

Component Information

Chemical name	ral 50	ermal 50	nhalation C50
Triethanolamine	4190 m k (at)	20000 m k (abbit)	-
iethanolamine	780 m k (at)	11.9 m k (abbit)	-

See section 16 for terms and abbreviations

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation Classi ication based on data available or in redients. rritatin to skin.

Serious eye damage/eye irritation Classi ication based on data available or in redients. Causes burns. isk o serious dama e to e es.

Respiratory or skin sensitization No in ormation available.

Germ cell mutagenicity No in ormation available.

Carcinogenicity No in ormation available. None kno n.

Reproductive toxicity No in ormation available.

STOT - single exposure No in ormation available.

STOT - repeated exposure xtended inhalation at levels above the orkplace limit value can cause irreversible dama e to the lun s (silicosis).

Aspiration hazard No in ormation available.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity

Unknown aquatic toxicity 0 o the mixture consists o component(s) o unkno n hazards to the a uatic environment.

Chemical name	l ae a uatic plants	Fish	Toxicit to microor anisms	Crustacea
Triethanolamine	C50: 169m (96h esmodesmus subspicatus) C50: 216m (72h esmodesmus subspicatus)	C50: 10600 - 13000m (96h Pimephales promelas) C50: 450 - 1000m (96h epomis macrochirus) C50: 1000m (96h Pimephales promelas)	-	-
iethanolamine	C50: 2.1 - 2.3m (96h Pseudokirchneriella subcapitata) C50: 7.8m (72h esmodesmus subspicatus)	C50: 1200 - 1580m (96h Pimephales promelas) C50: 4460 - 4980m (96h Pimephales promelas) C50: 600 - 1000m (96h epomis macrochirus)	C50 73 m 5 min C50 16 m 16 h	C50: 55m (48h aphnia ma na)

Persistence and degradability

Persistence and degradability No in ormation available.

Component n ormation			
iethanolamine (111-42-2)			
Method	xposure time	alue	esults
C Test No. 301F: ead iode radabilit : Manometric	28 da s	93	eadil biode radable

espirometr Test (T 301 F)			

Bioaccumulative potential

Bioaccumulation There is no data or this product.

Component Information

Chemical name	Partition coe icient
Triethanolamine	-2.53
iethanolamine	-2.46

Mobility

Mobility in soil No in ormation available.

Mobility No in ormation available.

Other adverse effects

Other adverse effects No in ormation available.

Section 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues/unused products ispose o in accordance ith local re ulations. ispose o aste in accordance ith environmental le islation.

Contaminated packaging o not reuse empt containers.

Section 14: TRANSPORT INFORMATION

ADG Not re ulated

IATA Not e ulated

IMDG Not e ulated

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
No in ormation available

Section 15: REGULATORY INFORMATION

Regulatory information

National regulations

Australia
ee section 8 or national exposure control parameters

Standard for Uniform Scheduling of Medicines and Poisons (SUSMP)
No poisons schedule number allocated

International Inventories
TSCA Complies

DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
PICCS	Complies
AICS	Complies
NZIoC	Complies

Legend:
TSCA - nited tates Toxic ubstances Control ct ection 8(b) nventor
DSL/NDSL - Canadian omestic ubstances ist Non- omestic ubstances ist
EINECS/ELINCS - uropean nventor o xistin Chemical ubstances uropean ist o Noti ied Chemical ubstances
ENCS - Japan xistin and Ne Chemical ubstances
IECSC - China nventor o xistin Chemical ubstances
KECL - orean xistin and valuated Chemical ubstances
PICCS - Philippines nventor o Chemicals and Chemical ubstances
AICS - ustralian nventor o Chemical ubstances
NZIoC - Ne ealand nventor o Chemicals

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

Brunei Poison List Not applicable.

Section 16: ANY OTHER RELEVANT INFORMATION

Issue Date 08- u -2022

Revision date 08- u -2022

Revision Note
No in ormation available.

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

T	T (time- ei hted avera e)	T	T (hort Term xposure imit)
Ceilin	Maximum limit value		kin desi nation
C	Carcino en		

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End of Safety Data Sheet

SAFETY DATA SHEET

TrueScav™ HD

Issue Date 29- u -2018 **Revision Date** 29- u -2018 **Version** 1 N

Section 1: IDENTIFICATION: PRODUCT INDENTIFIER AND CHEMICAL IDENTITY

Product identifier

Product Name True cav™ H

Product Code N F00394

Other means of identification

Recommended use of the chemical and restrictions on use

Recommended Use ox en scaven er

Uses advised against No in ormation available

Details of manufacturer or importer

Supplier
Ne park rillin Fluids (ustralia) T
11 lacrit Place
Henderson 6166
ustralia

For urther in ormation please contact

Contact Point Telephone: 61 8 9410 8200
Fax: 61 8 9410 8299
ebsite: .ne park.com

Emergency telephone number

mer enc telephone number 1800 127 406 (ustralia) 64 4 917 9888 (nternational)

Section 2: HAZARD(S) IDENTIFICATION

GHS - Classification

Not a dan erous substance or mixture accordin to the loball Harmonized stem (H)

Label elements

Hazard statements
Not a dan erous substance or mixture accordin to the loball Harmonized stem (H)

Other hazards
General Hazards
No in ormation available

Section 3: COMPOSITION AND INFORMATION ON INGREDIENTS, IN ACCORDANCE WITH SCHEDULE 8

Substance

Chemical Name	C No	ei ht-
odium r thorbate	6381-77-7	99

Section 4: FIRST AID MEASURES

Description of first aid measures

Emergency telephone number Poisons n ormation Center ustralia: 13 11 26
Poisons n ormation Center Ne ealand: 0800 764 766

Inhalation emove to resh air.

Eye contact inse thorou hl ith plent o ater or at least 15 minutes li tin lo er and upper e elids. Consult a ph sician.

Skin contact ash skin ith soap and ater.

Ingestion Clean mouth ith ater and drink a ter ards plent o ater.

Most important symptoms and effects, both acute and delayed

Symptoms No in ormation available.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat s mptomaticall .

Section 5: FIREFIGHTING MEASURES

Suitable Extinguishing Media

Suitable extinguishing media se extin uishin measures that are appropriate to local circumstances and the surroundin environment.

Unsuitable extinguishing media No in ormation available.

Specific hazards arising from the chemical

Thermal decomposition can lead to release o irritatin and toxic ases and vapors. o not allo run-o rom ire- i htin to enter drains or ater courses.

Hazardous combustion products Carbon oxides.

Special protective actions for fire-fighters

Special protective equipment for fire-fighters Fire i hters should ear sel -contained breathin apparatus and ull ire i htin turnout ear. se personal protection e uipment.

Hazchem code Not isted.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions nsure ade uate ventilation.

For emergency responders se personal protection recommended in ection 8.

Environmental precautions

Environmental precautions ee ection 12 or additional colo ical n ormation. o not lush into sur ace ater or sanitar se er s stem. Prevent product rom enterin drains.

Methods and material for containment and cleaning up

Methods for containment Prevent urther leaka e or spilla e i sa e to do so.

Methods for cleaning up Pick up and trans er to properl labeled containers.

Precautions to prevent secondary hazards

Prevention of secondary hazards Clean contaminated ob ects and areas thorou hl observin environmental re ulations.

Section 7: HANDLING AND STORAGE, INCLUDING HOW THE CHEMICAL MAY BE SAFELY USED

Precautions for safe handling

Advice on safe handling Handle in accordance ith ood industrial h iene and sa et practice. void eneration o dust. ash thorou hl a ter handlin . ash contaminated clothin be ore reuse.

General hygiene considerations o not eat drink or smoke hen usin this product. ash hands be ore breaks and a ter ork.

Conditions for safe storage, including any incompatibilities

Storage Conditions eep containers ti htl closed in a dr cool and ell-ventilated place.

Incompatible materials tron oxidizin a ents

Section 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Control parameters

Exposure Limits This product as supplied does not contain an hazardous materials ith occupational exposure limits established b the re ion speci ic re ulator bodies.

Biological occupational exposure limits Not applicable

Appropriate engineering controls

Engineering controls ho ers
e ash stations
entilation s stems.

Individual protection measures, such as personal protective equipment

Eye/face protection Ti ht sealin sa et o les.

Skin and body protection ear suitable protective clothin .

Respiratory protection n case o inade uate ventilation ear respirator protection.

Environmental exposure controls o not allo into an se er on the round or into an bod o ater.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	olid		
Appearance	po der	**Odor**	No in ormation available.
Color	hite	**Odor threshold**	No in ormation available

Property	**Values**	**Remarks • Method**
pH	5 - 8	
Melting point / freezing point	160 C	
Boiling point / boiling range		No in ormation available
Flash point		No in ormation available
Evaporation rate		No in ormation available
Flammability (solid, gas)		No in ormation available
Flammability Limit in Air		No in ormation available
Upper flammability limit:		No data available
Lower flammability limit:		No data available
Vapor pressure		No data available
Vapor density		No data available
Relative density	1.2-1.7	
Water solubility	oluble in ater	
Solubility(ies)		No in ormation available
Partition coefficient		No in ormation available
Autoignition temperature		No in ormation available
Decomposition temperature		No in ormation available
Kinematic viscosity		Not applicable
Dynamic viscosity		Not applicable

Other Information

Softening point	No in ormation available
Molecular weight	No in ormation available
VOC Content (%)	No in ormation available
Density	No in ormation available
Bulk density	No in ormation available
Particle Size	No in ormation available
Particle Size Distribution	No in ormation available

Section 10: STABILITY AND REACTIVITY

Reactivity

Reactivity table under normal conditions.

Chemical stability

Stability table under normal conditions.

Explosion data

Sensitivity to Mechanical Impact None.
Sensitivity to Static Discharge None.

Possibility of Hazardous Reactions

Possibility of hazardous reactions None under normal processin .

Conditions to avoid

Conditions to avoid None kno n based on in ormation supplied.

Incompatible materials

Incompatible materials tron oxidizin a ents.

Hazardous Decomposition Products

Hazardous Decomposition Products None kno n based on in ormation supplied.

Section 11: TOXICOLOGICAL INFORMATION

Acute toxicity

Information on likely routes of exposure

Product Information .

Inhalation peci ic test data or the substance or mixture is not available.

Eye contact peci ic test data or the substance or mixture is not available.

Skin contact peci ic test data or the substance or mixture is not available.

Ingestion peci ic test data or the substance or mixture is not available

Symptoms No in ormation available.

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document
ATEmix (oral) 5 005.00 m k

Unknown acute toxicity 100 o the mixture consists o in redient(s) o unkno n toxicit
0 o the mixture consists o in redient(s) o unkno n acute oral toxicit
100 o the mixture consists o in redient(s) o unkno n acute dermal toxicit
100 o the mixture consists o in redient(s) o unkno n acute inhalation toxicit (as)
100 o the mixture consists o in redient(s) o unkno n acute inhalation toxicit (vapor)
100 o the mixture consists o in redient(s) o unkno n acute inhalation toxicit (dust mist)

Component Information

Chemical Name	ral 50	ermal 50	nhalation C50
odium r thorbate	5 k (at)	-	-

See section 16 for terms and abbreviations

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation None kno n.

Serious eye damage/eye irritation None kno n.

Respiratory or skin sensitization None kno n.

Germ cell mutagenicity None kno n.

Carcinogenicity None kno n.

Reproductive toxicity None kno n.

STOT - single exposure None kno n.

STOT - repeated exposure None kno n.

Aspiration hazard Not applicable.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity The environmental impact o this product has not been ull investi ated.

Unknown aquatic toxicity 100 o the mixture consists o component(s) o unkno n hazards to the a uatic environment.

Persistence and degradability

Persistence and degradability No in ormation available.

Bioaccumulative potential

Bioaccumulation No in ormation available.

Mobility

Mobility in soil No in ormation available.

Mobility No in ormation available.

Other adverse effects

Other adverse effects No in ormation available.

Section 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues/unused products ispose o in accordance ith local re ulations. ispose o aste in accordance ith environmental le islation.

Contaminated packaging o not reuse empt containers.

Section 14: TRANSPORT INFORMATION

ADG Not re ulated

IATA Not re ulated

IMDG Not re ulated

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
No in ormation available

Section 15: REGULATORY INFORMATION

Regulatory information

National regulations

Australia
ee section 8 or national exposure control parameters

Standard for Uniform Scheduling of Medicines and Poisons (SUSMP)
No poisons schedule number allocated

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies
NZIoC	Complies

Legend:
TSCA - nited tates Toxic ubstances Control ct ection 8(b) nventor
DSL/NDSL - Canadian omestic ubstances ist Non- omestic ubstances ist
EINECS/ELINCS - uropean nventor o xistin Chemical ubstances uropean ist o Noti ied Chemical ubstances
ENCS - Japan xistin and Ne Chemical ubstances
IECSC - China nventor o xistin Chemical ubstances
KECL - orean xistin and valuated Chemical ubstances
PICCS - Philippines nventor o Chemicals and Chemical ubstances
AICS - ustralian nventor o Chemical ubstances
NZIoC - Ne ealand nventor o Chemicals

International Regulations

Ozone-depleting substances (ODS) Not applicable

Persistent Organic Pollutants Not applicable

Export Notification requirements Not applicable

Section 16: ANY OTHER RELEVANT INFORMATION

Issue Date 29- u -2018

Revision Date 29- u -2018

Revision Note
No in ormation available.

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

T	T (time- ei hted avera e)	T	T (hort Term xposure imit)
Ceilin	Maximum limit value		kin desi nation
C	Carcino en		

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End of Safety Data Sheet

NEWPARK DRILLING FLUIDS

SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **ZINC OXIDE**

Synonyms ZINC WHITE

1.2 Uses and uses advised against

Uses SCAVENGER

1.3 Details of the supplier of the product

Supplier name **NEWPARK DRILLING FLUIDS (AUSTRALIA) LTD**

Address 11 Alacrity Place, Henderson, WA, 6166, AUSTRALIA

Telephone +61 8 9410 8200

Fax +61 8 9410 8299

Website www.newpark.com

1.4 Emergency telephone numbers

Emergency 1800 127 406 (Australia); +64 4 917 9888 (International)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

Physical Hazards

Not classified as a Physical Hazard

Health Hazards

Not classified as a Health Hazard

Environmental Hazards

Aquatic Toxicity (Chronic): Category 1

2.2 GHS Label elements

Signal word **WARNING**

Pictograms



Hazard statements

H410 Very toxic to aquatic life with long lasting effects.

Prevention statements

P273 Avoid release to the environment.

Response statements

P391 Collect spillage.

Storage statements

None allocated.

Disposal statements

P501 Dispose of contents/container in accordance with relevant regulations.

2.3 Other hazards

No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
ZINC OXIDE	1314-13-2	215-222-5	>99%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

Ingestion For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). If swallowed, do not induce vomiting.

First aid facilities Eye wash facilities should be available.

4.2 Most important symptoms and effects, both acute and delayed

Adverse effects not expected from this product under normal conditions of use.

4.3 Immediate medical attention and special treatment needed

Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Use an extinguishing agent suitable for the surrounding fire.

5.2 Special hazards arising from the substance or mixture

Non flammable. May evolve zinc oxides when heated to decomposition.

5.3 Advice for firefighters

Evacuate area and contact emergency services. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire.

5.4 Hazchem code

2Z

2 Fine Water Spray.

Z Wear full fire kit and breathing apparatus. Contain spill and run-off.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Ventilate area where possible.

6.2 Environmental precautions

Prevent product from entering drains and waterways.

6.3 Methods of cleaning up

Contain spillage, then collect and place in suitable containers for disposal. Avoid generating dust.

6.4 Reference to other sections

See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities

Store in a cool, dry, well ventilated area, removed from incompatible substances and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use. Check regularly for leaks or spills.

7.3 Specific end uses

No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m³	ppm	mg/m³
Zinc oxide (dust)	SWA [AUS]	--	10	--	--
Zinc oxide (fume)	SWA [AUS]	--	5	--	10

Biological limits

No biological limit values have been entered for this product.

8.2 Exposure controls

Engineering controls Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical explosion proof extraction ventilation is recommended. Maintain dust levels below the recommended exposure standard.

PPE

Eye / Face	Wear dust-proof goggles.
Hands	Wear PVC or rubber gloves.
Body	When using large quantities or where heavy contamination is likely, wear coveralls.
Respiratory	Where an inhalation risk exists, wear a Class P1 (Particulate) respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	WHITE TO YELLOW-WHITE POWDER
Odour	ODOURLESS
Flammability	NON FLAMMABLE
Flash point	NOT RELEVANT
Boiling point	NOT AVAILABLE
Melting point	1975°C
Evaporation rate	NOT AVAILABLE
pH	NOT AVAILABLE
Vapour density	NOT AVAILABLE
Specific gravity	NOT AVAILABLE
Solubility (water)	INSOLUBLE
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE

9.1 Information on basic physical and chemical properties

Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

10. STABILITY AND REACTIVITY

10.1 Reactivity
Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability
Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions
Polymerization is not expected to occur.

10.4 Conditions to avoid
Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials
Incompatible with metals if heated and with acids (e.g. nitric acid).

10.6 Hazardous decomposition products
May evolve zinc oxides when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity This product is expected to be of low toxicity. Based on available data, the classification criteria are not met.

Information available for the ingredients:

Ingredient	Oral LD50	Dermal LD50	Inhalation LC50
ZINC OXIDE	7950 mg/kg (mouse)	--	2500 mg/m³ (mouse)

Additional ingredient toxicity values:

ZINC OXIDE (1314-13-2)

LD50 (intraperitoneal)	240 mg/kg (rat)
LDLo (oral)	500 mg/kg (human)
TCLo (inhalation)	600 mg/m³ (human)

Skin Not classified as a skin irritant. Prolonged or repeated contact may result in mild irritation.

Eye Not classified as an eye irritant. Contact may result in mild irritation, lacrimation and redness.

Sensitisation Not classified as causing skin or respiratory sensitisation.

Mutagenicity Insufficient data available to classify as a mutagen.

Carcinogenicity Insufficient data available to classify as a carcinogen.

Reproductive Insufficient data available to classify as a reproductive toxin.

STOT - single exposure Not classified as causing organ damage from single exposure. Inhalation of freshly formed zinc oxide fumes may result in the development of a flu-like illness termed metal fume fever.

STOT - repeated exposure Not classified as causing organ damage from repeated exposure.

Aspiration Not relevant.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
Very toxic to aquatic life with long lasting effects.

12.2 Persistence and degradability
This product is not readily biodegradable.

12.3 Bioaccumulative potential

All living organisms have homeostasis mechanisms that actively regulate zinc uptake and absorption/excretion from the body; due to this regulation, zinc and zinc compounds do not bioaccumulate or biomagnify.

12.4 Mobility in soil

No information provided.

12.5 Other adverse effects

No information provided.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal Collect and place in sealable containers and dispose of to an approved landfill site. Contact the manufacturer/supplier for additional information (if required).

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE



	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	3077	3077	3077
14.2 Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
14.3 Transport hazard class	9	9	9
14.4 Packing Group	III	III	III

14.5 Environmental hazards

Marine Pollutant

14.6 Special precautions for user

Hazchem code 2Z

GTEPG 9C1

EmS F-A, S-F

Other information The environmentally hazardous substance mark is not required when transported in packages of less than 5 kg/L (UN Model Regulations: Special Provision 375; IATA: Special Provision A197; IMDG: Special Provision 969) or less than 500 kg/L by Australian Road and Rail.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

Inventory listings **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
All components are listed on AICS, or are exempt.

16. OTHER INFORMATION

Additional information

RESPIRATORS: In general the use of respirators should be limited and engineering controls employed to avoid exposure. If respiratory equipment must be worn ensure correct respirator selection and training is undertaken. Remember that some respirators may be extremely uncomfortable when used for long periods. The use of air powered or air supplied respirators should be considered where prolonged or repeated use is necessary.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

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[End of SDS]

NEWPARK DRILLING FLUIDS

SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **SALT**

Synonyms BUTCHERS SALT ● FLOSSY SALT ● HALITE ● NACL ● SODIUM CHLORIDE

1.2 Uses and uses advised against

Uses CHLORIDE SOURCE ● DRILLING FLUID ADDITIVE

1.3 Details of the supplier of the product

Supplier name **NEWPARK DRILLING FLUIDS (AUSTRALIA) LTD**

Address 11 Alacrity Place, Henderson, WA, 6166, AUSTRALIA

Telephone +61 8 9410 8200

Fax +61 8 9410 8299

Website www.newpark.com

1.4 Emergency telephone numbers

Emergency 1800 127 406 (Australia); +64 4 917 9888 (International)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

2.2 GHS Label elements

No signal word, pictograms, hazard or precautionary statements have been allocated.

2.3 Other hazards

No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
SODIUM CHLORIDE	7647-14-5	231-598-3	>98%
INORGANIC SALT(S)	-	-	<0.8%
WATER	7732-18-5	231-791-2	<0.8%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

Ingestion For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). If swallowed, do not induce vomiting.

First aid facilities Eye wash facilities should be available.

4.2 Most important symptoms and effects, both acute and delayed
Under normal conditions of use, adverse health effects are not anticipated. This product is generally considered to be of low toxicity.

4.3 Immediate medical attention and special treatment needed
Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media
Use an extinguishing agent suitable for the surrounding fire.

5.2 Special hazards arising from the substance or mixture
Non flammable. May evolve toxic gases if strongly heated.

5.3 Advice for firefighters
Treat as per requirements for surrounding fires. Evacuate area and contact emergency services. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

5.4 Hazchem code
None allocated.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Clear area of all unprotected personnel. Contact emergency services where appropriate.

6.2 Environmental precautions
Prevent product from entering drains and waterways.

6.3 Methods of cleaning up
Contain spillage, then collect and place in suitable containers for reuse or disposal. Avoid generating dust.

6.4 Reference to other sections
See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool, dry, well ventilated area, removed from incompatible substances, heat or ignition sources and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use. Check regularly for leaks or spills. Large storage areas should have appropriate fire protection systems.

7.3 Specific end uses
No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters
Exposure standards

No exposure standards have been entered for this product.

Biological limits

No biological limit values have been entered for this product.

8.2 Exposure controls

Engineering controls Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended.

PPE

Eye / Face	Wear dust-proof goggles.
Hands	Wear PVC or rubber gloves.
Body	When using large quantities or where heavy contamination is likely, wear coveralls.
Respiratory	Where an inhalation risk exists, wear a Class P1 (Particulate) respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	TRANSLUCENT TO WHITE GRANULES OR POWDER
Odour	SLIGHT ODOUR
Flammability	NON FLAMMABLE
Flash point	NOT RELEVANT
Boiling point	1413°C
Melting point	801°C
Evaporation rate	NOT AVAILABLE
pH	7 (1 % Solution)
Vapour density	NOT AVAILABLE
Relative density	2.163
Solubility (water)	357 g/L
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

10. STABILITY AND REACTIVITY

10.1 Reactivity

Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability

Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions

Polymerization is not expected to occur.

10.4 Conditions to avoid

Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials
Incompatible with oxidising agents (e.g. hypochlorites), acids (e.g. nitric acid) and alkalis (e.g. sodium hydroxide).

10.6 Hazardous decomposition products
May evolve toxic gases if heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity May be harmful if swallowed in large quantities. Repeated ingestion of excessive amounts of sodium chloride may cause disturbance of body electrolyte and fluid balance.
LC50 (Inhalation): > 42000 mg/m3/1 hour (rat)
LD50 (Ingestion): 3000 mg/kg (rat)
LD50 (Skin): > 10000 mg/kg (rabbit)

Information available for the ingredients:

Ingredient	Oral LD50	Dermal LD50	Inhalation LC50
SODIUM CHLORIDE	3000 mg/kg (rat)	> 10000 mg/kg (rabbit)	> 42000 mg/m³/1 hour (rat)

Additional ingredient toxicity values:

SODIUM CHLORIDE (7647-14-5)

LD50 (intraperitoneal)	2602 mg/kg (mouse)
LD50 (intravenous)	645 mg/kg (mouse)
LD50 (subcutaneous)	3000 mg/kg (mouse)
LDLo (intravenous)	300 mg/kg (guinea pig)
LDLo (oral)	8000 mg/kg (rabbit)
LDLo (subcutaneous)	2160 mg/kg (guinea pig)
TDLo (oral)	12357 mg/kg (human)

Skin Contact may result in mild irritation and rash.

Eye Contact may cause discomfort, lacrimation and redness.

Sensitisation Not classified as causing skin or respiratory sensitisation.

Mutagenicity No evidence of mutagenic effects.

Carcinogenicity No evidence of carcinogenic effects.

Reproductive No relevant or reliable studies were identified.

STOT - single exposure Not classified as causing organ damage from single exposure.

STOT - repeated exposure Not classified as causing organ damage from repeated exposure.

Aspiration This product does not present an aspiration hazard.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
Aquatic Toxicity: LC50 (water flea) is 2122 mg/L/48 hours; LC50 (fathead minnow) is 6.57 g/L/96 hours.

12.2 Persistence and degradability
Biodegradability does not pertain to inorganic substances.

12.3 Bioaccumulative potential
Not expected to bioaccumulate.

12.4 Mobility in soil
No information provided.

12.5 Other adverse effects
This product is not anticipated to cause adverse effects to animal or plant life if released to the environment in small quantities.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal Ensure product is covered with moist soil to prevent dust generation and dispose of to approved Council landfill. Contact the manufacturer/supplier for additional information (if required).

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE, IMDG OR IATA

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	None allocated.	None allocated.	None allocated.
14.2 Proper Shipping Name	None allocated.	None allocated.	None allocated.
14.3 Transport hazard class	None allocated.	None allocated.	None allocated.
14.4 Packing Group	None allocated.	None allocated.	None allocated.

14.5 Environmental hazards

No information provided.

14.6 Special precautions for user

Hazchem code None allocated.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safe Work Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals (GHS Revision 7).

Inventory listings **AUSTRALIA: AIIC (Australian Inventory of Industrial Chemicals)**
All components are listed on AIIC, or are exempt.

16. OTHER INFORMATION

Additional information

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

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[End of SDS]

NEWPARK DRILLING FLUIDS

SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **BENTONITE POWDER**

Synonyms AVAGEL ● BENTONIL HR ● HISWELL ● MAXIGEL ● NATURALGEL ● NEWGEL ● RHEOBEN ● RHEOBEN NT ● SODIUM BENTONITE ● SODIUM MONTMORILLONITE

1.2 Uses and uses advised against

Uses DRILLING FLUID

1.3 Details of the supplier of the product

Supplier name **NEWPARK DRILLING FLUIDS (AUSTRALIA) LTD**

Address 11 Alacrity Place, Henderson, WA, 6166, AUSTRALIA

Telephone +61 8 9410 8200

Fax +61 8 9410 8299

Website www.newpark.com

1.4 Emergency telephone numbers

Emergency 1800 127 406 (Australia); +64 4 917 9888 (International)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

Physical Hazards

Not classified as a Physical Hazard

Health Hazards

Specific Target Organ Toxicity (Repeated Exposure): Category 2

Environmental Hazards

Not classified as an Environmental Hazard

2.2 GHS Label elements

Signal word **WARNING**

Pictograms



Hazard statements

H373 May cause damage to organs through prolonged or repeated exposure.

Prevention statements

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

Response statements

P314 Get medical advice/attention if you feel unwell.

Storage statements

None allocated.

Disposal statements

P501 Dispose of contents/container in accordance with relevant regulations.

2.3 Other hazards

No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
BENTONITE	1302-78-9	215-108-5	90 to 98%
QUARTZ (CRYSTALLINE SILICA)	14808-60-7	238-878-4	2 to 10%
SODA ASH	-	-	2 to 4%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water.

Ingestion For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). Due to product form and application, ingestion is considered unlikely.

First aid facilities Eye wash facilities and safety shower should be available.

4.2 Most important symptoms and effects, both acute and delayed

Repeated exposure to crystalline silica may result in lung fibrosis (silicosis). Principal symptoms of silicosis are coughing and breathlessness. Crystalline silica is classified as carcinogenic to humans (IARC Group 1).

4.3 Immediate medical attention and special treatment needed

Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Use an extinguishing agent suitable for the surrounding fire.

5.2 Special hazards arising from the substance or mixture

Non flammable. May evolve toxic gases if strongly heated.

5.3 Advice for firefighters

Treat as per requirements for surrounding fires. Evacuate area and contact emergency services. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

5.4 Hazchem code

None allocated.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS.

6.2 Environmental precautions

Prevent product from entering drains and waterways.

6.3 Methods of cleaning up

Moisten with water to prevent a dust hazard and place in sealable containers for disposal.

6.4 Reference to other sections
See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool, dry, well ventilated area, removed from incompatible substances and foodstuffs. Ensure packaging are adequately labelled, protected from physical damage and sealed when not in use. Check regularly for leaks or spills.

7.3 Specific end uses
No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters
Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m³	ppm	mg/m³
Quartz (respirable dust)	SWA [AUS]	--	0.05	--	--
Quartz (respirable dust)	WorkSafe VIC	--	0.05	--	--

Biological limits No Biological Limit Value allocated.

8.2 Exposure controls
Engineering controls Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended.

PPE

Eye / Face	Wear dust-proof goggles.
Hands	Wear PVC or rubber gloves.
Body	When using large quantities or where heavy contamination is likely, wear coveralls.
Respiratory	Where an inhalation risk exists, wear a Class P1 (Particulate) respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	BROWN POWDER
Odour	SLIGHT ODOUR
Flammability	NON FLAMMABLE
Flash point	NOT RELEVANT
Boiling point	NOT AVAILABLE
Melting point	1100°C to 1200°C (Fusion Point)
Evaporation rate	NOT AVAILABLE
pH	NOT AVAILABLE
Vapour density	NOT AVAILABLE
Specific gravity	2.7
Solubility (water)	INSOLUBLE
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT

9.1 Information on basic physical and chemical properties

Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT EXPLOSIVE
Oxidising properties	NON OXIDISING
Odour threshold	NOT AVAILABLE

9.2 Other information

Bulk density	~ 0.9 kg/L

10. STABILITY AND REACTIVITY

10.1 Reactivity

Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability

Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions

Polymerization is not expected to occur.

10.4 Conditions to avoid

Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials

Incompatible with acids (e.g. nitric acid) and alkalis (e.g. sodium hydroxide).

10.6 Hazardous decomposition products

May evolve toxic gases if heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

Toxicity Data available for the ingredients:
QUARTZ (SILICA CRYSTALLINE) (14808-60-7):
LCLo (inhalation) = 300 ug/m³/10 years (human)
TCLo (inhalation) = 16 000 000 particles/ft3/8 hours/17.9 years (human-fibrosis)
BENTONITE (1302-78-9):
LD50 (intravenous) = 35 mg/kg (rat)
LD50 (oral): > 2000mg/kg (rat)
LDLo (intravenous) = 10 mg/kg (dog)
Inhalation LC 50: > 5.27 mg/L, 4hr (rat)

Additional ingredient toxicity values:

BENTONITE (1302-78-9)

LD50 (intravenous)	35 mg/kg (rat)
LDLo (intravenous)	10 mg/kg (dog)

Skin

Not classified as a skin irritant. Contact may result in mild irritation and dermatitis.

Eye

Not classified as an eye irritant. Contact may cause discomfort, lacrimation and redness.

Sensitisation

Not classified as causing skin or respiratory sensitisation.

Mutagenicity

Insufficient data available to classify as a mutagen.

Carcinogenicity

This product contains crystalline silica which is classified as carcinogenic to humans (IARC Group 1). However, there is sufficient information to conclude that the relative risk of lung cancer is increased in persons with silicosis. Therefore, preventing the onset of silicosis will also reduce the cancer risk.

Reproductive

Insufficient data available to classify as a reproductive toxin.

STOT - single exposure

Not classified as causing organ damage from single exposure.

STOT - repeated exposure

Repeated exposure to respirable silica may result in pulmonary fibrosis (silicosis). Silicosis is a fibronodular lung disease caused by deposition in the lungs of fine respirable particles of crystalline silica. Principal symptoms of silicosis are coughing and breathlessness.

Aspiration

Not expected to present an aspiration hazard.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Bentonite (1302-78-9):
EC50 Daphnia > 100 mg/l, 48 hours
EC50 Freshwater algae > 100 mg/l, 72 hours
LC50 Freshwater fish = 16000 mg/l, 96 hours
LC50 Marine water fish = 2800 - 3200 mg/l, 24 hours
EC50 Coon stripe shrimp (Pandalus danae) = 24.8 mg/l, 96 hours
EC50 Dungeness or edible crab (Cancer magister) = 81.6 mg/l, 96 hours
LC50 Rainbow trout, donaldson trout (Oncorhynchus mykiss) = 19000 mg/l, 96 hours

12.2 Persistence and degradability

Not relevant for inorganic substances.

12.3 Bioaccumulative potential

Will not bioaccumulate.

12.4 Mobility in soil

Low water solubility, expected to sink and migrate into the sediment. Expected to partition to sediment and wastewater solids.

12.5 Other adverse effects

The main component/s of this product are not anticipated to cause any adverse effects to plants or animals.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal Reuse where possible. No special precautions are normally required when handling this product.

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE, IMDG OR IATA

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	None allocated.	None allocated.	None allocated.
14.2 Proper Shipping Name	None allocated.	None allocated.	None allocated.
14.3 Transport hazard class	None allocated.	None allocated.	None allocated.
14.4 Packing Group	None allocated.	None allocated.	None allocated.

14.5 Environmental hazards

No information provided.

14.6 Special precautions for user

Hazchem code None allocated.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

Inventory listings **AUSTRALIA: AIIC (Australian Inventory of Industrial Chemicals)**
All components are listed on AIIC, or are exempt.

16. OTHER INFORMATION

Additional information

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

Prepared by

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[End of SDS]

SAFETY DATA SHEET

NewPac™ LV

Issue Date 02- u -2017 **Revision Date** 25-Nov-2020 **Version** 1.1

1. Identification

1

1.1. Product identifier

Product Code N F00012

Product Name Ne Pac™

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended Use iltration control a ent

Uses advised against No in ormation available

1.3. Details of the supplier of the safety data sheet

Supplier
Ne park rillin Fluids
ia alaria 1313 C
00138 M (tal)

For urther in ormation please contact
Contact Point Telephone: 39 06 8856111
Fax: 39 06 8889363
ebsite: .ne park.com
E-mail address hse-h it@ne park.com

1.4. Emergency telephone number

Emergency Telephone - §45 - (EC)1272/2008	
Europe	**112**
Austria	(43)-13649237
France	(33)-975181407
Germany	0800-181-7059 (49)- 69643508409
Hungary	(36)-18088425
Italy	800-789-767 (39)-0245557031 Milano 24 24 spedale Ni uarda Ca rande Piazza ospedale ma iore 3 39 0266101029 oma 24 24 Policlinico emelli ar o ostino emelli 8 39 063054343
Netherlands	(31)-858880596
Romania	(40)-37-6300026
Spain	900-868538 (34)-931768545
Switzerland	145 (41) 435082011
United Kingdom	(44)-870-8200418

2. Hazard(s) identification

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

This mixture is classi ied as not hazardous accordin to re ulation (C) 1272 2008 C P

2.2. Label elements

This mixture is classi ied as not hazardous accordin to re ulation (C) 1272 2008 C P

Hazard statements

This mixture is classi ied as not hazardous accordin to re ulation (C) 1272 2008 C P

2.3. Other hazards

This substance does not meet the P T vPv criteria o CH annex

Ma orm combustible dust concentrations in air

3. Composition/information on ingredients

3.1 Substances

Not applicable

3.2 Mixtures

The product contains no substances hich at their iven concentration are considered to be hazardous to health

Full text of H- and EUH-phrases: see section 16

4. First-aid measures

4.1. Description of first aid measures

Inhalation emove to resh air.

Eye contact inse thorou hl ith plent o ater or at least 15 minutes li tin lo er and upper e elids. Consult a ph sician.

Skin contact ash skin ith soap and ater. n the case o skin irritation or aller ic reactions see a ph sician.

Ingestion Clean mouth ith ater and drink a ter ards plent o ater.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms No in ormation available.

4.3. Indication of any immediate medical attention and special treatment needed

Note to physicians Treat s mptomaticall .

5. Fire-fighting measures

5.1. Extinguishing media

Suitable Extinguishing Media se extin uishin measures that are appropriate to local circumstances and the surroundin environment.

Large Fire C T N: se o ater spra hen i htin ire ma be ine icient.

Unsuitable extinguishing media o not scatter spilled material ith hi h pressure ater streams.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical void eneration o dust. Fine dust dispersed in air ma i nite.

Hazardous combustion products Carbon oxides. odium oxides.

5.3. Advice for firefighters

Special protective equipment for fire-fighters Fire i hters should ear sel -contained breathin apparatus and ull ire i htin turnout ear. se personal protection e uipment.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions nsure ade uate ventilation.

For emergency responders se personal protection recommended in ection 8.

6.2. Environmental precautions

Environmental precautions ee ection 12 or additional colo ical n ormation.

6.3. Methods and material for containment and cleaning up

Methods for containment Prevent urther leaka e or spilla e i sa e to do so.

Methods for cleaning up Take up mechanicall placin in appropriate containers or disposal.

Prevention of secondary hazards Clean contaminated ob ects and areas thorou hl observin environmental re ulations.

6.4. Reference to other sections

Reference to other sections ee section 8 or more in ormation. ee section 13 or more in ormation.

7. Handling and storage

7.1. Precautions for safe handling

Advice on safe handling nsure ade uate ventilation. void eneration o dust. Fine dust dispersed in air in su icient concentrations and in the presence o an i nition source is a potential dust explosion hazard.

General hygiene considerations Handle in accordance ith ood industrial h iene and sa et practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions eep container ti htl closed in a dr and ell-ventilated place.

7.3. Specific end use(s)

Identified Uses

Risk Management Methods (RMM) The in ormation re uired is contained in this a et ata heet.

8. Exposure controls/personal protection

8.1. Control parameters

Exposure Limits This product as supplied does not contain an hazardous materials ith occupational exposure limits established b the re ion speci ic re ulator bodies.

Derived No Effect Level (DNEL) No in ormation available.

Predicted No Effect Concentration (PNEC) No in ormation available.

8.2. Exposure controls

Personal protective equipment

Eye/face protection ear sa et lasses ith side shields (or o les). se e e protection accordin to N 166 desi ned to protect a ainst spra mists.

Skin and body protection ear suitable protective clothin . (N 340).

Respiratory protection No protective e uipment is needed under normal use conditions. exposure limits are exceeded or irritation is experienced ventilation and evacuation ma be re uired. (N 136 N 140 N 141 N 143 N 149 N 405).

General hygiene considerations Handle in accordance ith ood industrial h iene and sa et practice.

Environmental exposure controls No in ormation available.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	olid
Appearance	Po der
Color	hite to Pale ello
Odor	dorless.
Odor threshold	No in ormation available

Property	**Values**	**Remarks • Method**
pH	6.0 - 8.5	0.5 solution
Melting point / freezing point		No data available
Boiling point / boiling range		No data available
Flash point		No data available
Evaporation rate		No data available
Flammability (solid, gas)		No data available
Flammability Limit in Air		No data available
Upper flammability limit:		
Lower flammability limit:		
Vapor pressure		No data available
Vapor density		No data available
Relative density	1.6	

Water solubility	oluble in ater
Solubility(ies)	No data available
Partition coefficient	No data available
Autoignition temperature	No data available
Decomposition temperature	No data available
Kinematic viscosity	Not applicable
Dynamic viscosity	Not applicable
Explosive properties	Fine dust dispersed in air in su icient concentrations and in the presence o an i nition source is a potential dust explosion hazard
Oxidizing properties	Not applicable

9.2. Other information

Softening point	No in ormation available
Molecular weight	No in ormation available
VOC Content (%)	No in ormation available
Liquid Density	No in ormation available
Bulk density	No in ormation available

10. Stability and reactivity

10.1. Reactivity

Reactivity Not reactive under normal conditions.

10.2. Chemical stability

Stability table under normal conditions.

Explosion data

Sensitivity to mechanical impact None.
Sensitivity to static discharge None.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processin .

10.4. Conditions to avoid

Conditions to avoid dust ormation.

10.5. Incompatible materials

Incompatible materials tron oxidizin a ents.

10.6. Hazardous decomposition products

Hazardous Decomposition Products None kno n based on in ormation supplied.

11. Toxicological information

11.1. Information on toxicological effects

Information on likely routes of exposure

Product Information .

Inhalation peci ic test data or the substance or mixture is not available.

Eye contact peci ic test data or the substance or mixture is not available.

Skin contact peci ic test data or the substance or mixture is not available.

Ingestion peci ic test data or the substance or mixture is not available.

Information on toxicological effects

Symptoms No in ormation available.

Numerical measures of toxicity

Acute toxicity

The following values are calculated based on chapter 3.1 of the GHS document
ATEmix (oral) 13 636.40 m k

Unknown acute toxicity 90.6 o the mixture consists o in redient(s) o unkno n toxicit .
0.6 o the mixture consists o in redient(s) o unkno n acute oral toxicit .
90.6 o the mixture consists o in redient(s) o unkno n acute dermal toxicit .
90.6 o the mixture consists o in redient(s) o unkno n acute inhalation toxicit (as).
90.6 o the mixture consists o in redient(s) o unkno n acute inhalation toxicit (vapor).
90.6 o the mixture consists o in redient(s) o unkno n acute inhalation toxicit (dust mist).

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation No in ormation available.

Serious eye damage/eye irritation No in ormation available.

Respiratory or skin sensitization No in ormation available.

Germ cell mutagenicity No in ormation available.

Carcinogenicity No in ormation available.

Reproductive toxicity No in ormation available.

STOT - single exposure No in ormation available.

STOT - repeated exposure No in ormation available.

Aspiration hazard Not applicable.

12. Ecological information

12.1. Toxicity

Ecotoxicity

Unknown Aquatic Toxicity Contains 0.6 o components ith unkno n hazards to the a uatic environment.

12.2. Persistence and degradability

Persistence and degradability No in ormation available.

12.3. Bioaccumulative potential

Bioaccumulation No in ormation available.

12.4. Mobility in soil

Mobility in soil No in ormation available.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment The product does not contain an substance(s) classi ied as P T or vPv .

12.6. Other adverse effects

Other adverse effects No in ormation available.

13. Disposal considerations

13.1. Waste treatment methods

Waste from residues/unused products ispose o in accordance ith local re ulations. ispose o aste in accordance ith environmental le islation.

Contaminated packaging o not reuse empt containers.

Waste codes / waste designations according to EWC / AVV aste codes should be assi ned b the user based on the application or hich the product as used.

14. Transport information

IMDG

14.1 UN/ID no	Not e ulated
14.2 Proper shipping name	Not e ulated
14.3 Hazard Class	Not e ulated
14.4 Packing Group	Not e ulated
14.5 Marine pollutant	Not applicable
14.6 Special Provisions	None
14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code	No in ormation available

RID

14.1 UN/ID no	Not e ulated
14.2 Proper shipping name	Not e ulated
14.3 Hazard Class	Not e ulated
14.4 Packing Group	Not e ulated
14.5 Environmental hazard	Not applicable
14.6 Special Provisions	None

ADR

14.1 UN/ID no	Not e ulated
14.2 Proper shipping name	Not e ulated
14.3 Hazard Class	Not e ulated
14.4 Packing Group	Not e ulated
14.5 Environmental hazard	Not applicable
14.6 Special Provisions	None

IATA Not e ulated

14.1 UN/ID no	Not e ulated
14.2 Proper shipping name	Not e ulated
14.3 Hazard Class	Not e ulated
14.4 Packing Group	Not e ulated
14.5 Environmental hazard	Not applicable
14.6 Special Provisions	None

15. Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

National regulations

Germany

Water hazard class (WGK) sli htl hazardous to ater (1)

Italy

- . s. 81 2008 (sin le text on the protection o health and sa et in the orkplace) and subse uent amendments and irective 2009 161 -assessment o chemical risk under title
- e islative ecree 3 pril 2006 no 152 (environmental standards)
-"Seveso III Directive" – Legislative Decree of 26 June 2015, n° 105 (Implementation of the Directive 2012/18/EU on the control of ma or-accident hazards involvin dan erous substances)

European Union

Take note o irective 98 24 C on the protection o the health and sa et o orkers rom the risks related to chemical a ents at ork

Authorizations and/or restrictions on use:
This product does not contain substances sub ect to authorization (e ulation (C) No. 1907 2006 (CH) nnex) This product does not contain substances sub ect to restriction (e ulation (C) No. 1907 2006 (CH) nnex)

Persistent Organic Pollutants
Not applicable

Ozone-depleting substances (ODS) regulation (EC) 1005/2009 Not applicable

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies
NZIoC	Complies

Legend:
TSCA - nited tates Toxic ubstances Control ct ection 8(b) nventor
DSL/NDSL - Canadian omestic ubstances ist Non- omestic ubstances ist
EINECS/ELINCS - uropean nventor o xistin Chemical ubstances uropean ist o Noti ied Chemical ubstances
ENCS - Japan xistin and Ne Chemical ubstances
IECSC - China nventor o xistin Chemical ubstances

KECL - orean xistin and valuated Chemical ubstances
PICCS - Philippines nventor o Chemicals and Chemical ubstances
AICS - ustralian nventor o Chemical ubstances
NZIoC - Ne ealand nventor o Chemicals

15.2. Chemical safety assessment

Chemical Safety Report None

16. Other information

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend
HC: ubstances o er Hi h Concern or uthorization:

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION
T T (time- ei hted avera e) T T (hort Term xposure imit)
Ceilin Maximum limit value kin desi nation

Classi ication procedure	
Classi ication accordin to e ulation (C) No. 1272 2008 C P	Method sed
cute oral toxicit	Calculation method
cute dermal toxicit	Calculation method
cute inhalation toxicit - as	Calculation method
cute inhalation toxicit - vapor	Calculation method
cute inhalation toxicit - dust mist	Calculation method
kin corrosion irritation	Calculation method
erious e e dama e e e irritation	Calculation method
espirator sensitization	Calculation method
kin sensitization	Calculation method
Muta enicit	Calculation method
Carcino enicit	Calculation method
eproductive toxicit	Calculation method
T T - sin le exposure	Calculation method
T T - repeated exposure	Calculation method
cute a uatic toxicit	Calculation method
Chronic a uatic toxicit	Calculation method
spiration hazard	Calculation method
Health hazards not other ise classi ied (HHN C)	Calculation method

Key literature references and sources for data used to compile the SDS
enc or Toxic ubstances and isease e istr (T)
. . nvironmental Protection enc Chem ie atabase
uropean Food a et uthorit (F)
P (nvironmental Protection enc)
cute xposure uideline evel(s) ((s))
. . nvironmental Protection enc Federal nsecticide Fun icide and odenticide ct
. . nvironmental Protection enc Hi h Production olume Chemicals
Food esearch Journal
Hazardous ubstance atabase
nternational ni orm Chemical n ormation atabase (C)
Japan H Classi ication
ustralia National ndustrial Chemicals Noti ication and ssessment cheme (N CN)
N H (National nstitute or ccupational a et and Health)
National ibrar o Medicine s Chem Plus (N M C P)
National ibrar o Medicine s PubMed database (N M P M)
National Toxicolo Pro ram (NTP)
Ne ealand s Chemical Classi ication and n ormation atabase (CC)

r anization or conomic Co-operation and evelopment nvironment Health and a et Publications
r anization or conomic Co-operation and evelopment Hi h Production olume Chemicals Pro ram
r anization or conomic Co-operation and evelopment creenin n ormation ata et
T C (e istr o Toxic ects o Chemical ubstances)
orld Health r anization

Issue Date 02- u -2017

Revision Date 25-Nov-2020

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

Disclaimer
According to Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006, as amended by Regulation (EU) No. 2015/830.
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End of Safety Data Sheet

NEWPARK DRILLING FLUIDS

SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **NEWZAN D**

Synonyms NEWZAN D ● XANTHAN GUM (BIOPOLYMER) ● XANTHAN GUM (P)

1.2 Uses and uses advised against

Uses DRILLING FLUID ADDITIVE ● VISCOSITY MODIFIER

1.3 Details of the supplier of the product

Supplier name **NEWPARK DRILLING FLUIDS (NEW ZEALAND) LTD**

Address PO BOX 6092, Moturoa, New Plymouth, TARANAKI, 4310, NEW ZEALAND

Telephone 0204 0234 734

Fax +61 8941 08299

Website www.newpark.com

1.4 Emergency telephone numbers

Emergency 0800 243 622 (New Zealand); +64 4 917 9888 (International)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

NON HAZARDOUS ACCORDING TO NZ ENVIRONMENTAL PROTECTION AUTHORITY CRITERIA

2.2 GHS Label elements

No signal word, pictograms, hazard or precautionary statements have been allocated.

2.3 Other hazards

No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
XANTHAN GUM	11138-66-2	234-394-2	>90%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

Ingestion For advice, contact the National Poisons Centre on 0800 764 766 (0800 POISON) or +643 479 7248 or a doctor (at once). If swallowed, do not induce vomiting. Ingestion is considered unlikely due to product form.

First aid facilities Eye wash facilities and safety shower should be available.

4.2 Most important symptoms and effects, both acute and delayed

Adverse effects not expected from this product under normal conditions of use.

4.3 Immediate medical attention and special treatment needed
Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media
Dry agent, carbon dioxide, foam or water fog. Prevent contamination of drains or waterways.

5.2 Special hazards arising from the substance or mixture
Combustible. May evolve toxic gases (carbon oxides, hydrocarbons) when heated to decomposition. Finely divided dust may form explosive mixtures with air.

5.3 Advice for firefighters
Evacuate area and contact emergency services. Toxic gases may be evolved in a fire situation. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

5.4 Hazchem code
None allocated.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Clear area of all unprotected personnel. Contact emergency services where appropriate.

6.2 Environmental precautions
Prevent product from entering drains and waterways.

6.3 Methods of cleaning up
Contain spillage, then collect and place in suitable containers for reuse or disposal. Avoid generating dust.

6.4 Reference to other sections
See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool, dry, well ventilated area, removed from incompatible substances and foodstuffs. Ensure containers are adequately labelled and tightly closed when not in use.

7.3 Specific end uses
No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters
Exposure standards

No exposure standards have been entered for this product.

Biological limits

No biological limit values have been entered for this product.

8.2 Exposure controls
Engineering controls Avoid inhalation. Use in well ventilated areas.

PPE

Eye / Face	Wear dust-proof goggles.
Hands	Wear PVC or rubber gloves.
Body	When using large quantities or where heavy contamination is likely, wear coveralls.
Respiratory	Wear a Class P1 (Particulate) respirator. Where an inhalation risk exists, wear a Class P1 (Particulate) respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	LIGHT BEIGE POWDER
Odour	SLIGHT ODOUR
Flammability	COMBUSTIBLE
Flash point	NOT RELEVANT
Boiling point	NOT AVAILABLE
Melting point	NOT AVAILABLE
Evaporation rate	NOT AVAILABLE
pH	NOT AVAILABLE
Vapour density	NOT AVAILABLE
Specific gravity	1.5
Solubility (water)	MISCIBLE
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

10. STABILITY AND REACTIVITY

10.1 Reactivity

Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability

Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions

Polymerization is not expected to occur.

10.4 Conditions to avoid

Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials

Incompatible with oxidising agents (e.g. hypochlorites) and acids (e.g. nitric acid).

10.6 Hazardous decomposition products

May evolve toxic gases (carbon oxides, hydrocarbons) when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity	This product is expected to be of low acute toxicity. Under normal conditions of use, adverse health effects are not anticipated.
Skin	Not classified as a skin irritant. Contact may result in mild irritation.
Eye	Not classified as an eye irritant. Contact may cause discomfort, lacrimation and redness.
Sensitisation	Not classified as causing skin or respiratory sensitisation.
Mutagenicity	No evidence of mutagenic effects.
Carcinogenicity	No evidence of carcinogenic effects.
Reproductive	No relevant or reliable studies were identified.
STOT - single exposure	Not classified as causing organ damage from single exposure.
STOT - repeated exposure	Not classified as causing organ damage from repeated exposure.
Aspiration	This product does not present an aspiration hazard.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No information provided.

12.2 Persistence and degradability
No information provided.

12.3 Bioaccumulative potential
No information provided.

12.4 Mobility in soil
No information provided.

12.5 Other adverse effects
No information provided.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal	Ensure product is covered with moist soil to prevent dust generation and dispose of to approved Council landfill. Contact the manufacturer/supplier for additional information (if required).
Legislation	Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD ACCORDING TO LAND TRANSPORT RULE: DANGEROUS GOODS 2005; NZS 5433:2012, UN, IMDG OR IATA

	LAND TRANSPORT (NZS 5433)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	None allocated.	None allocated.	None allocated.
14.2 Proper Shipping Name	None allocated.	None allocated.	None allocated.
14.3 Transport hazard class	None allocated.	None allocated.	None allocated.
14.4 Packing Group	None allocated.	None allocated.	None allocated.

14.5 Environmental hazards
No information provided.

14.6 Special precautions for user
Hazchem code None allocated.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Approval code NON HAZARDOUS

Group standard NON HAZARDOUS

Inventory listings **NEW ZEALAND: NZIoC (New Zealand Inventory of Chemicals)**
All components are listed on the NZIoC inventory, or are exempt.

16. OTHER INFORMATION

Additional information

RESPIRATORS: In general the use of respirators should be limited and engineering controls employed to avoid exposure. If respiratory equipment must be worn ensure correct respirator selection and training is undertaken. Remember that some respirators may be extremely uncomfortable when used for long periods. The use of air powered or air supplied respirators should be considered where prolonged or repeated use is necessary.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CCID	Chemical Classification and Information Database (HSNO)
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
EPA	Environmental Protection Authority [New Zealand]
GHS	Globally Harmonized System
HSNO	Hazardous Substances and New Organisms
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

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[End of SDS]

NEWPARK DRILLING FLUIDS

SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **SODIUM SULPHITE**

Synonyms SODIUM SULFITE

1.2 Uses and uses advised against

Uses ANTIOXIDANT ● FOOD PRESERVATIVE ● LABORATORY REAGENT ● PAPER INDUSTRY ● PHOTOGRAPHIC DEVELOPER ● REDUCING AGENT ● WATER TREATMENT

1.3 Details of the supplier of the product

Supplier name **NEWPARK DRILLING FLUIDS (AUSTRALIA) LTD**

Address 11 Alacrity Place, Henderson, WA, 6166, AUSTRALIA

Telephone +61 8 9410 8200

Fax +61 8 9410 8299

Website www.newpark.com

1.4 Emergency telephone numbers

Emergency 1800 127 406 (Australia); +64 4 917 9888 (International)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

Physical Hazards

Not classified as a Physical Hazard

Health Hazards

Acute Toxicity: Oral: Category 4
Serious Eye Damage / Eye Irritation: Category 1
Contact with acids liberates toxic gas.

Environmental Hazards

Not classified as an Environmental Hazard

2.2 GHS Label elements

Signal word **DANGER**

Pictograms



Hazard statements

AUH031	Contact with acids liberates toxic gas.
H302	Harmful if swallowed.
H318	Causes serious eye damage.

Prevention statements

P264	Wash thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.

Response statements

P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTRE or doctor/physician.
P330	Rinse mouth.

Storage statements

None allocated.

Disposal statements

P501	Dispose of contents/container in accordance with relevant regulations.

2.3 Other hazards

No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
SODIUM SULPHITE	7757-83-7	231-821-4	>97%
SODIUM SULPHATE	7757-82-6	231-820-9	<2.5%
SODIUM CARBONATE	497-19-8	207-838-8	<0.1%
WATER	7732-18-5	231-791-2	<0.1%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye	If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.
Inhalation	If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.
Skin	If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.
Ingestion	For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). Urgent hospital treatment is likely to be needed. If swallowed, do not induce vomiting.
First aid facilities	Eye wash facilities and safety shower are recommended.

4.2 Most important symptoms and effects, both acute and delayed

See Section 11 for more detailed information on health effects and symptoms.

4.3 Immediate medical attention and special treatment needed

Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Use an extinguishing agent suitable for the surrounding fire.

5.2 Special hazards arising from the substance or mixture

Non flammable. May evolve sulphur oxides and sodium oxides when heated to decomposition.

5.3 Advice for firefighters

Evacuate area and contact emergency services. Toxic gases may be evolved in a fire situation. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire.

5.4 Hazchem code

None allocated.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Clear area of all unprotected personnel. Contact emergency services where appropriate.

6.2 Environmental precautions
Prevent product from entering drains and waterways.

6.3 Methods of cleaning up
Contain spillage, then collect and place in suitable containers for reuse or disposal. Avoid generating dust.

6.4 Reference to other sections
See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool, dry, well ventilated area, removed from incompatible substances and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use. Check regularly for leaks or spills.

7.3 Specific end uses
No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters
Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m³	ppm	mg/m³
Sodium Carbonate (total dust)	SWA [AUS]	--	10	--	--

Biological limits
No biological limit values have been entered for this product.

8.2 Exposure controls
Engineering controls Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended.

PPE

Eye / Face	Wear dust-proof goggles.
Hands	Wear PVC or rubber gloves.
Body	When using large quantities or where heavy contamination is likely, wear coveralls.
Respiratory	Where an inhalation risk exists, wear a Class P1 (Particulate) respirator. At high dust levels, wear a Full-face Class P3 (Particulate) respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	WHITE CRYSTALLINE SOLID
Odour	ODOURLESS
Flammability	NON FLAMMABLE

9.1 Information on basic physical and chemical properties

Flash point	NOT RELEVANT
Boiling point	NOT AVAILABLE
Melting point	NOT AVAILABLE
Evaporation rate	NOT AVAILABLE
pH	9.0 to 10.5
Vapour density	NOT AVAILABLE
Relative density	2.6
Solubility (water)	SOLUBLE
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

10. STABILITY AND REACTIVITY

10.1 Reactivity
Contact with acids liberates toxic gas.

10.2 Chemical stability
Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions
Polymerization is not expected to occur.

10.4 Conditions to avoid
Avoid heat, sparks, open flames and other ignition sources. Avoid exposure to air and moisture. Sensitive to air and moisture.

10.5 Incompatible materials
Incompatible with oxidising agents (e.g. hypochlorites) and acids (e.g. nitric acid). Strong reducing agent.

10.6 Hazardous decomposition products
May evolve sulphur oxides and sodium oxides when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity Harmful if swallowed.

Information available for the ingredients:

Ingredient	Oral LD50	Dermal LD50	Inhalation LC50
SODIUM SULPHITE	820 mg/kg (mouse); 3560 mg/kg (rat)	> 2000 mg/kg (rat)	> 5500 mg/m3/4hrs (rat)
SODIUM SULPHATE	5989 mg/kg (mouse)	--	--
SODIUM CARBONATE	> 2000 mg/kg (rat) (AICIS)	> 2000 mg/kg (rat) (AICIS)	> 2000 mg/m³ (rat) (AICIS)

Additional ingredient toxicity values:

SODIUM SULPHITE (7757-83-7)

LD50 (intraperitoneal)	950 mg/kg (mouse)
LD50 (intravenous)	175 mg/kg (mouse)
LDLo (intravenous)	400 mg/kg (cat)
LDLo (oral)	2825 mg/kg (rabbit)
LDLo (subcutaneous)	600 mg/kg (rabbit)

SODIUM SULPHATE (7757-82-6)

LD50 (intravenous)	1220 mg/kg (rabbit)
LDLo (intravenous)	1220 mg/kg (mouse)
TDLo (oral)	14 g/kg (mouse - 8-12 days pregnant)
TDLo (subcutaneous)	806 mg/kg/26 weeks intermittently (mouse)

SODIUM CARBONATE (497-19-8)

LD50 (intraperitoneal)	117 mg/kg (mouse)
LD50 (subcutaneous)	2210 mg/kg (mouse)

Skin Contact may result in irritation, redness, rash and dermatitis.

Eye Contact may result in irritation, lacrimation, pain, redness and possible serious eye damage.

Sensitisation Some individuals are hypersensitive to sulphites and may experience adverse reactions following exposure. Individuals known to be hypersensitive or with existing respiratory problems (eg asthma) are advised to avoid exposure.

Mutagenicity Not classified as a mutagen.

Carcinogenicity Not classified as a carcinogen.

Reproductive Not classified as a reproductive toxin.

STOT - single exposure Over exposure may result in mucous membrane irritation of the respiratory tract, with coughing.

STOT - repeated exposure Not classified as causing organ damage from repeated exposure.

Aspiration Not classified as causing aspiration.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No information provided.

12.2 Persistence and degradability
Biodegradability does not pertain to inorganic substances.

12.3 Bioaccumulative potential
This product does not bioaccumulate.

12.4 Mobility in soil
No information provided.

12.5 Other adverse effects
Avoid contamination of drains and waterways.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal Cover spill with soda ash or sodium bicarbonate. Mix and spray with water, may be effervescent. Wait until reaction is complete, scoop into a large beaker and cautiously add equal volume of sodium hypochlorite (reaction may be vigorous). Add more water, stir and allow to stand (~1hr). Dilute and neutralise. Absorb with sand/similar dispose of to an approved landfill site, or alternatively (for small amounts) flush to sewer with large excess of water.

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE, IMDG OR IATA

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	None allocated.	None allocated.	None allocated.
14.2 Proper Shipping Name	None allocated.	None allocated.	None allocated.
14.3 Transport hazard class	None allocated.	None allocated.	None allocated.
14.4 Packing Group	None allocated.	None allocated.	None allocated.

14.5 Environmental hazards

No information provided.

14.6 Special precautions for user

Hazchem code None allocated.

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safe Work Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals (GHS Revision 7).

Inventory listings **AUSTRALIA: AIIC (Australian Inventory of Industrial Chemicals)**
All components are listed on AIIC, or are exempt.

16. OTHER INFORMATION

Additional information

RESPIRATORS: In general the use of respirators should be limited and engineering controls employed to avoid exposure. If respiratory equipment must be worn ensure correct respirator selection and training is undertaken. Remember that some respirators may be extremely uncomfortable when used for long periods. The use of air powered or air supplied respirators should be considered where prolonged or repeated use is necessary.

WORKPLACE CONTROLS AND PRACTICES: Unless a less toxic chemical can be substituted for a hazardous substance, ENGINEERING CONTROLS are the most effective way of reducing exposure. The best protection is to enclose operations and/or provide local exhaust ventilation at the site of chemical release. Isolating operations can also reduce exposure. Using respirators or protective equipment is less effective than the controls mentioned above, but is sometimes necessary.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

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It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

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[End of SDS]

SDS no. 161
Version 6
Revision date 15-Mar-2021
Supersedes Date: 11-Feb-2016

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Multi-Temperature Cement etarder 161

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name Multi-Temperature Cement etarder 161
Product code 161

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use sed as a cementin additive in oil ield applications

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
chlumber er il ield ustralia Pt td
N: 74 002 459 225
CN: 002 459 225
256 t. eor es Terrace Perth 6000
47 5157 7424

@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) ustralia 61 2801 44558 sia Paci ic 65 3158 1074 China 86 10 5100 3039 urope 44 (0) 1235 239 670 Middle ast and rica 44 (0) 1235 239 671 Ne ealand 64 9929 1483 001 281 595 3518 Canada 001 613 996 6666

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards

eproductive toxicit	Cate or 2

Environmental hazards Not classi ied

Physical Hazards Not classi ied

2.2 Label elements



Signal word
N N

Hazard Statements
H361 - uspected o dama in ertilit or the unborn child

Precautionary statements
P201 - btain special instructions be ore use
P202 - o not handle until all sa et precautions have been read and understood
P280 - ear protective loves protective clothin e e protection ace protection
P308 P313 - F exposed or concerned: et medical advice attention
P501 - ispose o contents container in accordance ith local re ional national and international re ulations as applicable

–

Contains
odium pentaborate

2.3 Other hazards

Not classi ied as P T vPv b current criteria

Australian statement of hazardous/dangerous nature
Classi ied as Hazardous accordin to the criteria o N H C.
H T NC . N N- N .

3. Composition/information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical Name	EC No	CAS No	Weight-%
odium pentaborate	234-522-7	12007-92-0	5-10

Comments
The product contains other in redients hich do not contribute to the overall classi ication.

4. First Aid Measures

4.1 First aid measures

Inhalation inhaled remove rom area to resh air. et medical attention i respirator irritation develops or i breathin becomes di icult.

Ingestion inse mouth. o not induce vomitin ithout medical advice. Never ive an thin b mouth to an unconscious person. et medical attention.

Skin contact ash o immediatel ith soap and plent o ater hile removin all contaminated clothes and shoes. eek medical attention i irritation occurs.

Eye Contact emove contact lenses i orn. Promptl ash e es ith lots o ater hile li tin e e lids. Continue to rinse or at least 15 minutes. et medical attention i an discom ort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice The severit o the s mptoms described ill var dependant o the concentration and the len th o exposure. adverse s mptoms develop the casualt should be trans erred to hospital as soon as possible.

Symptoms

Inhalation Please see ection 11. Toxicolo ical n ormation or urther in ormation.

Ingestion Please see ection 11. Toxicolo ical n ormation or urther in ormation.

Skin contact Please see ection 11. Toxicolo ical n ormation or urther in ormation.

Eye contact Please see ection 11. Toxicolo ical n ormation or urther in ormation.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat s mptomaticall .

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
ater Fo lcohol Foam C 2 r Chemical.

Extinguishing media which must not be used for safety reasons
o not use a solid ater stream as it ma scatter and spread ire.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None kno n.

Hazardous combustion products
Fire or hi h temperatures create: xides o phosphorus Carbon oxides (C x) Harm ul or anic chemical umes.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
s in an ire ear sel -contained breathin apparatus and ull protective ear.

Special Fire-Fighting Procedures
Containers close to ire should be removed immediatel or cooled ith ater.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

se personal protective e uipment. ee also section 8.

6.2 Environmental precautions

The product should not be allo ed to enter drains ater courses or the soil.

Environmental exposure controls
void release to the environment. ocal authorities should be advised i si ni icant spilla es cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent urther leaka e or spilla e i sa e to do so. ike ar ahead o li uid spill or later disposal.

Methods for cleaning up
bsorb ith earth sand or other non-combustible material and trans er to containers or later disposal. ter cleanin lush a a traces ith ater.

6.4 Reference to other sections

ee section 13 or more in ormation.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance ith ood industrial h iene and sa et practice. void contact ith skin and e es. o not breathe vapors or spra mist. void spills and splashin durin use. Not to be used b pre nant orkers and orkers ho have recentl iven birth or ho are breast eedin .

Hygiene Measures
se ood ork and personal h iene practices to avoid exposure. ash hands and ace be ore breaks and immediatel a ter handlin the product emove contaminated clothin o not eat drink or smoke hen usin this product

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions nsure ade uate ventilation.

Storage precautions eep containers ti htl closed in a dr cool and ell-ventilated place tore a a rom heat and sources o i nition void extreme temperatures tore above 0 C tore a a rom incompatibles tron reducin a ents tron oxidizin a ents

Storage class Chemical stora e.

Packaging materials se speciall constructed containers onl .

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits Contains no substances ith occupational exposure limit values

Component Information

Chemical Name	Arabic	Australia	Egypt
odium pentaborate	Not determined	Not determined	Not determined
Chemical Name	**India**	**Indonesian**	**Japan**
odium pentaborate	Not determined	Not determined	Not determined
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
odium pentaborate	Not determined	Not determined	Not determined

Chemical Name	Malaysia	Philippines	Russia
odium pentaborate	Not determined	Not determined	Not determined
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
odium pentaborate	Not determined	Not determined	Not determined

Notes
No biolo ical limit allocated

8.2 Exposure controls

ll chemical Personal Protective uipment (PP) should be selected based on an assessment o both the chemical hazard present and the risk o exposure to those hazards. The PP recommendations belo are based on an assessment o the chemical hazards associated ith this product. here this product is used in a mixture ith other products or luids additional hazards ma be created and as such urther assessment o risk ma be re uired. The risk o exposure and need o respirator protection ill var rom orkplace to orkplace and should be assessed b the user in each situation.

Engineering Controls
nsure ade uate ventilation Provide mechanical eneral and or local exhaust ventilation to prevent release o vapor or mist into ork environment.

Personal protective equipment

Eye protection se e e protection accordin to N 166 desi ned to protect a ainst li uid splashes a et lasses ith side-shields Ti htl ittin sa et o les

Hand protection ear chemicall resistant loves (tested to N 374) in combination ith basic emplo ee trainin
mpervious loves made o : Nitrile P P C
e a are that li uid ma penetrate the loves. Fre uent chan e is advisable.

Respiratory protection No personal respirator protective e uipment normall re uired n case o insu icient ventilation ear suitable respirator e uipment espirator ith a vapor ilter (N 141) Chemical respirator ith inor anic vapour cartrid e (re). t ork in con ined or poorl ventilated spaces respirator protection ith air suppl must be used.

Skin and body protection ear appropriate personal protective clothin to prevent skin contact e ash and emer enc sho er must be available at the ork place.

Hygiene Measures ash hands be ore eatin drinkin or smokin emove and ash contaminated clothin be ore re-use



8.2.3 Environmental exposure controls

Environmental exposure se appropriate containment to avoid environmental contamination ee section 6 or more in ormation

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	i uid
Appearance	Clear
Odor	li ht
Color	Colorless
Odor threshold	Not applicable

Property	Values	Remarks
pH	6.9	
pH @ dilution	No in ormation available	
Melting / freezing point	0 C 32 F	
Boiling point/range	100 C 212 F	
Flash point	Non- lammable	
Evaporation rate (BuAc =1)	No in ormation available	
Flammability (solid, gas)	Not applicable	
Flammability Limit in Air		
Upper flammability limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	No in ormation available	
Vapor density	No in ormation available	
Specific gravity	No in ormation available	
Bulk density	No in ormation available	
Relative density	No in ormation available	
Water solubility	oluble in ater	
Solubility in other solvents	No in ormation available	
Autoignition temperature	No in ormation available	
Decomposition temperature	No in ormation available	
Kinematic viscosity	No in ormation available	
Dynamic viscosity	No in ormation available	
log Pow	No in ormation available	

Explosive properties	Not applicable
Oxidizing properties	None kno n.

9.2 Other information

Pour point	No in ormation available
Molecular weight	No in ormation available
VOC content(%)	None
Density	1.073 - 1.077 ml @ 20 C

Comments
The data listed above are t pical ph sical and chemical properties and should not be construed as product speci ication.

10. Stability and Reactivity

10.1 Reactivity

No speci ic reactivit hazards associated ith this product.

10.2 Chemical stability

table under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous pol merization does not occur.

10.4 Conditions to avoid

void heat lames and other sources o i nition. void extreme temperatures. o not reeze.

10.5 Incompatible materials

tron oxidizin a ents. tron reducin a ents.

10.6 Hazardous decomposition products

ee ection 5.2.

11. Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

Inhalation nhalation o vapors in hi h concentration ma cause irritation o respirator s stem.

Eye contact Ma cause sli ht irritation.

Skin contact Prolon ed contact ma cause redness and irritation.

Ingestion n estion ma cause stomach discom ort. Ma cause dama e to or ans throu h prolon ed or repeated exposure.

Unknown acute toxicity Not applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
odium pentaborate	No data available	50 2000 m k b	C50 2.03 m l

Sensitization This product does not contain an components suspected to be sensitizin .

Mutagenic effects This product does not contain an kno n or suspected muta ens.

Carcinogenicity This product does not contain an kno n or suspected carcino ens.

Reproductive toxicity Product is or contains a chemical hich is a kno n or suspected reproductive hazard.

Routes of Exposure kin contact. e contact. n estion.

Routes of entry n estion.

Specific target organ toxicity - Single exposure Not classi ied

Specific target organ toxicity - Repeated exposure Not classi ied.

Aspiration hazard Not applicable.

Other information e literature re erences and sources or data. ee ection 16 or more in ormation.

12. Ecological Information

12.1 Toxicity

The product component(s) are not classi ied as environmentall hazardous. Ho ever this does not exclude the possibilit that lar e or re uent spills can have a harm ul or dama in e ect on the environment.

Toxicity to algae
ee component in ormation belo .

Toxicity to fish
ee component in ormation belo .

Toxicity to daphnia and other aquatic invertebrates
ee component in ormation belo .

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
odium pentaborate	C50: 600 m l 96h	No in ormation available	C50: 86 m l 48h

12.2 Persistence and degradability

No product level data available.

12.3 Bioaccumulative potential

No product level data available.

12.4 Mobility

Mobility
oluble in ater.

Mobility in soil
No in ormation available.

12.5 Results of PBT and vPvB assessment

Not classi ied as P T vPv b current criteria.

12.6 Other adverse effects.

None kno n.

12.7 Other information

e literature re erences and sources or data. ee ection 16 or more in ormation.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused ispose o in accordance ith local re ulations.

products

Contaminated packaging mpt containers should be taken or local rec clin recover or aste disposal.

14. Transport information

14.1. UN number
Not re ulated

14.2. UN proper shipping name
The product is not covered b international re ulation on the transport o dan erous oods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not re ulated
IMDG/ANTAQ Hazard class	Not re ulated
ICAO/ANAC Hazard class/division	Not re ulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not re ulated
IMDG/ANTAQ Packing group	Not re ulated
ICAO/ANAC Packing group	Not re ulated

14.5 Environmental hazard
No

14.6 Special precautions
None

14.7 Transport in bulk according to Annex I/II of MARPOL 73/78 and the IBC Code
Please contact @slb.com or in o re ardin transport in ulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)
The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies olume restriction.
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	oes not compl
Eurasian Economic Union: Russian Inventory	Complies

16. Other Information

Prepared by lobal e ulator Compliance - Chemicals (C - Chemicals) Poh ue Cheon

Supersedes Date: 11-Feb-2016

Revision date 15-Mar-2021

Version 6

This SDS has been revised in the following section(s) ll sections No chan es ith re ard to classi ication have been made.

Key literature references and sources for data
.Chem .com
upplier
National Chemical nventories
National re ulator in ormation
National occupational exposure limits

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SDS no. 080
Version 4
Revision date 10-Feb-2021
Supersedes Date: 22-Jan-2016

a et ata heet
Cement i uid ispersant 80

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name Cement i uid ispersant 80
Product code 080

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use sed as a cementin additive in oil ield applications

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
chlumber er il ield ustralia Pt td
N: 74 002 459 225
CN: 002 459 225
256 t. eor es Terrace Perth 6000
47 5157 7424

@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) ustralia 61 2801 44558 sia Paci ic 65 3158 1074 China 86 10 5100 3039 urope 44 (0) 1235 239 670 Middle ast and rica 44 (0) 1235 239 671 Ne ealand 64 9929 1483 001 281 595 3518 Canada 001 613 996 6666

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards Not classi ied

Environmental hazards

Chronic a uatic toxicit	Cate or 2

Physical Hazards Not classi ied

2.2 Label elements



Signal word
None

Hazard Statements
H411 - Toxic to a uatic li e ith lon lastin e ects

Precautionary statements
P273 - void release to the environment
P391 - Collect spilla e
P501 - ispose o contents container in accordance ith local re ional national and international re ulations as applicable

–

Contains
Naphthalenesul onic acid sodium salt pol mer ith ormaldeh de

2.3 Other hazards

Not classi ied as P T vPv b current criteria

Australian statement of hazardous/dangerous nature
H T NC . N .
Classi ied as Hazardous accordin to the criteria o N H C.

3. Composition/information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical Name	EC No	CAS No	Weight-%
Naphthalenesul onic acid sodium salt pol mer ith ormaldeh de	Pol mer	9008-63-3	30-60

Comments
The product contains other in redients hich do not contribute to the overall classi ication.

4. First Aid Measures

4.1 First aid measures

Inhalation inhaled remove rom area to resh air. et medical attention i respirator irritation develops or i breathin becomes di icult.

Ingestion inse mouth. o not induce vomitin ithout medical advice. Never ive an thin b mouth to an unconscious person. eek medical attention i irritation occurs.

Skin contact ash o immediatel ith soap and plent o ater hile removin all contaminated clothes and shoes. et medical attention i s mptoms occur.

Eye Contact Promptl ash e es ith lots o ater hile li tin e e lids. emove contact lenses i orn. Continue to rinse or at least 15 minutes. et medical attention i an discom ort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice The severit o the s mptoms described ill var dependant o the concentration and the len th o exposure. adverse s mptoms develop the casualt should be trans erred to hospital as soon as possible.

Symptoms

Inhalation Please see ection 11. Toxicolo ical n ormation or urther in ormation.

Ingestion Please see ection 11. Toxicolo ical n ormation or urther in ormation.

Skin contact Please see ection 11. Toxicolo ical n ormation or urther in ormation.

Eye contact Please see ection 11. Toxicolo ical n ormation or urther in ormation.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat s mptomaticall .

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
se extin uishin media appropriate or surroundin material.

Extinguishing media which must not be used for safety reasons
None kno n.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None kno n.

Hazardous combustion products
Fire or hi h temperatures create: Carbon oxides (C x) ulphur oxides.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
s in an ire ear sel -contained breathin apparatus and ull protective ear.

Special Fire-Fighting Procedures
Containers close to ire should be removed immediatel or cooled ith ater.

Hazchem code ADG 3

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

se personal protective e uipment. ee also section 8.

6.2 Environmental precautions

The product should not be allo ed to enter drains ater courses or the soil.

Environmental exposure controls
void release to the environment. ocal authorities should be advised i si ni icant spilla es cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent urther leaka e or spilla e i sa e to do so. ike ar ahead o li uid spill or later disposal.

Methods for cleaning up
Contain and collect spilla e ith non-combustible absorbent material (e. . sand earth diatomaceous earth vermiculite) and place in container or disposal accordin to local national re ulations (see ection 13). ter cleanin lush a a traces ith ater.

6.4 Reference to other sections

ee section 13 or more in ormation.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance ith ood industrial h iene and sa et practice. void contact ith skin e es and clothin . void spills and splashin durin use. o not breathe vapors or spra mist.

Hygiene Measures
se ood ork and personal h iene practices to avoid exposure. ash hands and ace be ore breaks and immediatel a ter handlin the product o not eat drink or smoke hen usin this product emove contaminated clothin

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions nsure ade uate ventilation.

Storage precautions eep containers ti htl closed in a dr cool and ell-ventilated place o not reeze tore above 0 C void contact ith: xidizin a ents cids

Storage class Chemical stora e.

Packaging materials se speciall constructed containers onl .

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits The product does not contain an hazardous materials ith occupational exposure limits established.

Component Information

Chemical Name	Arabic	Australia	Egypt
Naphthalenesul onic acid sodium salt pol mer ith ormaldeh de	Not determined	Not determined	Not determined
Chemical Name	**India**	**Indonesian**	**Japan**
Naphthalenesul onic acid sodium salt pol mer ith ormaldeh de	Not determined	Not determined	Not determined

Chemical Name	Kazakhstan	Kuwait	New Zealand
Naphthalenesul onic acid sodium salt pol mer ith ormaldeh de	Not determined	Not determined	Not determined
Chemical Name	**Malaysia**	**Philippines**	**Russia**
Naphthalenesul onic acid sodium salt pol mer ith ormaldeh de	Not determined	Not determined	Not determined
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
Naphthalenesul onic acid sodium salt pol mer ith ormaldeh de	Not determined	Not determined	Not determined

Notes
No biolo ical limit allocated

8.2 Exposure controls

ll chemical Personal Protective uipment (PP) should be selected based on an assessment o both the chemical hazard present and the risk o exposure to those hazards. The PP recommendations belo are based on an assessment o the chemical hazards associated ith this product. here this product is used in a mixture ith other products or luids additional hazards ma be created and as such urther assessment o risk ma be re uired. The risk o exposure and need o respirator protection ill var rom orkplace to orkplace and should be assessed b the user in each situation.

Engineering Controls
nsure ade uate ventilation especiall in con ined areas

Personal protective equipment

Eye protection se e e protection accordin to N 166 desi ned to protect a ainst li uid splashes Ti htl ittin sa et o les a et lasses ith side-shields

Hand protection ear chemicall resistant loves (tested to N 374) in combination ith basic emplo ee trainin
ear chemical resistant loves such as nitrile or neoprene.
e a are that li uid ma penetrate the loves. Fre uent chan e is advisable.

Respiratory protection No personal respirator protective e uipment normall re uired n case o insu icient ventilation ear suitable respirator e uipment espirator ith combination ilter or vapour particulate (N 141) T pe P2 t ork in con ined or poorl ventilated spaces respirator protection ith air suppl must be used.

Skin and body protection ear suitable protective clothin e ash and emer enc sho er must be available at the ork place.

Hygiene Measures ash hands be ore breaks and immediatel a ter handlin the product emove and ash contaminated clothin be ore re-use



8.2.3 Environmental exposure controls

Environmental exposure se appropriate containment to avoid environmental contamination ee section 6 or more in ormation

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state i uid
Appearance pa ue
Odor Pun ent

Color	ark bro n
Odor threshold	Not applicable

Property	**Values**	**Remarks**
pH	6 - 8	
pH @ dilution	No in ormation available	
Melting / freezing point	- 2 C 28 F	
Boiling point/range	100 C 212 F	
Flash point	oes not lash	
Evaporation rate (BuAc =1)	No in ormation available	
Flammability (solid, gas)	Not applicable	
Flammability Limit in Air		
Upper flammability limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	No in ormation available	
Vapor density	1 (air 1)	
Specific gravity	1.2 cm^3	20 C
Bulk density	No in ormation available	
Relative density	No in ormation available	
Water solubility	oluble in ater	
Solubility in other solvents	No in ormation available	
Autoignition temperature	No in ormation available	
Decomposition temperature	No in ormation available	
Kinematic viscosity	No in ormation available	
Dynamic viscosity	60 mPa s	
log Pow	No in ormation available	

Explosive properties	No in ormation available
Oxidizing properties	No in ormation available

9.2 Other information

Pour point	No in ormation available
Molecular weight	No in ormation available
VOC content(%)	No in ormation available
Density	No in ormation available

Comments
The data listed above are t pical ph sical and chemical properties and should not be construed as product speci ication.

10. Stability and Reactivity

10.1 Reactivity

No speci ic reactivit hazards associated ith this product.

10.2 Chemical stability

table under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous pol merization does not occur.

10.4 Conditions to avoid

o not reeze. tore above 0 C.

10.5 Incompatible materials

xidizin a ents. cids.

10.6 Hazardous decomposition products

ee ection 5.2.

11. Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

Inhalation nhalation o vapors in hi h concentration ma cause irritation o respirator s stem.

Eye contact Ma cause sli ht irritation.

Skin contact Prolon ed contact ma cause redness and irritation.

Ingestion n estion ma cause stomach discom ort.

Unknown acute toxicity Not applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Naphthalenesul onic acid sodium salt pol mer ith ormaldeh de	No data available	No data available	No data available

Sensitization This product does not contain an components suspected to be sensitizin .

Mutagenic effects This product does not contain an kno n or suspected muta ens.

Carcinogenicity This product does not contain an kno n or suspected carcino ens.

Reproductive toxicity This product does not contain an kno n or suspected reproductive hazards.

Routes of Exposure None kno n.

Routes of entry No route o entr noted.

Specific target organ toxicity - Single exposure Not classi ied

Specific target organ toxicity - Repeated exposure Not classi ied.

Aspiration hazard Not applicable.

Other information e literature re erences and sources or data. ee ection 16 or more in ormation.

12. Ecological Information

12.1 Toxicity

Toxic to a uatic li e ith lon lastin e ects

Toxicity to algae
C50 1.46 m l keletonema Costatum 48 h.

Toxicity to fish
Not considered toxic to ish.

Toxicity to daphnia and other aquatic invertebrates
C50 100 m l cartia tonsa 48 h.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
Naphthalenesul onic acid sodium salt pol mer ith ormaldeh de	No in ormation available	No in ormation available	No in ormation available

12.2 Persistence and degradability

Product is not biode radable.

12.3 Bioaccumulative potential

ioaccumulation is unlikel .

12.4 Mobility

Mobility
oluble in ater.

Mobility in soil
No in ormation available.

12.5 Results of PBT and vPvB assessment

Not classi ied as P T vPv b current criteria.

12.6 Other adverse effects.

None kno n.

12.7 Other information

e literature re erences and sources or data. ee ection 16 or more in ormation.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products ispose o in accordance ith local re ulations.

Contaminated packaging mpt containers should be taken or local rec clin recover or aste disposal.

14. Transport information

14.1. UN number

UN/ID No. (ADR/RID/ADN/ADG) N3082
UN No. (IMDG/ANTAQ) N3082
UN No. (ICAO/ANAC) N3082

14.2. UN proper shipping name
N NM NT H T NC N. . . (odium pol naphthalene sul onate)

14.3 Hazard class(es)
ADR/RID/ADN/ADG Hazard class 9
IMDG/ANTAQ Hazard class 9
ICAO/ANAC Hazard class/division 9

14.4 Packing group
ADR/RID/ADN/ADG Packing group
IMDG/ANTAQ Packing group
ICAO/ANAC Packing group



14.5 Environmental hazard
es

14.6 Special precautions
Hazard identification no (ADR) 90
EmS (IMDG) F- -F
Emergency Action Code (EAC) 3
Tunnel restriction code (-)
Hazchem code ADG 3

14.7 Transport in bulk according to Annex I/II of MARPOL 73/78 and the IBC Code
Please contact @slb.com or in o re ardin transport in ulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

New Zealand Hazard Classification Construction Products (ubsidiar Hazard) roup tandard 2020

HSNO approval no. H 002544

Group number 9.1

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

ADG Code – Australian Dangerous Goods Code

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies
Eurasian Economic Union: Russian Inventory	Complies

16. Other Information

Prepared by lobal e ulator Compliance - Chemicals (C - Chemicals) andra Mc illiam

Supersedes Date: 22-Jan-2016

Revision date 10-Feb-2021

Version 4

This SDS has been revised in the following section(s) ll sections No chan es ith re ard to classi ication have been made.

Key literature references and sources for data
.Chem .com
upplier
National Chemical nventories
National re ulator in ormation
National occupational exposure limits

HMIS classification

Health	1
Flammabilit	1
Ph sical hazard	0
PP	

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SDS no. 182
Version 3
Revision date 06-Jul-2020
Supersedes Date: 05- pr-2017

a et ata heet
M P H pacer 182

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name M P H pacer 182
Product code 182

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use sed as a cementin additive in oil ield applications

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
chlumber er il ield ustralia Pt td
N: 74 002 459 225
CN: 002 459 225
256 t. eor es Terrace Perth 6000
47 5157 7424

@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) ustralia 61 2801 44558 sia Paci ic 65 3158 1074 China 86 10 5100 3039 urope 44 (0) 1235 239 670 Middle ast and rica 44 (0) 1235 239 671 Ne ealand 64 9929 1483 001 281 595 3518

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards Not classi ied

Environmental hazards Not classi ied

Physical Hazards Not classi ied

2.2 Label elements

Signal word
None

Hazard Statements
This product is not classi ied as hazardous there ore no (H) hazard statements assi ned.

Precautionary statements
This product is not classi ied as hazardous there ore has no (P) precautionar statements assi ned.

-

Contains No hazardous components
2.3 Other hazards

Not classi ied as P T vPv b current criteria

Australian statement of hazardous/dangerous nature
Classi ied as Non-Hazardous accordin to the criteria o N H C.
N N-H T NC . N N- N .

3. Composition/information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

No classi ied in redients or those havin occupational exposure limits present above the level o disclosure.

4. First Aid Measures

4.1 First aid measures

Inhalation inhaled remove rom area to resh air. et medical attention i respirator irritation develops or i breathin becomes di icult.

Ingestion inse mouth. o not induce vomitin ithout medical advice. Never ive an thin b mouth to an unconscious person. et medical attention i s mptoms occur.

Skin contact ash skin thorou hl ith soap and ater. et medical attention i irritation persists.

Eye Contact Promptl ash e es ith lots o ater hile li tin e e lids. emove contact lenses i orn. et medical attention i an discom ort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice The severit o the s mptoms described ill var dependant o the concentration and the len th o exposure. adverse s mptoms develop the casualt should be trans erred to hospital as soon as possible.

Symptoms

Inhalation Please see ection 11. Toxicolo ical n ormation or urther in ormation.

Ingestion Please see ection 11. Toxicolo ical n ormation or urther in ormation.

Skin contact Please see ection 11. Toxicolo ical n ormation or urther in ormation.

Eye contact Please see ection 11. Toxicolo ical n ormation or urther in ormation.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat s mptomaticall .

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
ater Fo lcohol Foam C 2 r Chemical.

Extinguishing media which must not be used for safety reasons
Hi h volume ater et.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
ust ma orm explosive mixture in air.

Hazardous combustion products
Fire or hi h temperatures create: Carbon oxides (C x) ulphur oxides.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
s in an ire ear sel -contained breathin apparatus and ull protective ear.

Special Fire-Fighting Procedures
Containers close to ire should be removed immediatel or cooled ith ater.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

se personal protective e uipment. ee also section 8. xtin uish all i nition sources. void sparks lames heat and smokin .

6.2 Environmental precautions

The product should not be allo ed to enter drains ater courses or the soil.

Environmental exposure controls
void release to the environment. ocal authorities should be advised i si ni icant spilla es cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Cover po der spill ith plastic sheet or tarp to minimize spreadin . Prevent urther leaka e or spilla e i sa e to do so.

Methods for cleaning up
eep up and shovel into suitable containers or disposal. Take precautionar measures a ainst static dischar es. ter cleanin lush a a traces ith ater.

6.4 Reference to other sections

ee section 13 or more in ormation.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance ith ood industrial h iene and sa et practice. void contact ith skin and e es. void dust ormation. Material becomes slipper hen et. se caution i et.

Hygiene Measures
se ood ork and personal h iene practices to avoid exposure. hen usin do not smoke eat or drink. ash hands and ace be ore breaks and immediatel a ter handlin the product emove contaminated clothin

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions nsure ade uate ventilation. eep airborne concentrations belo exposure limits. Take precautionar measures a ainst static dischar es.

Storage precautions eep containers ti htl closed in a dr cool and ell-ventilated place eep a a rom open lames hot sur aces and sources o i nition eep a a rom direct sunli ht. ncompatible ith oxidizin a ents

Storage class Chemical stora e.

Packaging materials se speciall constructed containers onl .

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits N Nuisance dust T 4m m^3 espirable ust 10m m^3 Total ust.

8.2 Exposure controls

ll chemical Personal Protective uipment (PP) should be selected based on an assessment o both the chemical hazard present and the risk o exposure to those hazards. The PP recommendations belo are based on an assessment o the chemical hazards associated ith this product. here this product is used in a mixture ith other products or luids additional hazards ma be created and as such urther assessment o risk ma be re uired. The risk o exposure and need o respirator protection ill var rom orkplace to orkplace and should be assessed b the user in each situation.

Engineering Controls
nsure ade uate ventilation Provide appropriate exhaust ventilation at places here dust is ormed

Personal protective equipment

Eye protection se e e protection accordin to N 166 desi ned to protect a ainst dusts a et lasses ith side-shields Ti htl ittin sa et o les

Hand protection ear loves accordin to N 374 to protect a ainst skin e ects rom po ders se protective loves made o : ubber Neoprene Nitrile
Fre uent chan e is advisable

Respiratory protection n case o insu icient ventilation ear suitable respirator e uipment Hal mask ith a particle ilter P2 (uropean Norm N 143 ormer N 3181) t ork in con ined or poorl ventilated spaces respirator protection ith air suppl must be used.

Skin and body protection ear suitable protective clothin e ash and emer enc sho er must be available at the ork place.

Hygiene Measures ash hands be ore eatin drinkin or smokin emove and ash contaminated clothin be ore re-use



8.2.3 Environmental exposure controls

Environmental exposure se appropriate containment to avoid environmental contamination ee section 6 or more in ormation

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	olid
Appearance	Po der
Odor	Mild eet
Color	ed bro n
Odor threshold	Not applicable

Property	**Values**	**Remarks**
pH	No in ormation available	
pH @ dilution	8	650 l (oln)
Melting / freezing point	No in ormation available	
Boiling point/range	Not applicable	
Flash point	Not applicable	
Evaporation rate (BuAc =1)	Not applicable	
Flammability (solid, gas)	Not applicable	
Flammability Limit in Air		
Upper flammability limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	Not applicable	
Vapor density	Not applicable	
Specific gravity	1.3	@ 20 C
Bulk density	No in ormation available	
Relative density	No in ormation available	
Water solubility	Partl soluble el in contact ith ater	
Solubility in other solvents	No in ormation available	
Autoignition temperature	No in ormation available	
Decomposition temperature	242 C 468 F	
Kinematic viscosity	No in ormation available	
Dynamic viscosity	No in ormation available	
log Pow	No in ormation available	

Explosive properties	uspended dust ma present a dust explosion hazard
Oxidizing properties	None kno n.

9.2 Other information

Pour point	No in ormation available
Molecular weight	No in ormation available
VOC content(%)	None
Density	No in ormation available

Comments
The data listed above are t pical ph sical and chemical properties and should not be construed as product speci ication.

10. Stability and Reactivity

10.1 Reactivity

ust ma orm explosive mixture in air.

10.2 Chemical stability

table under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous pol merization does not occur.

10.4 Conditions to avoid

void dust ormation. eep a a rom open lames hot sur aces and sources o i nition. eep a a rom direct sunli ht. Take precautionar measures a ainst static char es.

10.5 Incompatible materials

xidizin a ents.

10.6 Hazardous decomposition products

ee ection 5.2.

11. Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

Inhalation	nhalation o dust ma cause shortness o breath ti htness o the chest a sore throat and cou h.
Eye contact	ust contact ith the e es can lead to mechanical irritation.
Skin contact	epeated exposure ma cause skin dr ness or crackin .
Ingestion	n estion ma cause stomach discom ort.
Unknown acute toxicity	Not applicable.
Sensitization	This product does not contain an components suspected to be sensitizin .
Mutagenic effects	This product does not contain an kno n or suspected muta ens.
Carcinogenicity	This product does not contain an kno n or suspected carcino ens.
Reproductive toxicity	This product does not contain an kno n or suspected reproductive hazards.
Routes of Exposure	nhalation. kin contact. e contact.

Routes of entry	No route o entr noted.
Specific target organ toxicity - Single exposure	Not classi ied
Specific target organ toxicity - Repeated exposure	Not classi ied.
Aspiration hazard	Not applicable.
Other information	e literature re erences and sources or data. ee ection 16 or more in ormation.

12. Ecological Information

12.1 Toxicity

The product component(s) are not classi ied as environmentall hazardous. Ho ever this does not exclude the possibilit that lar e or re uent spills can have a harm ul or dama in e ect on the environment.

Toxicity to algae
This product is not considered toxic to al ae.

Toxicity to fish
This product is not considered toxic to ish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

12.2 Persistence and degradability

No product level data available.

12.3 Bioaccumulative potential

ioaccumulation is unlikel .

12.4 Mobility

Mobility
Partl soluble. el in contact ith ater.

Mobility in soil
No in ormation available.

12.5 Results of PBT and vPvB assessment

Not classi ied as P T vPv b current criteria.

12.6 Other adverse effects.

None kno n.

12.7 Other information

e literature re erences and sources or data. ee ection 16 or more in ormation.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products ispose o in accordance ith local re ulations.

Contaminated packaging mpt containers should be taken or local rec clin recover or aste disposal.

14. Transport information

14.1. UN number

Not re ulated

14.2. UN proper shipping name

The product is not covered b international re ulation on the transport o dan erous oods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not re ulated
IMDG/ANTAQ Hazard class	Not re ulated
ICAO/ANAC Hazard class/division	Not re ulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not re ulated
IMDG/ANTAQ Packing group	Not re ulated
ICAO/ANAC Packing group	Not re ulated

14.5 Environmental hazard

No

14.6 Special precautions

Not applicable

14.7 Transport in bulk according to Annex I/II of MARPOL 73/78 and the IBC Code

Please contact @slb.com or in o re ardin transport in ulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons

No poisons schedule number allocated

National Code of Practice for the Preparation of Material Safety Data Sheets 2nd Edition [NOHSC: 2011 (2003)].

National Occupational Health and Safety Commission's Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004) 3rd Edition].

National Occupational Health and Safety Commission's Exposure Standards for Atmospheric Contaminants in the occupational Environment [NOHSC:1003 (1995)].

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	oes not compl
Japan (ENCS)	Complies
China (IECSC)	oes not compl
Australia (AICS)	Complies
Korean (KECL)	oes not compl
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by lobal e ulator Compliance - Chemicals (C - Chemicals) Poh ue Cheon

Supersedes Date: 05- pr-2017

Revision date 06-Jul-2020

Version 3

This SDS has been revised in the following section(s) ll sections No chan es ith re ard to classi ication have been made.

Key literature references and sources for data
.Chem .com
upplier
National Chemical nventories
National re ulator in ormation
National occupational exposure limits

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SDS no. 256
Version 2
Revision date 11-Jul-2019
Supersedes Date: 11- pr-2016

a et ata heet
Mid- an e li uid F C 256

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name Mid- an e li uid F C 256
Product code 256

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use sed as a cementin additive in oil ield applications

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
chlumber er il ield ustralia Pt td
N: 74 002 459 225
CN: 002 459 225
256 t. eor es Terrace Perth 6000
47 5157 7424

@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) ustralia 61 2801 44558 sia Paci ic 65 3158 1074 China 86 10 5100 3039 urope 44 (0) 1235 239 670 Middle ast and rica 44 (0) 1235 239 671 Ne ealand 64 9929 1483 001 281 595 3518

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards Not classi ied

Environmental hazards Not classi ied

Physical Hazards Not classi ied

2.2 Label elements

Signal word
None

Hazard Statements
This product is not classi ied as hazardous there ore no (H) hazard statements assi ned.

Precautionary statements
This product is not classi ied as hazardous there ore has no (P) precautionar statements assi ned.

-

Contains No hazardous components

2.3 Other hazards

Not classi ied as P T vPv b current criteria

Australian statement of hazardous/dangerous nature
Classi ied as Non-Hazardous accordin to the criteria o N H C.
N N-H T NC . N N- N .

3. Composition/information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

This product does not contain an hazardous in redients or in redients ith national orkplace exposure limits.

4. First Aid Measures

4.1 First aid measures

Inhalation inhaled remove rom area to resh air. et medical attention i respirator irritation develops or i breathin becomes di icult.

Ingestion inse mouth. o not induce vomitin ithout medical advice. Never ive an thin b mouth to an unconscious person. et medical attention i s mptoms occur.

Skin contact ash skin thorou hl ith soap and ater. et medical attention i irritation persists.

Eye Contact Promptl ash e es ith lots o ater hile li tin e e lids. emove contact lenses i orn. et medical attention i an discom ort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice The severit o the s mptoms described ill var dependant o the concentration and the len th o exposure. adverse s mptoms develop the casualt should be trans erred to hospital as soon as possible.

Symptoms

Inhalation Please see ection 11. Toxicolo ical n ormation or urther in ormation.

Ingestion Please see ection 11. Toxicolo ical n ormation or urther in ormation.

Skin contact Please see ection 11. Toxicolo ical n ormation or urther in ormation.

Eye contact Please see ection 11. Toxicolo ical n ormation or urther in ormation.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat s mptomaticall .

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
ater Fo lcohol Foam C 2 r Chemical.

Extinguishing media which must not be used for safety reasons
None kno n.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None kno n.

Hazardous combustion products
Fire or hi h temperatures create: Carbon oxides (C x) Nitro en oxides (N x) mmonia ul ur oxides H dro en c anide (h droc anic acid) ma be produced in the event o combustion in an ox en de icient atmosphere.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
s in an ire ear sel -contained breathin apparatus and ull protective ear.

Special Fire-Fighting Procedures
Containers close to ire should be removed immediatel or cooled ith ater.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

se personal protective e uipment. ee also section 8. Contaminated sur aces ill be extremel slipper .

6.2 Environmental precautions

The product should not be allo ed to enter drains ater courses or the soil.

Environmental exposure controls
void release to the environment. ocal authorities should be advised i si ni icant spilla es cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent urther leaka e or spilla e i sa e to do so. ike ar ahead o li uid spill or later disposal.

Methods for cleaning up
bsorb ith earth sand or other non-combustible material and trans er to containers or later disposal. ter cleanin lush a a traces ith ater.

6.4 Reference to other sections

ee section 13 or more in ormation.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance ith ood industrial h iene and sa et practice. void contact ith skin and e es. o not breathe vapors or spra mist. void spills and splashin durin use. spilled take caution as material can cause sur aces to become ver slipper . epeated or prolon ed contact ma cause aller ic reactions in ver susceptible persons.

Hygiene Measures
se ood ork and personal h iene practices to avoid exposure. hen usin do not smoke eat or drink. ash hands and ace be ore breaks and immediatel a ter handlin the product emove contaminated clothin

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions nsure ade uate ventilation.

Storage precautions eep containers ti htl closed in a dr cool and ell-ventilated place eep a a rom direct sunli ht. void excessive heat or prolon ed periods o time. Protect rom reezin void contact ith: xidizin a ents

Storage class Chemical stora e.

Packaging materials se speciall constructed containers onl .

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits The product does not contain an hazardous materials ith occupational exposure limits established. No biolo ical limit allocated

8.2 Exposure controls

ll chemical Personal Protective uipment (PP) should be selected based on an assessment o both the chemical hazard present and the risk o exposure to those hazards. The PP recommendations belo are based on an assessment o the chemical hazards associated ith this product. here this product is used in a mixture ith other products or luids additional hazards ma be created and as such urther assessment o risk ma be re uired. The risk o exposure and need o respirator protection ill var rom orkplace to orkplace and should be assessed b the user in each situation.

Engineering Controls
nsure ade uate ventilation

Personal protective equipment

Eye protection se e e protection accordin to N 166 desi ned to protect a ainst li uid splashes a et lasses ith side-shields Ti htl ittin sa et o les

Hand protection ear chemicall resistant loves (tested to N 374) in combination ith basic emplo ee trainin mpervious loves made o : ut l Neoprene Nitrile ubber
reak throu h time 480 minutes
love thickness 0.4 mm
e a are that li uid ma penetrate the loves. Fre uent chan e is advisable.

Respiratory protection No personal respirator protective e uipment normall re uired n case o insu icient ventilation ear suitable respirator e uipment espirator ith a vapor ilter (N 141) se respirator ith or anic vapor protection (bro n) t ork in con ined or poorl ventilated spaces respirator protection ith air suppl must be used.

Skin and body protection ear suitable protective clothin e ash and emer enc sho er must be available at the

ork place.

Hygiene Measures ash hands be ore eatin drinkin or smokin emove and ash contaminated clothin be ore re-use



Environmental exposure se appropriate containment to avoid environmental contamination ee section 6 or more in ormation

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	i uid
Appearance	Clear
Odor	li ht
Color	i ht ello
Odor threshold	Not applicable

Property	**Values**	**Remarks**
pH	3 - 7	
pH @ dilution	No in ormation available	
Melting / freezing point	5 C 41 F	
Boiling point/range	100 C 212 F	
Flash point	oes not lash	
Evaporation rate (BuAc =1)	imilar to ater.	
Flammability (solid, gas)	Not applicable	
Flammability Limit in Air		
Upper flammability limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	2.3 kPa @ 20 C	
Vapor density	imilar to ater.	
Specific gravity	1.0 - 1.3	
Bulk density	No in ormation available	
Relative density	1.0-1.3	
Water solubility	Miscible ith ater.	
Solubility in other solvents	No in ormation available	
Autoignition temperature	No in ormation available	
Decomposition temperature	100 C 212 F	
Kinematic viscosity	No in ormation available	
Dynamic viscosity	No in ormation available	
log Pow	No in ormation available	

Explosive properties	No in ormation available
Oxidizing properties	No in ormation available

9.2 Other information

Pour point	No in ormation available
Molecular weight	No in ormation available
VOC content(%)	No in ormation available
Density	No in ormation available

Comments
The data listed above are t pical ph sical and chemical properties and should not be construed as product speci ication.

10. Stability and Reactivity

10.1 Reactivity

No speci ic reactivit hazards associated ith this product.

10.2 Chemical stability

table under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous pol merization does not occur.

10.4 Conditions to avoid

Protect rom reezin . eep a a rom direct sunli ht. void excessive heat or prolon ed periods o time.

10.5 Incompatible materials

ncompatible ith oxidizin a ents.

10.6 Hazardous decomposition products

ee ection 5.2.

11. Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

Inhalation	nhalation o vapors in hi h concentration ma cause irritation o respirator s stem.
Eye contact	Ma cause sli ht irritation.
Skin contact	Prolon ed contact ma cause redness and irritation.
Ingestion	n estion ma cause stomach discom ort.
Unknown acute toxicity	Not applicable.

Sensitization	This product does not contain an components suspected to be sensitizin 0.1 .
Mutagenic effects	This product does not contain an kno n or suspected muta ens.
Carcinogenicity	Contains a kno n or suspected carcino en.
Reproductive toxicity	This product does not contain an kno n or suspected reproductive hazards at concentrations 0.1 .

Routes of Exposure	nhalation. kin contact. e contact.
Routes of entry	nhalation. kin contact. e contact.
Specific target organ toxicity - Single exposure	Not classi ied
Specific target organ toxicity - Repeated exposure	Not classi ied.
Aspiration hazard	Not applicable.
Other information	e literature re erences and sources or data. ee ection 16 or more in ormation.

12. Ecological Information

12.1 Toxicity

The product component(s) are not classi ied as environmentall hazardous. Ho ever this does not exclude the possibilit that lar e or re uent spills can have a harm ul or dama in e ect on the environment. ar e amounts ill a ect pH and harm a uatic or anisms

Toxicity to algae
This product is not considered toxic to al ae.

Toxicity to fish
This product is not considered toxic to ish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

12.2 Persistence and degradability

Not readil biode radable.

12.3 Bioaccumulative potential

Product has a lo potential to bioconcentrate.

12.4 Mobility

Mobility
The product is miscible ith ater. Ma spread in ater s stems.

Mobility in soil
No in ormation available.

12.5 Results of PBT and vPvB assessment

Not classi ied as P T vPv b current criteria.

12.6 Other adverse effects.

None kno n.

12.7 Other information

e literature re erences and sources or data. ee ection 16 or more in ormation.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products ispose o in accordance ith local re ulations.

Contaminated packaging mpt containers should be taken or local rec clin recover or aste disposal.

14. Transport information

14.1. UN number
Not re ulated

14.2. UN proper shipping name
The product is not covered b international re ulation on the transport o dan erous oods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not re ulated
IMDG/ANTAQ Hazard class	Not re ulated
ICAO/ANAC Hazard class/division	Not re ulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not re ulated
IMDG/ANTAQ Packing group	Not re ulated
ICAO/ANAC Packing group	Not re ulated

14.5 Environmental hazard
No

14.6 Special precautions
Not applicable

14.7 Transport in bulk according to Annex I/II of MARPOL 73/78 and the IBC Code
Please contact @slb.com or in o re ardin transport in ulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:

The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

New Zealand Hazard Classification Not classi ied

HSNO approval no. not re uired

Group number Not re uired

National Code of Practice for the Preparation of Material Safety Data Sheets 2nd Edition [NOHSC: 2011 (2003)].

National Occupational Health and Safety Commission's Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004) 3rd Edition].

National Occupational Health and Safety Commission's Exposure Standards for Atmospheric Contaminants in the occupational Environment [NOHSC:1003 (1995)].

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	oes not compl
Japan (ENCS)	oes not compl
China (IECSC)	oes not compl
Australia (AICS)	Complies
Korean (KECL)	oes not compl
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by lobal e ulator Compliance - Chemicals (C - Chemicals) Muriel Martin eurel

Supersedes Date: 11- pr-2016

Revision date 11-Jul-2019

Version 2

This SDS has been revised in the following section(s) ll sections No chan es ith re ard to classi ication have been made.

Key literature references and sources for data
.Chem .com
upplier
National Chemical nventories
National re ulator in ormation
National occupational exposure limits

HMIS classification

Health	0
Flammabilit	0
Ph sical hazard	0
PP	

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SAFETY DATA SHEET

AVADEFOAM NS

Issue Date 18- pr-2017 **Revision Date** 28-Mar-2019 **Version** 1
N

Section 1: IDENTIFICATION: PRODUCT INDENTIFIER AND CHEMICAL IDENTITY

1

Product identifier

Product Name F M N

Product Code N F00251

Other means of identification

Pure substance/mixture Mixture

Recommended use of the chemical and restrictions on use

Recommended Use e oamer

Uses advised against No in ormation available

Details of manufacturer or importer

Supplier
Ne park rillin Fluids (ustralia) T
11 lacrit Place
Henderson 6166
ustralia

For urther in ormation please contact

Contact Point Telephone: 61 8 9410 8200
Fax: 61 8 9410 8299
ebsite: .ne park.com

Emergency telephone number

mer enc telephone number (61)-290372994 (ustralia) (64)-98010034 (Ne ealand)

Section 2: HAZARD(S) IDENTIFICATION

GHS - Classification

Not a dan erous substance or mixture accordin to the loball Harmonized stem (H)

Label elements

Hazard statements
Not a dan erous substance or mixture accordin to the loball Harmonized stem (H)

Other hazards
General Hazards
No in ormation available

Section 3: COMPOSITION AND INFORMATION ON INGREDIENTS, IN ACCORDANCE WITH SCHEDULE 8

Substance

Not applicable

Mixture

Chemical name	C No	ei ht-
Non-hazardous in redients	Proprietar	

Section 4: FIRST AID MEASURES

Description of first aid measures

Emergency telephone number Poisons n ormation Center ustralia: 13 11 26
Poisons n ormation Center Ne ealand: 0800 764 766

Inhalation emove to resh air.

Eye contact inse thorou hl ith plent o ater or at least 15 minutes li tin lo er and upper e elids. Consult a ph sician.

Skin contact ash skin ith soap and ater.

Ingestion Clean mouth ith ater and drink a ter ards plent o ater.

Most important symptoms and effects, both acute and delayed

Symptoms No in ormation available.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat s mptomaticall .

Section 5: FIREFIGHTING MEASURES

Suitable Extinguishing Media

Suitable extinguishing media ater. Carbon dioxide (C 2).

Unsuitable extinguishing media No in ormation available.

Specific hazards arising from the chemical

Thermal decomposition can lead to release o irritatin and toxic ases and vapors. o not allo run-o rom ire- i htin to enter drains or ater courses.

Hazardous combustion products Carbon oxides.

Special protective actions for fire-fighters

Special protective equipment for fire-fighters Fire i hters should ear sel -contained breathin apparatus and ull ire i htin turnout ear. se personal protection e uipment.

Hazchem code Not isted.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions nsure ade uate ventilation.

For emergency responders se personal protection recommended in ection 8.

Environmental precautions

Environmental precautions ee ection 12 or additional colo ical n ormation. o not lush into sur ace ater or sanitar se er s stem. Prevent product rom enterin drains.

Methods and material for containment and cleaning up

Methods for containment Prevent urther leaka e or spilla e i sa e to do so.

Methods for cleaning up Pick up and trans er to properl labeled containers.

Precautions to prevent secondary hazards

Prevention of secondary hazards Clean contaminated ob ects and areas thorou hl observin environmental re ulations.

Section 7: HANDLING AND STORAGE, INCLUDING HOW THE CHEMICAL MAY BE SAFELY USED

Precautions for safe handling

Advice on safe handling Handle in accordance ith ood industrial h iene and sa et practice. ash thorou hl a ter handlin . ash contaminated clothin be ore reuse.

General hygiene considerations o not eat drink or smoke hen usin this product. ash hands be ore breaks and a ter ork.

Conditions for safe storage, including any incompatibilities

Storage Conditions eep containers ti htl closed in a dr cool and ell-ventilated place.

Incompatible materials None kno n

Section 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Control parameters

Exposure Limits This product as supplied does not contain an hazardous materials ith occupational exposure limits established b the re ion speci ic re ulator bodies.

Biological occupational exposure limits Not applicable

Appropriate engineering controls

Engineering controls ho ers
e ash stations
entilation s stems.

Individual protection measures, such as personal protective equipment

Eye/face protection Ti ht sealin sa et o les.

Skin and body protection ear suitable protective clothin .

Respiratory protection n case o inade uate ventilation ear respirator protection.

Environmental exposure controls o not allo into an se er on the round or into an bod o ater.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	i uid		
Appearance	li uid	**Odor**	li ht.
Color	clear	**Odor threshold**	No in ormation available

Property	**Values**	**Remarks • Method**
pH		No data available
Melting point / freezing point		No data available
Boiling point / boiling range		No data available
Flash point	100 C	
Evaporation rate		No data available
Flammability (solid, gas)		Not applicable
Flammability Limit in Air		No in ormation available
Upper flammability limit:		No data available
Lower flammability limit:		No data available
Vapor pressure		No data available
Vapor density		No data available
Relative density	0.95-0.97	
Water solubility	nsoluble in ater	
Solubility(ies)		No data available
Partition coefficient		No data available
Autoignition temperature		No data available
Decomposition temperature		No data available
Kinematic viscosity		No data available
Dynamic viscosity		No data available

Other Information

Softening point	No in ormation available
Molecular weight	No in ormation available
VOC Content (%)	No in ormation available
Liquid Density	0.95-0.97 cm3
Bulk density	No in ormation available
Particle Size	No in ormation available
Particle Size Distribution	No in ormation available

Section 10: STABILITY AND REACTIVITY

Reactivity

Reactivity No in ormation available.

Chemical stability

Stability table under normal conditions.

Explosion data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

Possibility of Hazardous Reactions

Possibility of hazardous reactions None under normal processin .

Conditions to avoid

Conditions to avoid None kno n based on in ormation supplied.

Incompatible materials

Incompatible materials None kno n.

Hazardous Decomposition Products

Hazardous Decomposition Products None kno n based on in ormation supplied.

Section 11: TOXICOLOGICAL INFORMATION

Acute toxicity

Information on likely routes of exposure

Product Information .

Inhalation peci ic test data or the substance or mixture is not available.

Eye contact peci ic test data or the substance or mixture is not available.

Skin contact peci ic test data or the substance or mixture is not available.

Ingestion peci ic test data or the substance or mixture is not available

Symptoms No in ormation available.

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document
ATEmix (oral) 10 010.00 m k

Unknown acute toxicity 100 o the mixture consists o in redient(s) o unkno n toxicit
95 o the mixture consists o in redient(s) o unkno n acute oral toxicit
100 o the mixture consists o in redient(s) o unkno n acute dermal toxicit
100 o the mixture consists o in redient(s) o unkno n acute inhalation toxicit (as)
100 o the mixture consists o in redient(s) o unkno n acute inhalation toxicit (vapor)
100 o the mixture consists o in redient(s) o unkno n acute inhalation toxicit (dust mist)

See section 16 for terms and abbreviations

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation No in ormation available.

Serious eye damage/eye irritation No in ormation available.

Respiratory or skin sensitization No in ormation available.

Germ cell mutagenicity No in ormation available.

Carcinogenicity No in ormation available.

Reproductive toxicity No in ormation available.

STOT - single exposure No in ormation available.

STOT - repeated exposure No in ormation available.

Aspiration hazard No in ormation available.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity The environmental impact o this product has not been ull investi ated.

Unknown aquatic toxicity 95 o the mixture consists o component(s) o unkno n hazards to the a uatic environment.

Persistence and degradability

Persistence and degradability No in ormation available.

Bioaccumulative potential

Bioaccumulation No in ormation available.

Mobility

Mobility in soil No in ormation available.

Mobility No in ormation available.

Other adverse effects

Other adverse effects No in ormation available.

Section 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues/unused products ispose o in accordance ith local re ulations. ispose o aste in accordance ith environmental le islation.

Contaminated packaging o not reuse empt containers.

Section 14: TRANSPORT INFORMATION

ADG Not re ulated

IATA Not re ulated

IMDG Not re ulated

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
No in ormation available

Section 15: REGULATORY INFORMATION

Regulatory information

National regulations

Australia
ee section 8 or national exposure control parameters

Standard for Uniform Scheduling of Medicines and Poisons (SUSMP)
No poisons schedule number allocated

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	oes not compl
IECSC	Complies
KECL	Complies
PICCS	oes not compl
AICS	Complies
NZIoC	Complies

Legend:
TSCA - nited tates Toxic ubstances Control ct ection 8(b) nventor
DSL/NDSL - Canadian omestic ubstances ist Non- omestic ubstances ist
EINECS/ELINCS - uropean nventor o xistin Chemical ubstances uropean ist o Noti ied Chemical ubstances
ENCS - Japan xistin and Ne Chemical ubstances
IECSC - China nventor o xistin Chemical ubstances
KECL - orean xistin and valuated Chemical ubstances
PICCS - Philippines nventor o Chemicals and Chemical ubstances
AICS - ustralian nventor o Chemical ubstances
NZIoC - Ne ealand nventor o Chemicals

International Regulations

Ozone-depleting substances (ODS) Not applicable

Persistent Organic Pollutants Not applicable

Export Notification requirements Not applicable

Section 16: ANY OTHER RELEVANT INFORMATION

Issue Date 18- pr-2017

Revision Date 28-Mar-2019

Revision Note
No in ormation available.

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

T	T (time- ei hted avera e)	T	T (hort Term xposure imit)
Ceilin	Maximum limit value		kin desi nation
C	Carcino en		

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End of Safety Data Sheet

SDS no. 255
Version 3
Revision date 11-Jul-2019
Supersedes Date: 04-Jan-2018

a et ata heet
Mid- an e F C 255

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name Mid- an e F C 255
Product code 255

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use sed as a cementin additive in oil ield applications

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
chlumber er il ield ustralia Pt td
N: 74 002 459 225
CN: 002 459 225
256 t. eor es Terrace Perth 6000
47 5157 7424

@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) ustralia 61 2801 44558 sia Paci ic 65 3158 1074 China 86 10 5100 3039 urope 44 (0) 1235 239 670 Middle ast and rica 44 (0) 1235 239 671 Ne ealand 64 9929 1483 001 281 595 3518

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards Not classi ied

Environmental hazards Not classi ied

Physical Hazards Not classi ied

2.2 Label elements

Signal word
None

Hazard Statements
This product is not classi ied as hazardous there ore no (H) hazard statements assi ned.

Precautionary statements
This product is not classi ied as hazardous there ore has no (P) precautionar statements assi ned.

Contains
2-meth lpropan-2-ol

2.3 Other hazards

Not classi ied as P T vPv b current criteria

uspended dust ma present a dust explosion hazard

Australian statement of hazardous/dangerous nature
Classi ied as Non-Hazardous accordin to the criteria o N H C.
N N-H T NC . N N- N .

3. Composition/information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical Name	EC No	CAS No	Weight-%
2-meth lpropan-2-ol	200-889-7	75-65-0	5

Comments
The product contains other in redients hich do not contribute to the overall classi ication.

4. First Aid Measures

4.1 First aid measures

Inhalation inhaled remove rom area to resh air. et medical attention i respirator irritation develops or i breathin becomes di icult.

Ingestion inse mouth. o not induce vomitin ithout medical advice. Never ive an thin b mouth to an unconscious person. et medical attention i s mptoms occur.

Skin contact ash o immediatel ith soap and plent o ater hile removin all contaminated clothes and shoes. et medical attention immediatel i s mptoms occur.

Eye Contact Promptl ash e es ith lots o ater hile li tin e e lids. emove contact lenses i orn. et medical attention i an discom ort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice The severit o the s mptoms described ill var dependant o the concentration and the len th o exposure. adverse s mptoms develop the casualt should be trans erred to hospital as soon as possible.

Symptoms

Inhalation Please see ection 11. Toxicolo ical n ormation or urther in ormation.

Ingestion Please see ection 11. Toxicolo ical n ormation or urther in ormation.

Skin contact Please see ection 11. Toxicolo ical n ormation or urther in ormation.

Eye contact Please see ection 11. Toxicolo ical n ormation or urther in ormation.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat s mptomaticall .

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
se extin uishin media appropriate or surroundin material.

Extinguishing media which must not be used for safety reasons
None kno n.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
ust ma orm explosive mixture in air.

Hazardous combustion products
Fire or hi h temperatures create: Carbon oxides (C x) Nitro en oxides (N x) mmonia H dro en c anide (h droc anic acid).

5.3 Advice for firefighters

Special protective equipment for fire-fighters
s in an ire ear sel -contained breathin apparatus and ull protective ear.

Special Fire-Fighting Procedures
Containers close to ire should be removed immediatel or cooled ith ater.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

se personal protective e uipment. xtin uish all i nition sources. void sparks lames heat and smokin . ee also section 8.

6.2 Environmental precautions

The product should not be allo ed to enter drains ater courses or the soil.

Environmental exposure controls
void release to the environment. ocal authorities should be advised i si ni icant spilla es cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment

Prevent urther leaka e or spilla e i sa e to do so. Cover po der spill ith plastic sheet or tarp to minimize spreadin .

Methods for cleaning up
void eneratin or breathin dust. Take precautionar measures a ainst static dischar es. Take up mechanicall and collect in suitable container or disposal. ter cleanin lush a a traces ith ater.

6.4 Reference to other sections

ee section 13 or more in ormation.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance ith ood industrial h iene and sa et practice. void contact ith skin and e es. void dust ormation. o not breathe dust. Material becomes slipper hen et. se caution i et.

Hygiene Measures
se ood ork and personal h iene practices to avoid exposure. hen usin do not smoke eat or drink. ash hands and ace be ore breaks and immediatel a ter handlin the product emove contaminated clothin

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions nsure ade uate ventilation. eep airborne concentrations belo exposure limits. Take precautionar measures a ainst static dischar es.

Storage precautions eep containers ti htl closed in a dr cool and ell-ventilated place eep a a rom open lames hot sur aces and sources o i nition void excessive heat or prolon ed periods o time. eep a a rom direct sunli ht. ncompatible ith oxidizin a ents tron acids

Storage class Chemical stora e.

Packaging materials se speciall constructed containers onl .

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits N Nuisance dust T 4m m³ espirable ust 10m m³ Total ust.
No biolo ical limit allocated

Component Information

Chemical Name	Arabic	Australia	Egypt
2-meth lpropan-2-ol	100 ppm T 303 m m³ T	150ppm T 455m m³ T 100ppmT 303m m³T	100 ppm T 303 m m³ T
Chemical Name	**India**	**Indonesian**	**Japan**
2-meth lpropan-2-ol	Not determined	100 ppm T 303 m m³ T	50 ppm 150 m m³
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
2-meth lpropan-2-ol	10 m m³ M C	Not determined	150 ppm T 455 m m³ T 100 ppm T 303 m m³ T
Chemical Name	**Malaysia**	**Philippines**	**Russia**
2-meth lpropan-2-ol	100 ppm T 303 m m³ T	100 ppm T 300 m m³ T	10 m m³ M C

Chemical Name	Thailand	Vietnam	Turkey
2-meth lpropan-2-ol	100 ppm T	Not determined	Not determined

8.2 Exposure controls

ll chemical Personal Protective uipment (PP) should be selected based on an assessment o both the chemical hazard present and the risk o exposure to those hazards. The PP recommendations belo are based on an assessment o the chemical hazards associated ith this product. here this product is used in a mixture ith other products or luids additional hazards ma be created and as such urther assessment o risk ma be re uired. The risk o exposure and need o respirator protection ill var rom orkplace to orkplace and should be assessed b the user in each situation.

Engineering Controls
nsure ade uate ventilation Provide appropriate exhaust ventilation at places here dust is ormed

Personal protective equipment

Eye protection se e e protection accordin to N 166 desi ned to protect a ainst dusts a et lasses ith side-shields Ti htl ittin sa et o les

Hand protection ear loves accordin to N 374 to protect a ainst skin e ects rom po ders mpervious loves made o : ubber loves ut l Neoprene Nitrile Fre uent chan e is advisable

Respiratory protection n case o insu icient ventilation ear suitable respirator e uipment Hal mask ith a particle ilter P2 (uropean Norm N 143 ormer N 3181) t ork in con ined or poorl ventilated spaces respirator protection ith air suppl must be used.

Skin and body protection ear suitable protective clothin e ash and emer enc sho er must be available at the ork place.

Hygiene Measures ash hands be ore eatin drinkin or smokin emove and ash contaminated clothin be ore re-use



8.2.3 Environmental exposure controls

Environmental exposure se appropriate containment to avoid environmental contamination ee section 6 or more in ormation

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state olid
Appearance ranules
Odor None
Color hite
Odor threshold Not applicable

Property	Values	Remarks
pH	Not applicable	
pH @ dilution	4 - 9	@ 5 l
Melting / freezing point	250 C 482 F	
Boiling point/range	Not applicable	
Flash point	Not applicable	
Evaporation rate (BuAc =1)	Not applicable	
Flammability (solid, gas)	Not applicable	
Flammability Limit in Air		

Upper flammability limit	Not applicable
Lower flammability limit	Not applicable
Vapor pressure	Not applicable
Vapor density	Not applicable
Specific gravity	1.15 - 1.35
Bulk density	0.20 - 0.40
Relative density	No in ormation available
Water solubility	oluble in ater
Solubility in other solvents	No in ormation available
Autoignition temperature	No in ormation available
Decomposition temperature	150 C 302 F
Kinematic viscosity	No in ormation available
Dynamic viscosity	No in ormation available
log Pow	No in ormation available

Explosive properties uspended dust ma present a dust explosion hazard
Oxidizing properties None kno n.

9.2 Other information

Pour point	No in ormation available
Molecular weight	No in ormation available
VOC content(%)	No in ormation available
Density	No in ormation available

Comments
The data listed above are t pical ph sical and chemical properties and should not be construed as product speci ication.

10. Stability and Reactivity

10.1 Reactivity

ust ma orm explosive mixture in air.

10.2 Chemical stability

table under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous pol merization does not occur.

10.4 Conditions to avoid

void dust ormation. eep a a rom direct sunli ht. void excessive heat or prolon ed periods o time. eep a a rom open lames hot sur aces and sources o i nition.

10.5 Incompatible materials

ncompatible ith oxidizin a ents. tron acids.

10.6 Hazardous decomposition products

ee ection 5.2.

11. Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

Inhalation nhalation o dust in hi h concentration ma cause irritation o respirator s stem.

Eye contact ust ma cause mechanical irritation.

Skin contact Prolon ed contact ma cause redness and irritation.

Ingestion n estion ma cause stomach discom ort.

Unknown acute toxicity Not applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
2-meth lpropan-2-ol	2200 m k (at)	2 k (abbit)	10000 ppm (at) 4 h

Sensitization This product does not contain an components suspected to be sensitizin .

Mutagenic effects This product does not contain an kno n or suspected muta ens.

Carcinogenicity This product does not contain an kno n or suspected carcino ens.

Reproductive toxicity This product does not contain an kno n or suspected reproductive hazards.

Routes of Exposure kin contact. e contact. nhalation.

Routes of entry nhalation.

Specific target organ toxicity - Single exposure Not classi ied

Specific target organ toxicity - Repeated exposure Not classi ied.

Aspiration hazard Not applicable.

Other information e literature re erences and sources or data. ee ection 16 or more in ormation.

12. Ecological Information

12.1 Toxicity

The product component(s) are not classi ied as environmentall hazardous. Ho ever this does not exclude the possibilit that lar e or re uent spills can have a harm ul or dama in e ect on the environment.

Toxicity to algae
ee component in ormation belo .

Toxicity to fish
ee component in ormation belo .

Toxicity to daphnia and other aquatic invertebrates
ee component in ormation belo .

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
2-meth lpropan-2-ol	6130 - 6700 m C50 Pimephales promelas 96 h	1000 m C50 esmodesmus subspicatus 72 h	4607 - 6577 m C50 aphnia ma na 48 h 933 m C50 aphnia ma na 48 h

12.2 Persistence and degradability

Not readil biode radable.

12.3 Bioaccumulative potential

oes not bioaccumulate.

log Pow
0

12.4 Mobility

Mobility
The product is ater soluble and ma spread in ater s stems.

Mobility in soil
No in ormation available.

12.5 Results of PBT and vPvB assessment

Not classi ied as P T vPv b current criteria.

12.6 Other adverse effects.

None kno n.

12.7 Other information

e literature re erences and sources or data. ee ection 16 or more in ormation.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products ispose o in accordance ith local re ulations.

Contaminated packaging mpt containers should be taken or local rec clin recover or aste disposal.

14. Transport information

14.1. UN number
Not re ulated

14.2. UN proper shipping name
The product is not covered b international re ulation on the transport o dan erous oods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not re ulated
IMDG/ANTAQ Hazard class	Not re ulated
ICAO/ANAC Hazard class/division	Not re ulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not re ulated
IMDG/ANTAQ Packing group	Not re ulated
ICAO/ANAC Packing group	Not re ulated

14.5 Environmental hazard
No

14.6 Special precautions
Not applicable

14.7 Transport in bulk according to Annex I/II of MARPOL 73/78 and the IBC Code
Please contact @slb.com or in o re ardin transport in ulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

New Zealand Hazard Classification Not classi ied

HSNO approval no. Not re uired

Group number Not re uired

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

International inventories

USA (TSCA) oes not compl

Canada (DSL)	Complies
Philippines (PICCS)	Philippine P CC - Components are listed or exempt rom listin .
Japan (ENCS)	oes not compl
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	oes not compl
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by	lobal e ulator Compliance - Chemicals (C - Chemicals) andra Mc illiam
Supersedes Date:	04-Jan-2018
Revision date	11-Jul-2019
Version	3
This SDS has been revised in the following section(s)	15. e ulator n ormation No chan es ith re ard to classi ication have been made.

Key literature references and sources for data
.Chem .com
upplier
National Chemical nventories
National re ulator in ormation
National occupational exposure limits

HMIS classification

Health	1
Flammabilit	1
Ph sical hazard	0
PP	

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SDS no. 065
Version 6
Revision date 08-Jun-2021
Supersedes Date: 18-Jun-2014

a et ata heet
T C 65 ispersant

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name T C 65 ispersant
Product code 065
Country Limitations This is not or use in the uropean nion ( ).

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use sed as a cementin additive in oil ield applications

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
chlumber er ustralia Pt td
N: 74 002 459 225
CN: 002 459 225
evel 5 10 Telethon venue
Perth 6000

@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) ustralia 61 2801 44558 sia Paci ic 65 3158 1074 China 86 10 5100 3039 urope 44 (0) 1235 239 670 Middle ast and rica 44 (0) 1235 239 671 Ne ealand 64 9929 1483 001 281 595 3518 Canada 001 613 996 6666

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards Not classi ied

Environmental hazards Not classi ied

Physical Hazards Not classi ied

2.2 Label elements

Signal word
None

Hazard Statements
This product is not classi ied as hazardous there ore no (H) hazard statements assi ned.

Precautionary statements
This product is not classi ied as hazardous there ore has no (P) precautionar statements assi ned.

Contains
odium sul ate (mpurit)

2.3 Other hazards

Not classi ied as P T vPv b current criteria

Combustible dust

Australian statement of hazardous/dangerous nature
Classi ied as Non-Hazardous accordin to the criteria o N H C.
H T NC . N N- N .

3. Composition/information on Ingredients

3.1 Substances

Chemical Name	EC No	CAS No	Weight-%
odium sul ate (mpurit)	231-820-9	7757-82-6	1-5

3.2 Mixtures

Not applicable

4. First Aid Measures

4.1 First aid measures

Inhalation inhaled remove rom area to resh air. et medical attention i respirator irritation develops or i breathin becomes di icult.

Ingestion inse mouth. o not induce vomitin ithout medical advice. Never ive an thin b mouth to an unconscious person. eek medical attention i irritation occurs.

Skin contact ash o immediatel ith soap and plent o ater hile removin all contaminated clothes and shoes. eek medical attention i irritation occurs.

Eye Contact Promptl ash e es ith lots o ater hile li tin e e lids. emove contact lenses i orn. Continue to rinse or at least 15 minutes. et medical attention i an discom ort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice The severit o the s mptoms described ill var dependant o the concentration and the len th o exposure. adverse s mptoms develop the casualt should be trans erred to hospital as soon as possible.

Symptoms

Inhalation Please see ection 11. Toxicolo ical n ormation or urther in ormation.

Ingestion Please see ection 11. Toxicolo ical n ormation or urther in ormation.

Skin contact Please see ection 11. Toxicolo ical n ormation or urther in ormation.

Eye contact Please see ection 11. Toxicolo ical n ormation or urther in ormation.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat s mptomaticall .

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
ater Fo lcohol Foam C 2 r Chemical.

Extinguishing media which must not be used for safety reasons
o not use a solid ater stream as it ma scatter and spread ire.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
uspended dust ma present a dust explosion hazard.

Hazardous combustion products
Fire or hi h temperatures create: Carbon oxides (C x) ul ur dioxide.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
s in an ire ear sel -contained breathin apparatus and ull protective ear.

Special Fire-Fighting Procedures
Containers close to ire should be removed immediatel or cooled ith ater.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

void dust ormation. eep a a rom combustible material. void contact ith heat sparks open lame and static dischar e. se personal protective e uipment. ee also section 8.

6.2 Environmental precautions

The product should not be allo ed to enter drains ater courses or the soil.

Environmental exposure controls
void release to the environment. ocal authorities should be advised i si ni icant spilla es cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent urther leaka e or spilla e i sa e to do so. Cover po der spill ith plastic sheet or tarp to minimize spreadin .

Methods for cleaning up
void dust ormation. o not dr s eep dust. et dust ith ater be ore s eepin or use a vacuum to collect dust. Take precautionar measures a ainst static dischar es. se non-sparkin tools and e uipment. ter cleanin lush a a traces ith ater.

6.4 Reference to other sections

ee section 13 or more in ormation.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance ith ood industrial h iene and sa et practice. void contact ith skin and e es. void handlin causin eneration o dust. ll e uipment used hen handlin the product must be rounded. void breathin dust i exposed to hi h dust concentration leave area immediatel . Fine dust dispersed in air ma i nite. Take precautionar measures a ainst static dischar es.

Hygiene Measures
se ood ork and personal h iene practices to avoid exposure. o not eat drink or smoke hen usin this product ash hands and ace be ore breaks and immediatel a ter handlin the product emove contaminated clothin

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions nsure ade uate ventilation. Provide appropriate exhaust ventilation at places here dust is ormed. eep airborne concentrations belo exposure limits. Take precautionar measures a ainst static dischar es. nsure all e uipment is electricall rounded be ore be innin trans er operations.

Storage precautions eep containers ti htl closed in a dr cool and ell-ventilated place eep a a rom direct sunli ht. Protect rom moisture

Storage class Chemical stora e.

Packaging materials se speciall constructed containers onl .

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits N Nuisance dust T 4m m³ espirable ust 10m m³ Total ust. Control as an C H particulate not other ise speci ied (PN): 10 m m³ (nhalable) 3 m m³ (espirable) and an H particulate not other ise re ulated (PN): 15 m m³ (Total) 5 m m³ (espirable).

Component Information

Chemical Name	Arabic	Australia	Egypt
odium sul ate (mpurit)	Not determined	Not determined	Not determined
Chemical Name	**India**	**Indonesian**	**Japan**
odium sul ate (mpurit)	Not determined	Not determined	Not determined
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
odium sul ate (mpurit)	10 m m³ M C	Not determined	Not determined
Chemical Name	**Malaysia**	**Philippines**	**Russia**
odium sul ate (mpurit)	Not determined	Not determined	10 m m³ M C
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
odium sul ate (mpurit)	Not determined	Not determined	Not determined

Notes
No biolo ical limit allocated

8.2 Exposure controls

ll chemical Personal Protective uipment (PP) should be selected based on an assessment o both the chemical hazard present and the risk o exposure to those hazards. The PP recommendations belo are based on an assessment o the chemical hazards associated ith this product. here this product is used in a mixture ith other products or luids additional hazards ma be created and as such urther assessment o risk ma be re uired. The risk o exposure and need o respirator protection ill var rom orkplace to orkplace and should be assessed b the user in each situation.

Engineering Controls
nsure ade uate ventilation Provide appropriate exhaust ventilation at places here dust is ormed

Personal protective equipment

Eye protection	Ti htl ittin sa et o les a et lasses ith side-shields
Hand protection	se protective loves made o : Nitrile Neoprene Fre uent chan e is advisable
Respiratory protection	No personal respirator protective e uipment normall re uired n case o insu icient ventilation ear suitable respirator e uipment se the indicated respirator protection i the occupational exposure limit is exceeded and or in case o product release (dust) Hal mask ith a particle ilter P2 (uropean Norm N 143 ormer N 3181) t ork in con ined or poorl ventilated spaces respirator protection ith air suppl must be used.
Skin and body protection	ear suitable protective clothin e ash and emer enc sho er must be available at the ork place.
Hygiene Measures	ash hands be ore breaks and immediatel a ter handlin the product emove and ash contaminated clothin be ore re-use



8.2.3 Environmental exposure controls

Environmental exposure	se appropriate containment to avoid environmental contamination ee section 6 or more in ormation

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	olid
Appearance	Po der
Odor	Faint
Color	Tan

Property	**Values**	**Remarks**
pH	pproximatel 10	
pH @ dilution	No in ormation available	
Melting / freezing point	No in ormation available	
Boiling point/range	Not applicable	
Flash point	oes not lash	
Evaporation rate (BuAc =1)	Not applicable	
Flammability	Not applicable	
Explosion limits:		

Upper explosion limit	No in ormation available	
Lower explosion limit	No in ormation available	
Vapor pressure	Not applicable	
Relative Vapor Density	Not applicable	
Specific gravity	0.8	20 C
Bulk density	No in ormation available	
Water solubility	oluble in ater	
Solubility in other solvents	No in ormation available	
Autoignition temperature	No in ormation available	
Decomposition temperature	No in ormation available	
Kinematic viscosity	No in ormation available	
Dynamic viscosity	No in ormation available	
Partition Coefficient (n-octanol/water)	No in ormation available	
Density and/or Relative Density	No in ormation available	

Explosive properties uspended dust ma present a dust explosion hazard
Oxidizing properties None kno n.

9.2 Other information

Pour point	No in ormation available
Molecular weight	No in ormation available
VOC content(%)	None

Comments
The data listed above are t pical ph sical and chemical properties and should not be construed as product speci ication.

10. Stability and Reactivity

10.1 Reactivity

ust ma orm explosive mixture in air.

10.2 Chemical stability

table under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous pol merization does not occur.

10.4 Conditions to avoid

void dust ormation. void contact ith heat sparks open lame and static dischar e. Protect rom moisture. eep a a rom direct sunli ht.

10.5 Incompatible materials

No materials to be especiall mentioned.

10.6 Hazardous decomposition products

ee ection 5.2.

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Inhalation nhalation o dust in hi h concentration ma cause irritation o respirator s stem.

Eye contact ust ma cause mechanical irritation.

Skin contact Prolon ed contact ma cause redness and irritation.

Ingestion n estion ma cause stomach discom ort.

Unknown acute toxicity Not applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
odium sul ate (mpurit)	10000 m k (at)	4 k (abbit)	No data available

Sensitization This product does not contain an components suspected to be sensitizin .

Mutagenic effects This product does not contain an kno n or suspected muta ens.

Carcinogenicity This product does not contain an kno n or suspected carcino ens.

Reproductive toxicity This product does not contain an kno n or suspected reproductive hazards.

Routes of Exposure nhalation. kin contact. e contact.

Routes of entry nhalation.

Specific target organ toxicity - Single exposure Not classi ied

Specific target organ toxicity - Repeated exposure Not classi ied.

Aspiration hazard Not classi ied.

11.2 Information on other hazards

Other information e literature re erences and sources or data. ee ection 16 or more in ormation.

12. Ecological information

12.1 Toxicity

The product component(s) are not classi ied as environmentall hazardous. Ho ever this does not exclude the possibilit that lar e or re uent spills can have a harm ul or dama in e ect on the environment.

Toxicity to algae
ee component in ormation belo .

Toxicity to fish
ee component in ormation belo .

Toxicity to daphnia and other aquatic invertebrates
ee component in ormation belo .

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
odium sul ate (mpurit)	13500 m C50 epomis	No in ormation available	630 m C50 aphnia ma na

	macrochirus 96 h 3040 - 4380 m C50 epomis macrochirus 96 h 6800 m C50 Pimephales promelas 96 h 13500 - 14500 m C50 Pimephales promelas 96 h		96 h 2564 m C50 aphnia ma na 48 h

12.2 Persistence and degradability

No product level data available.

12.3 Bioaccumulative potential

No product level data available.

12.4 Mobility

Mobility
oluble in ater.

Mobility in soil
No in ormation available.

12.5 Other adverse effects

None kno n.

12.6 Other information.

e literature re erences and sources or data. ee ection 16 or more in ormation.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products ispose o in accordance ith local re ulations.

Contaminated packaging mpt containers should be taken or local rec clin recover or aste disposal.

14. Transport information

14.1. UN number
Not re ulated

14.2. UN proper shipping name
The product is not covered b international re ulation on the transport o dan erous oods

14.3 Hazard class(es)
ADR/RID/ADN/ADG Hazard class Not re ulated
IMDG/ANTAQ Hazard class Not re ulated
ICAO/ANAC Hazard class/division Not re ulated

14.4 Packing group
ADR/RID/ADN/ADG Packing group Not re ulated

IMDG/ANTAQ Packing group	Not re ulated
ICAO/ANAC Packing group	Not re ulated

14.5 Environmental hazard
No

14.6 Special precautions
Not applicable

14.7 Maritime transport in bulk according to IMO instruments
Please contact @slb.com or in o re ardin transport in ulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

New Zealand Hazard Classification	Not classi ied
HSNO approval no.	Not re uired
Group number	Not re uired

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies
Eurasian Economic Union: Russian Inventory	Complies

This is not or use in the uropean nion ( ).

16. Other Information

Prepared by lobal e ulator Compliance - Chemicals (C - Chemicals) andra Mc illiam

Supersedes Date:	18-Jun-2014
Revision date	08-Jun-2021
Version	6
This SDS has been revised in the following section(s)	ll sections No chan es ith re ard to classi ication have been made.

Key literature references and sources for data
.Chem .com
upplier
National Chemical nventories
National re ulator in ormation
National occupational exposure limits

HMIS classification

Health	1
Flammabilit	1
Ph sical hazard	0
PP	

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SDS no. 047
Version 3
Revision date 03-Mar-2021
Supersedes Date: 21-Feb-2016

a et ata heet
nti oam ent 47

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name nti oam ent 47
Product code 047

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use nti oam in oil ield applications

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
chlumber er il ield ustralia Pt td
N: 74 002 459 225
CN: 002 459 225
256 t. eor es Terrace Perth 6000
47 5157 7424

@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) ustralia 61 2801 44558 sia Paci ic 65 3158 1074 China 86 10 5100 3039 urope 44 (0) 1235 239 670 Middle ast and rica 44 (0) 1235 239 671 Ne ealand 64 9929 1483 001 281 561 1600

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards Not classi ied

Environmental hazards Not classi ied

Physical Hazards Not classi ied

2.2 Label elements

Signal word
None

Hazard Statements
This product is not classi ied as hazardous there ore no (H) hazard statements assi ned.

Precautionary statements
This product is not classi ied as hazardous there ore has no (P) precautionar statements assi ned.

Contains No hazardous components

2.3 Other hazards

Not classi ied as P T vPv b current criteria

Australian statement of hazardous/dangerous nature
Classi ied as Non-Hazardous accordin to the criteria o N H C.
N N-H T NC . N N- N .

3. Composition/information on Ingredients

3.1 Substances

This product does not contain an hazardous in redients or in redients ith national orkplace exposure limits.

3.2 Mixtures

Not applicable

4. First Aid Measures

4.1 First aid measures

Inhalation inhaled remove rom area to resh air. et medical attention i respirator irritation develops or i breathin becomes di icult.

Ingestion inse mouth. o not induce vomitin ithout medical advice. Never ive an thin b mouth to an unconscious person. et medical attention i s mptoms occur.

Skin contact ash skin thorou hl ith soap and ater. eek medical attention i irritation occurs.

Eye Contact Promptl ash e es ith lots o ater hile li tin e e lids. emove contact lenses i orn. et medical attention i an discom ort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice The severit o the s mptoms described ill var dependant o the concentration and the len th o exposure. adverse s mptoms develop the casualt should be trans erred to hospital as soon as possible.

Symptoms

Inhalation Please see ection 11. Toxicolo ical n ormation or urther in ormation.

Ingestion Please see ection 11. Toxicolo ical n ormation or urther in ormation.

Skin contact Please see ection 11. Toxicolo ical n ormation or urther in ormation.

Eye contact Please see ection 11. Toxicolo ical n ormation or urther in ormation.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat s mptomaticall .

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
se extin uishin media appropriate or surroundin material.

Extinguishing media which must not be used for safety reasons
o not use a solid ater stream as it ma scatter and spread ire.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None kno n.

Hazardous combustion products
Fire or hi h temperatures create: Carbon oxides (C x) Harm ul or anic chemical umes.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
s in an ire ear sel -contained breathin apparatus and ull protective ear.

Special Fire-Fighting Procedures
Containers close to ire should be removed immediatel or cooled ith ater.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

se personal protective e uipment. ee also section 8.

6.2 Environmental precautions

The product should not be allo ed to enter drains ater courses or the soil.

Environmental exposure controls
void release to the environment. ocal authorities should be advised i si ni icant spilla es cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent urther leaka e or spilla e i sa e to do so. ike ar ahead o li uid spill or later disposal.

Methods for cleaning up
bsorb ith earth sand or other non-combustible material and trans er to containers or later disposal. ter cleanin lush a a traces ith ater.

6.4 Reference to other sections

ee section 13 or more in ormation.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance ith ood industrial h iene and sa et practice. void contact ith skin and e es. o not breathe vapors or spra mist. void spills and splashin durin use.

Hygiene Measures
se ood ork and personal h iene practices to avoid exposure. hen usin do not smoke eat or drink. ash hands and ace be ore breaks and immediatel a ter handlin the product emove contaminated clothin

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions nsure ade uate ventilation.

Storage precautions eep containers ti htl closed in a dr cool and ell-ventilated place void excessive heat or prolon ed periods o time. void contact ith: tron acids tron bases tron oxidizin a ents

Storage class Chemical stora e.

Packaging materials se speciall constructed containers onl .

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits The product does not contain an hazardous materials ith occupational exposure limits established.

Notes
No biolo ical limit allocated

8.2 Exposure controls

ll chemical Personal Protective uipment (PP) should be selected based on an assessment o both the chemical hazard present and the risk o exposure to those hazards. The PP recommendations belo are based on an assessment o the chemical hazards associated ith this product. here this product is used in a mixture ith other products or luids additional hazards ma be created and as such urther assessment o risk ma be re uired. The risk o exposure and need o respirator protection ill var rom orkplace to orkplace and should be assessed b the user in each situation.

Engineering Controls
nsure ade uate ventilation

Personal protective equipment

Eye protection e protection must con orm to standard N 166 Ti htl ittin sa et o les a et lasses ith side-shields

Hand protection ear chemicall resistant loves (tested to N 374) in combination ith basic emplo ee trainin epeated or prolon ed contact se protective loves made o : ut l loves- Neoprene Nitrile nless peci ied e a are that li uid ma penetrate the loves. Fre uent chan e is advisable.

Respiratory protection No personal respirator protective e uipment normall re uired n case o insu icient ventilation ear suitable respirator e uipment espirator ith combination ilter or vapour particulate (N 141) T pe P2 t ork in con ined or poorl ventilated spaces

respirator protection ith air suppl must be used.

Skin and body protection ear suitable protective clothin e ash and emer enc sho er must be available at the ork place.

Hygiene Measures ash hands be ore eatin drinkin or smokin emove and ash contaminated clothin be ore re-use



8.2.3 Environmental exposure controls

Environmental exposure se appropriate containment to avoid environmental contamination ee section 6 or more in ormation

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	i uid
Appearance	iscous
Odor	dorless
Color	Colorless
Odor threshold	Not applicable

Property	**Values**	**Remarks**
pH	No data available	
pH @ dilution	No in ormation available	
Melting / freezing point	-35 C -31 F	
Boiling point/range	No in ormation available	
Flash point	229 C 444.2 F	TM -93
Evaporation rate (BuAc =1)	No in ormation available	
Flammability (solid, gas)	Not applicable	
Flammability Limit in Air		
Upper flammability limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	Not applicable	
Vapor density	No in ormation available	
Specific gravity	1	
Bulk density	No in ormation available	
Relative density	1	@ 21.1 C.
Water solubility	nsoluble in ater	
Solubility in other solvents	No in ormation available	
Autoignition temperature	No in ormation available	
Decomposition temperature	No in ormation available	
Kinematic viscosity	414 - 496 cst	
Dynamic viscosity	No in ormation available	
log Pow	Not determined	

Explosive properties	Not applicable
Oxidizing properties	None kno n.

9.2 Other information

Pour point	0 C 32 F
Molecular weight	No in ormation available

VOC content(%)	None
Density	No in ormation available

Comments
The data listed above are t pical ph sical and chemical properties and should not be construed as product speci ication.

10. Stability and Reactivity

10.1 Reactivity

No speci ic reactivit hazards associated ith this product.

10.2 Chemical stability

table under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous pol merization does not occur.

10.4 Conditions to avoid

void excessive heat or prolon ed periods o time.

10.5 Incompatible materials

tron acids. tron bases. tron oxidizin a ents.

10.6 Hazardous decomposition products

ee ection 5.2.

11. Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

Inhalation	nhalation o vapors in hi h concentration ma cause irritation o respirator s stem.
Eye contact	Ma cause sli ht irritation.
Skin contact	Prolon ed contact ma cause redness and irritation.
Ingestion	n estion ma cause stomach discom ort.
Unknown acute toxicity	Not applicable.

Sensitization	This product does not contain an components suspected to be sensitizin .
Mutagenic effects	This product does not contain an kno n or suspected muta ens.
Carcinogenicity	This product does not contain an kno n or suspected carcino ens.

Reproductive toxicity	This product does not contain an kno n or suspected reproductive hazards.
Routes of Exposure	None kno n.
Routes of entry	No route o entr noted.
Specific target organ toxicity - Single exposure	Not classi ied
Specific target organ toxicity - Repeated exposure	Not classi ied.
Aspiration hazard	Not applicable.
Other information	e literature re erences and sources or data. ee ection 16 or more in ormation.

12. Ecological Information

12.1 Toxicity

The product component(s) are not classi ied as environmentall hazardous. Ho ever this does not exclude the possibilit that lar e or re uent spills can have a harm ul or dama in e ect on the environment.

Toxicity to algae
This product is not considered toxic to al ae.

Toxicity to fish
This product is not considered toxic to ish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

12.2 Persistence and degradability

eadil biode radable.

12.3 Bioaccumulative potential

ioaccumulation is unlikel .

12.4 Mobility

Mobility
The product is insoluble and loats on ater.

Mobility in soil
No in ormation available.

12.5 Results of PBT and vPvB assessment

Not classi ied as P T vPv b current criteria.

12.6 Other adverse effects.

None kno n.

12.7 Other information

e literature re erences and sources or data. ee ection 16 or more in ormation.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products ispose o in accordance ith local re ulations.

Contaminated packaging mpt containers should be taken or local rec clin recover or aste disposal.

14. Transport information

14.1. UN number

Not re ulated

14.2. UN proper shipping name

The product is not covered b international re ulation on the transport o dan erous oods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not re ulated
IMDG/ANTAQ Hazard class	Not re ulated
ICAO/ANAC Hazard class/division	Not re ulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not re ulated
IMDG/ANTAQ Packing group	Not re ulated
ICAO/ANAC Packing group	Not re ulated

14.5 Environmental hazard

No

14.6 Special precautions

Not applicable

14.7 Transport in bulk according to Annex I/II of MARPOL 73/78 and the IBC Code

Please contact @slb.com or in o re ardin transport in ulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

New Zealand Hazard Classification Not classi ied

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)
The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies
Eurasian Economic Union: Russian Inventory	Complies

16. Other Information

Prepared by lobal e ulator Compliance - Chemicals (C - Chemicals) Poh ue Cheon

Supersedes Date: 21-Feb-2016

Revision date 03-Mar-2021

Version 3

This SDS has been revised in the following section(s) ll sections No chan es ith re ard to classi ication have been made.

Key literature references and sources for data
.Chem .com
upplier
National Chemical nventories
National re ulator in ormation
National occupational exposure limits

HMIS classification

Health	1
Flammabilit	1
Ph sical hazard	0
PP	

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SDS no. 081
Version 4
Revision date 12-Ma -2020
Supersedes Date: 27-Mar-2018

a et ata heet
i uid etarder 81

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name i uid etarder 81
Product code 081

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use sed as a cementin additive in oil ield applications

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
chlumber er il ield ustralia Pt td
N: 74 002 459 225
CN: 002 459 225
256 t. eor es Terrace Perth 6000
47 5157 7424

@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) ustralia 61 2801 44558 sia Paci ic 65 3158 1074 China 86 10 5100 3039 urope 44 (0) 1235 239 670 Middle ast and rica 44 (0) 1235 239 671 Ne ealand 64 9929 1483 001 281 595 3518

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards Not classi ied

Environmental hazards Not classi ied

Physical Hazards Not classi ied

2.2 Label elements

Signal word
None

Hazard Statements
This product is not classi ied as hazardous there ore no (H) hazard statements assi ned.

Precautionary statements
This product is not classi ied as hazardous there ore has no (P) precautionar statements assi ned.

-

Contains No hazardous components

2.3 Other hazards

Not classi ied as P T vPv b current criteria

Australian statement of hazardous/dangerous nature
Classi ied as Non-Hazardous accordin to the criteria o N H C.
N N-H T NC . N N- N .

3. Composition/information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

This product does not contain an hazardous in redients or in redients ith national orkplace exposure limits.

4. First Aid Measures

4.1 First aid measures

Inhalation inhaled remove rom area to resh air. et medical attention i respirator irritation develops or i breathin becomes di icult.

Ingestion inse mouth. o not induce vomitin ithout medical advice. Never ive an thin b mouth to an unconscious person. et medical attention i s mptoms occur.

Skin contact ash skin thorou hl ith soap and ater. et medical attention i irritation persists.

Eye Contact Promptl ash e es ith lots o ater hile li tin e e lids. emove contact lenses i orn. et medical attention i an discom ort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice The severit o the s mptoms described ill var dependant o the concentration and the len th o exposure. adverse s mptoms develop the casualt should be trans erred to hospital as soon as possible.

Symptoms

Inhalation Please see ection 11. Toxicolo ical n ormation or urther in ormation.

Ingestion Please see ection 11. Toxicolo ical n ormation or urther in ormation.

Skin contact Please see ection 11. Toxicolo ical n ormation or urther in ormation.

Eye contact Please see ection 11. Toxicolo ical n ormation or urther in ormation.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat s mptomaticall .

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
ater Fo lcohol Foam C 2 r Chemical.

Extinguishing media which must not be used for safety reasons
o not use ater et.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None kno n.

Hazardous combustion products
Thermal decomposition can lead to release o irritatin ases and vapors

5.3 Advice for firefighters

Special protective equipment for fire-fighters
s in an ire ear sel -contained breathin apparatus and ull protective ear.

Special Fire-Fighting Procedures
Containers close to ire should be removed immediatel or cooled ith ater.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

se personal protective e uipment. ee also section 8.

6.2 Environmental precautions

The product should not be allo ed to enter drains ater courses or the soil.

Environmental exposure controls
void release to the environment. ocal authorities should be advised i si ni icant spilla es cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent urther leaka e or spilla e i sa e to do so. ike ar ahead o li uid spill or later disposal.

Methods for cleaning up
bsorb ith earth sand or other non-combustible material and trans er to containers or later disposal. ter cleanin lush a a traces ith ater.

6.4 Reference to other sections

ee section 13 or more in ormation.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance ith ood industrial h iene and sa et practice. void contact ith skin and e es. void breathin vapors or mists. void spills and splashin durin use.

Hygiene Measures
se ood ork and personal h iene practices to avoid exposure. ash hands and ace be ore breaks and immediatel a ter handlin the product emove contaminated clothin o not eat drink or smoke hen usin this product

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions nsure ade uate ventilation.

Storage precautions eep containers ti htl closed in a dr cool and ell-ventilated place eep a a rom direct sunli ht. tore a a rom incompatibles tron acids tron oxidizin a ents

Storage class Chemical stora e.

Packaging materials se speciall constructed containers onl .

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits The product does not contain an hazardous materials ith occupational exposure limits established.

Notes
No biolo ical limit allocated

8.2 Exposure controls

ll chemical Personal Protective uipment (PP) should be selected based on an assessment o both the chemical hazard present and the risk o exposure to those hazards. The PP recommendations belo are based on an assessment o the chemical hazards associated ith this product. here this product is used in a mixture ith other products or luids additional hazards ma be created and as such urther assessment o risk ma be re uired. The risk o exposure and need o respirator protection ill var rom orkplace to orkplace and should be assessed b the user in each situation.

Engineering Controls
nsure ade uate ventilation ocal exhaust ventilation

Personal protective equipment

Eye protection se e e protection accordin to N 166 desi ned to protect a ainst li uid splashes a et lasses ith side-shields Ti htl ittin sa et o les

Hand protection ear chemicall resistant loves (tested to N 374) in combination ith basic emplo ee trainin mpervious loves made o : Neoprene Nitrile
reak throu h time 480 minutes
love thickness 0.4 mm
e a are that li uid ma penetrate the loves. Fre uent chan e is advisable.

Respiratory protection n case o insu icient ventilation ear suitable respirator e uipment se respirator ith or anic vapor protection (bro n) t ork in con ined or poorl ventilated spaces respirator protection ith air suppl must be used.

Skin and body protection ear suitable protective clothin e ash and emer enc sho er must be available at the ork place.

Hygiene Measures ash hands be ore eatin drinkin or smokin emove and ash contaminated clothin

be ore re-use



8.2.3 Environmental exposure controls

Environmental exposure se appropriate containment to avoid environmental contamination ee section 6 or more in ormation

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	i uid
Appearance	ueous solution
Odor	burnt su ar li ht
Color	ark bro n
Odor threshold	Not applicable

Property	**Values**	**Remarks**
pH	3.5 - 5.1	
pH @ dilution	No in ormation available	
Melting / freezing point	No in ormation available	
Boiling point/range	No in ormation available	
Flash point	oes not lash	
Evaporation rate (BuAc =1)	Not applicable	
Flammability (solid, gas)	Not applicable	
Flammability Limit in Air		
Upper flammability limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	Not applicable	
Vapor density	No in ormation available	
Specific gravity	1.24 - 1.26	@ 27 C
Bulk density	No in ormation available	
Relative density	No in ormation available	
Water solubility	oluble in ater	
Solubility in other solvents	No in ormation available	
Autoignition temperature	400 C 752 F	
Decomposition temperature	No in ormation available	
Kinematic viscosity	No in ormation available	
Dynamic viscosity	350 mPa.s	@ 20 C
log Pow	No in ormation available	

Explosive properties	Not applicable
Oxidizing properties	None kno n.

9.2 Other information

Pour point	No in ormation available
Molecular weight	No in ormation available
VOC content(%)	None
Density	No in ormation available

Comments
The data listed above are t pical ph sical and chemical properties and should not be construed as product speci ication.

10. Stability and Reactivity

10.1 Reactivity

No speci ic reactivit hazards associated ith this product.

10.2 Chemical stability

table under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous pol merization does not occur.

10.4 Conditions to avoid

eep a a rom direct sunli ht.

10.5 Incompatible materials

tron oxidizin a ents. tron acids.

10.6 Hazardous decomposition products

ee ection 5.2.

11. Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

Inhalation	nhalation o vapors in hi h concentration ma cause irritation o respirator s stem.
Eye contact	Ma cause sli ht irritation.
Skin contact	Prolon ed contact ma cause redness and irritation.
Ingestion	n estion ma cause stomach discom ort.
Unknown acute toxicity	Not applicable.

Sensitization	This product does not contain an components suspected to be sensitizin .
Mutagenic effects	This product does not contain an kno n or suspected muta ens.
Carcinogenicity	This product does not contain an kno n or suspected carcino ens.

Reproductive toxicity	This product does not contain an kno n or suspected reproductive hazards.
Routes of Exposure	kin contact. e contact. nhalation.
Routes of entry	No route o entr noted.

Specific target organ toxicity - Single exposure	Not classi ied
Specific target organ toxicity - Repeated exposure	Not classi ied.
Aspiration hazard	Not applicable.
Other information	e literature re erences and sources or data. ee ection 16 or more in ormation.

12. Ecological Information

12.1 Toxicity

The product component(s) are not classi ied as environmentall hazardous. Ho ever this does not exclude the possibilit that lar e or re uent spills can have a harm ul or dama in e ect on the environment. ar e amounts ill a ect pH and harm a uatic or anisms
isted on P N list o P

Toxicity to algae
This product is not considered toxic to al ae.

Toxicity to fish
This product is not considered toxic to ish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

12.2 Persistence and degradability

No product level data available.

12.3 Bioaccumulative potential

oes not bioaccumulate.

12.4 Mobility

Mobility
oluble in ater.

Mobility in soil
No in ormation available.

12.5 Results of PBT and vPvB assessment

Not classi ied as P T vPv b current criteria.

12.6 Other adverse effects.

None kno n.

12.7 Other information

e literature re erences and sources or data. ee ection 16 or more in ormation.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products ispose o in accordance ith local re ulations.

Contaminated packaging mpt containers should be taken or local rec clin recover or aste disposal.

14. Transport information

14.1. UN number
Not re ulated

14.2. UN proper shipping name
The product is not covered b international re ulation on the transport o dan erous oods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not re ulated
IMDG/ANTAQ Hazard class	Not re ulated
ICAO/ANAC Hazard class/division	Not re ulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not re ulated
IMDG/ANTAQ Packing group	Not re ulated
ICAO/ANAC Packing group	Not re ulated

14.5 Environmental hazard
No

14.6 Special precautions
Not applicable

14.7 Transport in bulk according to Annex I/II of MARPOL 73/78 and the IBC Code
Please contact @slb.com or in o re ardin transport in ulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons

No poisons schedule number allocated

New Zealand Hazard Classification Not classi ied

HSNO approval no. Not re uired

Group number Not re uired

National Code of Practice for the Preparation of Material Safety Data Sheets 2nd Edition [NOHSC: 2011 (2003)].

National Occupational Health and Safety Commission's Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004) 3rd Edition].

National Occupational Health and Safety Commission's Exposure Standards for Atmospheric Contaminants in the occupational Environment [NOHSC:1003 (1995)].

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)
The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by lobal e ulator Compliance - Chemicals (C - Chemicals) Muriel Martin eurel

Supersedes Date: 27-Mar-2018

Revision date 12-Ma -2020

Version 4

This SDS has been revised in the following section(s) 9 12 No chan es ith re ard to classi ication have been made.

Key literature references and sources for data
.Chem .com
upplier
National Chemical nventories
National re ulator in ormation

National occupational exposure limits

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SDS no. 175
Version 4
Revision date 29- pr-2020
Supersedes Date: 19-Jun-2015

a et ata heet
nti oam ent 175

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name nti oam ent 175
Product code 175

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use sed as a cementin additive in oil ield applications

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
chlumber er il ield ustralia Pt td
N: 74 002 459 225
CN: 002 459 225
256 t. eor es Terrace Perth 6000
47 5157 7424

@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) ustralia 61 2801 44558 sia Paci ic 65 3158 1074 China 86 10 5100 3039 urope 44 (0) 1235 239 670 Middle ast and rica 44 (0) 1235 239 671 Ne ealand 64 9929 1483 001 281 595 3518

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards Not classi ied

Environmental hazards Not classi ied

Physical Hazards Not classi ied

2.2 Label elements

Signal word
None

Hazard Statements
This product is not classi ied as hazardous there ore no (H) hazard statements assi ned.

Precautionary statements
This product is not classi ied as hazardous there ore has no (P) precautionar statements assi ned.

-

Contains
Non-cr stalline silica

2.3 Other hazards

Not classi ied as P T vPv b current criteria

Australian statement of hazardous/dangerous nature
Classi ied as Non-Hazardous accordin to the criteria o N H C.
N N-H T NC . N N- N .

3. Composition/information on Ingredients

3.1 Substances

Not applicable

3.2 Mixtures

Chemical Name	EC No	CAS No	Weight-%
Non-cr stalline silica	isted	Proprietar	1 - 5

Comments
No classi ied in redients or those havin occupational exposure limits present above the level o disclosure.

4. First Aid Measures

4.1 First aid measures

Inhalation inhaled remove rom area to resh air. et medical attention i respirator irritation develops or i breathin becomes di icult.

Ingestion inse mouth. o not induce vomitin ithout medical advice. Never ive an thin b mouth to an unconscious person. et medical attention i s mptoms occur.

Skin contact ash skin thorou hl ith soap and ater. et medical attention i irritation persists.

Eye Contact Promptl ash e es ith lots o ater hile li tin e e lids. emove contact lenses i orn. et medical attention i an discom ort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice The severit o the s mptoms described ill var dependant o the concentration and the len th o exposure. adverse s mptoms develop the casualt should be trans erred to hospital as soon as possible.

Symptoms

Inhalation Please see ection 11. Toxicolo ical n ormation or urther in ormation.

Ingestion Please see ection 11. Toxicolo ical n ormation or urther in ormation.

Skin contact Please see ection 11. Toxicolo ical n ormation or urther in ormation.

Eye contact Please see ection 11. Toxicolo ical n ormation or urther in ormation.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat s mptomaticall .

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
xtin uish ith carbon dioxide dr chemical oam or aterspra .

Extinguishing media which must not be used for safety reasons
o not use ater et.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
None kno n.

Hazardous combustion products
Thermal decomposition can lead to release o irritatin ases and vapors

5.3 Advice for firefighters

Special protective equipment for fire-fighters
s in an ire ear sel -contained breathin apparatus and ull protective ear.

Special Fire-Fighting Procedures
Containers close to ire should be removed immediatel or cooled ith ater.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

se personal protective e uipment. ee also section 8. olutions extremel slipper hen spilled.

6.2 Environmental precautions

The product should not be allo ed to enter drains ater courses or the soil.

Environmental exposure controls
void release to the environment. ocal authorities should be advised i si ni icant spilla es cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Prevent urther leaka e or spilla e i sa e to do so. ike ar ahead o li uid spill or later disposal.

Methods for cleaning up
bsorb ith earth sand or other non-combustible material and trans er to containers or later disposal. ter cleanin lush a a traces ith ater.

6.4 Reference to other sections

ee section 13 or more in ormation.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance ith ood industrial h iene and sa et practice. void contact ith skin and e es. void breathin vapors or mists. void spills and splashin durin use.

Hygiene Measures
se ood ork and personal h iene practices to avoid exposure. hen usin do not smoke eat or drink. ash hands and ace be ore breaks and immediatel a ter handlin the product emove contaminated clothin

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions nsure ade uate ventilation.

Storage precautions eep containers ti htl closed in a dr cool and ell-ventilated place eep at a temperature not exceedin 25 C tore a a rom incompatibles tron oxidizin a ents or onisin adiation. teel

Storage class Chemical stora e.

Packaging materials se speciall constructed containers onl .

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits ecause this product is a li uid the dust-related orkplace xposure imits or the components do not appl .

Component Information

Chemical Name	Arabic	Australia	Egypt
Non-cr stalline silica	Not determined	2m m³T respirable dust	Not determined
Chemical Name	**India**	**Indonesian**	**Japan**
Non-cr stalline silica	10 m m³ T	Not determined	Not determined
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
Non-cr stalline silica	1 m m³ M C 2 m m³ M C	6.0 m m³ T	Not determined
Chemical Name	**Malaysia**	**Philippines**	**Russia**
Non-cr stalline silica	Not determined	Not determined	3 m m³ T 6 m m³ T 1 m m³ T 2 m m³ T Fibro enic substance also vitreous in the orm o disinte ration aerosol 1177 Fibro enic substance in the orm o condensation aerosol containin 10 ilicon dioxide 1175 1176
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
Non-cr stalline silica	Not determined	Not determined	Not determined

Notes
No biolo ical limit allocated

8.2 Exposure controls

ll chemical Personal Protective uipment (PP) should be selected based on an assessment o both the chemical hazard present and the risk o exposure to those hazards. The PP recommendations belo are based on an assessment o the chemical hazards associated ith this product. here this product is used in a mixture ith other products or luids additional hazards ma be created and as such urther assessment o risk ma be re uired. The risk o exposure and need o respirator protection ill var rom orkplace to orkplace and should be assessed b the user in each situation.

Engineering Controls
nsure ade uate ventilation Mechanical ventilation or local exhaust ventilation is re uired.

Personal protective equipment

Eye protection se e e protection accordin to N 166 desi ned to protect a ainst li uid splashes a et lasses ith side-shields Ti htl ittin sa et o les

Hand protection ear chemicall resistant loves (tested to N 374) in combination ith basic emplo ee trainin
mpervious loves made o : Neoprene Nitrile ut l ubber
reak throu h time 480 minutes
love thickness 0.4 mm
e a are that li uid ma penetrate the loves. Fre uent chan e is advisable.

Respiratory protection n case o insu icient ventilation ear suitable respirator e uipment espirator ith combination ilter or vapor particulate T pe P2 t ork in con ined or poorl ventilated spaces respirator protection ith air suppl must be used.

Skin and body protection ear suitable protective clothin e ash and emer enc sho er must be available at the ork place.

Hygiene Measures ash hands be ore eatin drinkin or smokin emove and ash contaminated clothin be ore re-use



8.2.3 Environmental exposure controls

Environmental exposure se appropriate containment to avoid environmental contamination ee section 6 or more in ormation

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state	i uid
Appearance	ueous solution
Odor	li ht
Color	Milk hite
Odor threshold	Not applicable

Property	**Values**	**Remarks**
pH	5	
pH @ dilution	No in ormation available	
Melting / freezing point	0 C 32 F	
Boiling point/range	100 C 212 F	
Flash point	Not applicable	
Evaporation rate (BuAc =1)	No in ormation available	
Flammability (solid, gas)	Not applicable	
Flammability Limit in Air		
Upper flammability limit	Not applicable	

Lower flammability limit	Not applicable	
Vapor pressure	2.3 kPa	@ 20 C
Vapor density	No in ormation available	
Specific gravity	1	@ 25 C
Bulk density	No in ormation available	
Relative density	No in ormation available	
Water solubility	ispersible	
Solubility in other solvents	No in ormation available	
Autoignition temperature	No in ormation available	
Decomposition temperature	No in ormation available	
Kinematic viscosity	No in ormation available	
Dynamic viscosity	100 mPa s	@ 25 C
log Pow	No in ormation available	

Explosive properties	Not applicable
Oxidizing properties	None kno n.

9.2 Other information

Pour point	No in ormation available
Molecular weight	No in ormation available
VOC content(%)	None
Density	No in ormation available

Comments
The data listed above are t pical ph sical and chemical properties and should not be construed as product speci ication.

10. Stability and Reactivity

10.1 Reactivity

No speci ic reactivit hazards associated ith this product.

10.2 Chemical stability

table under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous pol merization does not occur.

10.4 Conditions to avoid

void heat lames and other sources o i nition.

10.5 Incompatible materials

tron oxidizin a ents. or onisin adiation. teel.

10.6 Hazardous decomposition products

ee ection 5.2.

11. Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

Inhalation nhalation o vapors in hi h concentration ma cause irritation o respirator s stem.

Eye contact Ma cause sli ht irritation.

Skin contact Prolon ed contact ma cause redness and irritation.

Ingestion n estion ma cause stomach discom ort.

Unknown acute toxicity Not applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Non-cr stalline silica	7900 m k (at)	2000 m k (abbit)	2.2 m (at) 1 h

Sensitization This product does not contain an components suspected to be sensitizin .

Mutagenic effects This product does not contain an kno n or suspected muta ens.

Carcinogenicity This product does not contain an kno n or suspected carcino ens.

Reproductive toxicity This product does not contain an kno n or suspected reproductive hazards.

Routes of Exposure kin contact. nhalation. n estion. e contact.

Routes of entry nhalation.

Specific target organ toxicity - Single exposure Not classi ied

Specific target organ toxicity - Repeated exposure Not classi ied.

Aspiration hazard Not applicable.

Other information e literature re erences and sources or data. ee ection 16 or more in ormation.

12. Ecological Information

12.1 Toxicity

The product component(s) are not classi ied as environmentall hazardous. Ho ever this does not exclude the possibilit that lar e or re uent spills can have a harm ul or dama in e ect on the environment.

Toxicity to algae
This product is not considered toxic to al ae. ee component in ormation belo .

Toxicity to fish
This product is not considered toxic to ish. ee component in ormation belo .

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates. ee component in ormation belo .

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other

			aquatic invertebrates
Non-cr stalline silica	5000 m C50 rach danio rerio 96 h	440 m C50 Pseudokirchneriella subcapitata 72 h	7600 m C50 Ceriodaphnia dubia 48 h

12.2 Persistence and degradability

The product is not expected to be biode radable. ee component in ormation belo .

Chemical Name	Persistence and degradability
Non-cr stalline silica	No in ormation available

12.3 Bioaccumulative potential

The product does not contain an substances expected to be bioaccumulatin . ee component in ormation belo .

Chemical Name	Bioaccumulation
Non-cr stalline silica	Not likel to bioaccumulate

12.4 Mobility

Mobility
ispersible in ater.

Mobility in soil
No in ormation available.

12.5 Results of PBT and vPvB assessment

Not classi ied as P T vPv b current criteria.

12.6 Other adverse effects.

None kno n.

12.7 Other information

e literature re erences and sources or data. ee ection 16 or more in ormation.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products ispose o in accordance ith local re ulations.

Contaminated packaging mpt containers should be taken or local rec clin recover or aste disposal.

14. Transport information

14.1. UN number
Not re ulated

14.2. UN proper shipping name
The product is not covered b international re ulation on the transport o dan erous oods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not re ulated
IMDG/ANTAQ Hazard class	Not re ulated
ICAO/ANAC Hazard class/division	Not re ulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not re ulated
IMDG/ANTAQ Packing group	Not re ulated
ICAO/ANAC Packing group	Not re ulated

14.5 Environmental hazard
No

14.6 Special precautions
Not applicable

14.7 Transport in bulk according to Annex I/II of MARPOL 73/78 and the IBC Code
Please contact @slb.com or in o re ardin transport in ulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:
The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

New Zealand Hazard Classification Not classi ied

HSNO approval no. Not re uired

Group number Not re uired

National Code of Practice for the Preparation of Material Safety Data Sheets 2nd Edition [NOHSC: 2011 (2003)].

National Occupational Health and Safety Commission's Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004) 3rd Edition].

National Occupational Health and Safety Commission's Exposure Standards for Atmospheric Contaminants in the occupational Environment [NOHSC:1003 (1995)].

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)
The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	oes not compl
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by	lobal e ulator Compliance - Chemicals (C - Chemicals) Muriel Martin eurel
Supersedes Date:	19-Jun-2015
Revision date	29- pr-2020
Version	4
This SDS has been revised in the following section(s)	8 11 12 15 16 No chan es ith re ard to classi ication have been made.

Key literature references and sources for data
.Chem .com
upplier
National Chemical nventories
National re ulator in ormation
National occupational exposure limits

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SAFETY DATA SHEET

AVAPERM NF

Issue Date 29-Jul-2016 **Revision Date** 08-Feb-2018 **Version** 1
N

Section 1: IDENTIFICATION: PRODUCT INDENTIFIER AND CHEMICAL IDENTITY

Product identifier

Product Name P M NF

Product Code N F00185

Other means of identification

Pure substance/mixture Mixture

Recommended use of the chemical and restrictions on use

Recommended Use shale inhibitor

Uses advised against No in ormation available

Details of manufacturer or importer

Supplier
Ne park rillin Fluids (ustralia) T
11 lacrit Place
Henderson 6166
ustralia

For urther in ormation please contact

Contact Point Telephone: 61 8 9410 8200
Fax: 61 8 9410 8299
ebsite: .ne park.com

Emergency telephone number

mer enc telephone number 1800 127 406 (ustralia) 64 4 917 9888 (nternational)

Section 2: HAZARD(S) IDENTIFICATION

GHS - Classification

Acute toxicity - Oral	Cate or 4 - (H302)
Acute toxicity - Dermal	Cate or 4 - (H312)
Skin corrosion/irritation	Cate or 2 - (H315)
Serious eye damage/eye irritation	Cate or 1 - (H318)
Skin sensitization	Cate or 1 - (H317)
Specific target organ toxicity (single exposure)	Cate or 3 - (H335)

Label elements



Signal word
an er

Hazard statements
H302 - Harm ul i s allo ed
H312 - Harm ul in contact ith skin
H315 - Causes skin irritation
H317 - Ma cause an aller ic skin reaction
H318 - Causes serious e e dama e
H335 - Ma cause respirator irritation

Precautionary Statements - Prevention
ash ace hands and an exposed skin thorou hl a ter handlin
o not eat drink or smoke hen usin this product
ear protective loves protective clothin e e protection ace protection
void breathin dust ume as mist vapors spra
Contaminated ork clothin should not be allo ed out o the orkplace
se onl outdoors or in a ell-ventilated area
F N : inse cautiousl ith ater or several minutes. emove contact lenses i present and eas to do. Continue rinsin
mmediatel call a P N C NT or doctor ph sician
F N N: ash ith plent o soap and ater
Call a P N C NT or doctor ph sician i ou eel un ell
Take o contaminated clothin and ash be ore reuse
skin irritation or rash occurs: et medical advice attention
F NH : emove victim to resh air and keep at rest in a position com ortable or breathin
Call a P N C NT or doctor ph sician i ou eel un ell
F : Call a P N C NT or doctor ph sician i ou eel un ell
inse mouth
Precautionary Statements - Storage
tore in a ell-ventilated place. eep container ti htl closed
tore locked up
Precautionary Statements - Disposal
ispose o contents container to an approved aste disposal plant

Other hazards
Ma be harm ul in contact ith skin
General Hazards
No in ormation available

Section 3: COMPOSITION AND INFORMATION ON INGREDIENTS, IN ACCORDANCE WITH SCHEDULE 8

Substance

Not applicable

Mixture

Chemical Name	C No	ei ht-
Hexanedinitrile h dro enated hi h-boilin raction	68411-90-5	30-50
H drochloric acid	7647-01-0	15
Non-hazardous in redients	Proprietar	alance

Section 4: FIRST AID MEASURES

Description of first aid measures

Emergency telephone number Poisons n ormation Center ustralia: 13 11 26
Poisons n ormation Center Ne ealand: 0800 764 766

Inhalation emove to resh air.

Eye contact inse thorou hl ith plent o ater or at least 15 minutes li tin lo er and upper e elids. Consult a ph sician.

Skin contact ash o immediatel ith soap and plent o ater hile removin all contaminated clothes and shoes. skin irritation or rash occurs: et medical advice attention.

Ingestion o not induce vomitin ithout medical advice. et medical attention i s mptoms occur.

Most important symptoms and effects, both acute and delayed

Symptoms No in ormation available.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat s mptomaticall .

Section 5: FIREFIGHTING MEASURES

Suitable Extinguishing Media

Suitable extinguishing media
r chemical C 2 ater spra or alcohol-resistant oam.

Unsuitable extinguishing media No in ormation available.

Specific hazards arising from the chemical

Thermal decomposition can lead to release o irritatin and toxic ases and vapors. o not allo run-o rom ire- i htin to enter drains or ater courses.

Hazardous combustion products Carbon oxides. Nitro en oxides (N x). H dro en chloride.

Special protective actions for fire-fighters

Special protective equipment for fire-fighters Fire i hters should ear sel -contained breathin apparatus and ull ire i htin turnout ear. se personal protection e uipment.

Hazchem code Not isted.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions nsure ade uate ventilation.

For emergency responders se personal protection recommended in ection 8.

Environmental precautions

Environmental precautions ee ection 12 or additional colo ical n ormation. o not lush into sur ace ater or sanitar se er s stem. Prevent product rom enterin drains.

Methods and material for containment and cleaning up

Methods for containment Prevent urther leaka e or spilla e i sa e to do so.

Methods for cleaning up Pick up and trans er to properl labeled containers.

Precautions to prevent secondary hazards

Prevention of secondary hazards Clean contaminated ob ects and areas thorou hl observin environmental re ulations.

Section 7: HANDLING AND STORAGE, INCLUDING HOW THE CHEMICAL MAY BE SAFELY USED

Precautions for safe handling

Advice on safe handling ash contaminated clothin be ore reuse. Handle in accordance ith ood industrial h iene and sa et practice. ash thorou hl a ter handlin .

General hygiene considerations o not eat drink or smoke hen usin this product. ash hands be ore breaks and a ter ork.

Conditions for safe storage, including any incompatibilities

Storage Conditions eep containers ti htl closed in a dr cool and ell-ventilated place.

Incompatible materials tron oxidizin a ents ldeh des Halo ens cids etone Nitrates Halo enated compounds Phenols soc anates

Section 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Control parameters

Exposure Limits .

Chemical Name	ustralia
H drochloric acid 7647-01-0	5 ppm Peak 7.5 m m³ Peak

Biological occupational exposure limits Not applicable

Appropriate engineering controls

Engineering controls ho ers
e ash stations
entilation s stems.

Individual protection measures, such as personal protective equipment

Eye/face protection Ti ht sealin sa et o les.

Skin and body protection ear suitable protective clothin .

Hand protection ear suitable loves tested to N 374.

Respiratory protection n case o inade uate ventilation ear respirator protection.

Environmental exposure controls o not allo into an se er on the round or into an bod o ater.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	i uid		
Appearance	li uid	**Odor**	Pun ent.
Color	bro n	**Odor threshold**	No in ormation available

Property	**Values**	**Remarks • Method**
pH	9 - 10	
Melting point / freezing point		No in ormation available
Boiling point / boiling range	100 C	
Flash point	100 C	
Evaporation rate		No in ormation available
Flammability (solid, gas)		Not applicable
Flammability Limit in Air		Not applicable
Upper flammability limit:		Not applicable
Lower flammability limit:		Not applicable
Vapor pressure		No data available
Vapor density		No data available
Relative density	1.00-1.10	
Water solubility	oluble in ater	
Solubility(ies)		No in ormation available
Partition coefficient		No in ormation available
Autoignition temperature		No in ormation available
Decomposition temperature		No in ormation available
Kinematic viscosity		
Dynamic viscosity		

Other Information

Softening point	No in ormation available
Molecular weight	No in ormation available
VOC Content (%)	No in ormation available
Density	1.00-1.10 cm3
Bulk density	No in ormation available
Particle Size	No in ormation available
Particle Size Distribution	No in ormation available

Section 10: STABILITY AND REACTIVITY

Reactivity

Reactivity table under normal conditions.

Chemical stability

Stability table under normal conditions.

Explosion data

Sensitivity to Mechanical Impact None.
Sensitivity to Static Discharge None.

Possibility of Hazardous Reactions

Possibility of hazardous reactions None under normal processin .

Conditions to avoid

Conditions to avoid None kno n based on in ormation supplied.

Incompatible materials

Incompatible materials tron oxidizin a ents. Ideh des. Halo ens. cids. etone. Nitrates. Halo enated compounds. Phenols. soc anates.

Hazardous Decomposition Products

Hazardous Decomposition Products None kno n based on in ormation supplied.

Section 11: TOXICOLOGICAL INFORMATION

Acute toxicity

Information on likely routes of exposure

Product Information .

Inhalation peci ic test data or the substance or mixture is not available.

Eye contact peci ic test data or the substance or mixture is not available.

Skin contact peci ic test data or the substance or mixture is not available.

Ingestion peci ic test data or the substance or mixture is not available

Symptoms No in ormation available.

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral) 768.00 m k
ATEmix (dermal) 2 985.00 m k
ATEmix (inhalation-gas) 2 859.84 ppm
ATEmix (inhalation-dust/mist) 2.54 m l

Unknown acute toxicity 47 o the mixture consists o in redient(s) o unkno n toxicit

0 o the mixture consists o in redient(s) o unkno n acute oral toxicit
0 o the mixture consists o in redient(s) o unkno n acute dermal toxicit
34 o the mixture consists o in redient(s) o unkno n acute inhalation toxicit (as)
47 o the mixture consists o in redient(s) o unkno n acute inhalation toxicit (vapor)
34 o the mixture consists o in redient(s) o unkno n acute inhalation toxicit (dust mist)

Component Information

Chemical Name	ral 50	ermal 50	nhalation C50
Hexanedinitrile h dro enated hi h-boilin raction	1500 m k (at)	200 m k (abbit)	-
H drochloric acid	238 - 277 m k (at)	5010 m k (abbit)	1.68 m (at) 1 h

See section 16 for terms and abbreviations

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation rritatin to skin.

Serious eye damage/eye irritation isk o serious dama e to e es.

Respiratory or skin sensitization Ma cause an aller ic skin reaction.

Germ cell mutagenicity None kno n.

Carcinogenicity None kno n.

Reproductive toxicity None kno n.

STOT - single exposure Tar et r ans. espirator s stem.

STOT - repeated exposure None kno n.

Aspiration hazard None kno n.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity The environmental impact o this product has not been ull investi ated.

Unknown aquatic toxicity 34 o the mixture consists o component(s) o unkno n hazards to the a uatic environment.

Chemical Name	l ae a uatic plants	Fish	Toxicit to microor anisms	Crustacea
H drochloric acid	-	282: 96 h ambusia a inis m C50 static	-	-

Persistence and degradability

Persistence and degradability No in ormation available.

Bioaccumulative potential

Bioaccumulation No in ormation available.

Mobility

Mobility in soil No in ormation available.

Mobility No in ormation available.

Other adverse effects

Other adverse effects No in ormation available.

Section 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues/unused products ispose o in accordance ith local re ulations. ispose o aste in accordance ith environmental le islation.

Contaminated packaging o not reuse empt containers.

Section 14: TRANSPORT INFORMATION

ADG Not re ulated

IATA Not re ulated

IMDG Not re ulated

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

No in ormation available

Section 15: REGULATORY INFORMATION

Regulatory information

National regulations

Australia
ee section 8 or national exposure control parameters

Standard for Uniform Scheduling of Medicines and Poisons (SUSMP)
No poisons schedule number allocated

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	oes not compl
IECSC	Complies
KECL	oes not compl
PICCS	oes not compl
AICS	Complies
NZIoC	Complies

Legend:
TSCA - nited tates Toxic ubstances Control ct ection 8(b) nventor
DSL/NDSL - Canadian omestic ubstances ist Non- omestic ubstances ist
EINECS/ELINCS - uropean nventor o xistin Chemical ubstances uropean ist o Noti ied Chemical ubstances
ENCS - Japan xistin and Ne Chemical ubstances
IECSC - China nventor o xistin Chemical ubstances
KECL - orean xistin and valuated Chemical ubstances
PICCS - Philippines nventor o Chemicals and Chemical ubstances
AICS - ustralian nventor o Chemical ubstances
NZIoC - Ne ealand nventor o Chemicals

International Regulations

Ozone-depleting substances (ODS) Not applicable

Persistent Organic Pollutants Not applicable

Export Notification requirements Not applicable

Section 16: ANY OTHER RELEVANT INFORMATION

Issue Date 29-Jul-2016

Revision Date 08-Feb-2018

Revision Note
No in ormation available.

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

T	T (time- ei hted avera e)	T	T (hort Term xposure imit)
Ceilin	Maximum limit value		kin desi nation
C	Carcino en		

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End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

QUIK-GEL GOLD®

Revision Date: 09- ep-2020 **Revision Number:** 12

1. Identification

Product Name
Product Trade Name: -

Other Names
Synonyms None
Hazardous Material Number: HM006323

Recommended Use
Recommended Use iscosi ier
Uses advised against No in ormation available

Company Name, Address and Contact Details
Manufacturer/Supplier Halliburton Ne ealand
136-140 Connett oad ast lock
Ne Pl mouth
Ne ealand
Telephone: 64 6-755 2405
Compan e istration No.: 824207

E-mail Address dunexchem@halliburton.com

Emergency Telephone Number 64 800 451719
lobal ncident esponse ccess Code: 334305
Contract Number: 14012

New Zealand National Poisons Centre 0800 764 766 (24 hours)

2. Hazards Identification

Statement of Hazardous Nature
Classi ied as hazardous accordin to criteria in the Hazardous ubstances (Minimum e rees o Hazard) e ulation 2001
Not Classi ied as dan erous ood accordin to N 5433:2012 N M or T

Classification
6.7 no n or presumed human carcino en
6.9 Harm ul to human tar et or ans or s stems

Hazard and Precautionary Statements

Hazard Pictograms



Signal Word an er

Hazard Statements H350 - Ma cause cancer b inhalation
H373 - Ma cause dama e to or ans throu h prolon ed or repeated exposure i inhaled

Precautionary Statements

Prevention	P103 - ead label be ore use
	P104 - ead a et ata heet be ore use.
	P201 - btain special instructions be ore use
	P202 - o not handle until all sa et precautions have been read and understood
	P260 - o not breathe dust ume as mist vapors spra
	P281 - se personal protective e uipment as re uired
Response	P308 P313 - F exposed or concerned: et medical advice attention
	P314 - et medical attention advice i ou eel un ell
Storage	P405 - tore locked up
Disposal	P501 - ispose o contents container in accordance ith local re ional national international re ulations

Contains

Substances	CAS Number	Substance HSNO Classification
Cr stalline silica uartz	14808-60-7	6.7 6.9

2.3. Other Hazards

ust can orm an explosive mixture in air

This mixture contains no substance considered to be persistent bioaccumulatin nor toxic (P T).

This mixture contains no substance considered to be ver persistent nor ver bioaccumulatin (vPv).

3. Composition/Information on Ingredients

Substances	CAS Number	PERCENT (w/w)
Cr stalline silica uartz	14808-60-7	1 - 5

4. First Aid Measures

Requirements for First Aid or Medical Care

Inhalation	inhaled remove rom area to resh air. et medical attention i respirator irritation develops or i breathin becomes di icult.
Eyes	n case o contact immediatel lush e es ith plent o ater or at least 15 minutes and et medical attention i irritation persists.
Skin	ash ith soap and ater. et medical attention i irritation persists.
Ingestion	nder normal conditions irst aid procedures are not re uired.

Workplace Facilities Required

None

Relation to Health Effect

Most Important Symptoms/Effects

reathin cr stalline silica can cause lun disease includin silicosis and lun cancer. Cr stalline silica has also been associated ith scleroderma and kidne disease.

Medical Attention and Special Treatment

Notes to Physician

Treat s mptomaticall

5. Fire-fighting measures

Type of Hazard

Flammability Hazard

Non- lammable

5.1. Extinguishing media

Suitable Extinguishing Media

ll standard ire i htin media

Extinguishing media which must not be used for safety reasons

None kno n.

HAZCHEM Code

Hazchem Code: None llocated

Special Protective Equipment and Precautions for Fire Fighters
Special protective equipment for firefighters
Full protective clothin and approved sel -contained breathin apparatus re uired or ire i htin personnel.
Special exposure hazards in a fire
Not applicable

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures
se appropriate protective e uipment. void creatin and breathin dust.
ee ection 8 or additional in ormation.

6.2. Environmental precautions
Prevent rom enterin se ers ater a s or lo areas.

6.3. Methods and material for containment and cleaning up
Collect usin dustless method and hold or appropriate disposal. Consider possible toxic or ire hazards associated ith contaminatin substances and use appropriate methods or collection stora e and disposal.

6.4. Reference to other sections
ee ection 8 and 13 or additional in ormation.

7. Handling and storage

7.1. Precautions for safe handling
Handling Precautions
This product contains uartz cristobalite and or trid mite hich ma become airborne ithout a visible cloud. void breathin dust. void creatin dust conditions. se onl ith ade uate ventilation to keep exposure belo recommended exposure limits. ear a N H certi ied uropean tandard n 149 or e uivalent respirator hen usin this product. Material is slipper hen et.

Handling Practices
Hygiene Measures
Handle in accordance ith ood industrial h iene and sa et practice.

Approved Handlers
more than 10 k (Class 6) is present then an approved handler must be present hen the substance is bein handled and hen not in use the substance must be locked a a .

7.2. Conditions for safe storage, including any incompatibilities
o not reuse empt container. se ood housekeepin in stora e and ork areas to prevent accumulation o dust. Close container hen not in use. eep rom excessive heat. Product has a shel li e o 24 months.

Store Site Requirements
No special controls re uired

Packaging
No special packa in re uired

8. Exposure Controls/Personal Protection

Workplace Exposure Standards
Exposure Limits

Substances	CAS Number	New Zealand WES	ACGIH TLV-TWA
Cr stalline silica uartz	14808-60-7	T : 0.1 m m³	T : 0.025 m m³

Engineering Controls
Engineering Controls se approved industrial ventilation and local exhaust as re uired to maintain exposures belo applicable exposure limits.

Personal Protective Equipment (PPE)
Personal Protective Equipment en ineerin controls and ork practices cannot prevent excessive exposures the

	selection and proper use o personal protective e uipment should be determined b an industrial h ienist or other uali ied pro essional based on the speci ic application o this product.
Respiratory Protection	Not normall needed. ut i si ni icant exposures are possible then the ollo in respirator is recommended: ust mist respirator. (N95 P2 P3)
Hand Protection	Normal ork loves.
Skin Protection	ear clothin appropriate or the ork environment. ust clothin should be laundered be ore reuse. se precautionar measures to avoid creatin dust hen removin or launderin clothin .
Eye Protection	ear sa et lasses or o les to protect a ainst exposure.
Other Precautions	None kno n.
Hygiene Measures	Handle in accordance ith ood industrial h iene and sa et practice.

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State:	Po der	**Color**	Tan
Odor:	Mild earth	**Odor Threshold:**	No in ormation available

Propert	alues	emarks - Method
pH:	8.5-9.5 (3)	
Freezing Point / Range	No data available	
Melting Point / Range	No data available	
Pour Point / Range	No data available	
Boiling Point / Range	No data available	
Flash Point	No data available	
Evaporation rate	No data available	
Vapor Pressure	No data available	
Vapor Density	No data available	
Specific Gravity	2.5 - 2.6	
Water Solubility	Partl soluble	
Solubility in other solvents	No data available	
Partition coefficient: n-octanol/water	No data available	
Autoignition Temperature	No data available	
Decomposition Temperature	No data available	
Viscosity	No data available	
Explosive Properties	No in ormation available	
Oxidizing Properties	No in ormation available	

9.2. Other information

VOC Content (%) No data available

10. Stability and Reactivity

10.2. Chemical stability

table

10.4. Conditions to avoid

None anticipated

10.5. Incompatible materials

H dro luoric acid.

10.6. Hazardous decomposition products

morphous silica ma trans orm at elevated temperatures to trid mite (870 C) or cristobalite (1470 C).

Hazardous Reactions

Hazardous Polymerization: ill Not ccur

11. Toxicological Information

Health Effect from Likely Routes of Exposure

Acute Toxicity

Inhalation

nhaled cr stalline silica in the orm o uartz or cristobalite rom occupational sources is carcino enic to humans (C roup 1). There is su icient evidence in experimental animals or the carcino enicit o trid mite (C roup 2).

reathin silica dust ma cause irritation o the nose throat and respirator passa es. reathin silica dust ma not cause noticeable in ur or illness even thou h permanent lun dama e ma be occurrin . nhalation o dust ma also have serious chronic health e ects (ee Chronic ects Carcino enicit subsection belo).

Eye Contact

Ma cause mechanical irritation to e e.

Skin Contact

None kno n.

Ingestion

None kno n.

Chronic Effects/Carcinogenicity

ilicosis: xcessive inhalation o respirable cr stalline silica dust ma cause a pro ressive disablin and sometimes- atal lun disease called silicosis. mptoms include cou h shortness o breath heezin non-speci ic chest illness and reduced pulmonar unction. This disease is exacerbated b smokin . ndividuals ith silicosis are predisposed to develop tuberculosis.

Cancer tatus: The nternational enc or esearch on Cancer (C) has determined that cr stalline silica inhaled in the orm o uartz or cristobalite rom occupational sources can cause lun cancer in humans (roup 1 - carcino enic to humans) and has determined that there is su icient evidence in experimental animals or the carcino enicit o trid mite (roup 2 - possible carcino en to humans). e er to C Mono raph 68 ilica ome ilicates and r anic Fibres (June 1997) in con unction ith the use o these minerals. The National Toxicolo Pro ram classi ies respirable cr stalline silica as no n to be a human carcino en . e er to the 9th eport on Carcino ens (2000). The merican Con erence o overnmental ndustrial H ienists (C H) classi ies cr stalline silica uartz as a suspected human carcino en (2).

There is some evidence that breathin respirable cr stalline silica or the disease silicosis is associated ith an increased incidence o si ni icant disease endpoints such as scleroderma (an immune s stem disorder mani ested b scarrin o the lun s skin and other internal or ans) and kidne disease.

Toxicity Data

Toxicology data for the components

Substances	C Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Cr stalline silica uartz	14808-60-7	15000 m k (human)	No data available	No data available

Substances	CAS Number	Skin corrosion/irritation
Cr stalline silica uartz	14808-60-7	Non-irritatin to the skin

Substances	CAS Number	Serious eye damage/irritation
Cr stalline silica uartz	14808-60-7	Non-irritatin to the e e No in ormation available

Substances	CAS Number	Skin Sensitization
Cr stalline silica uartz	14808-60-7	No in ormation available.

Substances	CAS Number	Respiratory Sensitization
Cr stalline silica uartz	14808-60-7	No in ormation available

Substances	CAS Number	Mutagenic Effects
Cr stalline silica uartz	14808-60-7	Not re arded as muta enic.

Substances	CAS Number	Carcinogenic Effects
Cr stalline silica uartz	14808-60-7	Contains cr stalline silica hich ma cause silicosis a dela ed and pro ressive lun disease. The C and NTP have determined there is su icient evidence in humans o the carcino enicit o cr stalline silica ith repeated respirator exposure.

Substances	CAS Number	Reproductive toxicity
Cr stalline silica uartz	14808-60-7	No in ormation available

Substances	CAS Number	STOT - single exposure
Cr stalline silica uartz	14808-60-7	No si ni icant toxicit observed in animal studies at concentration re uirin classi ication.

Substances	CAS Number	STOT - repeated exposure
Cr stalline silica uartz	14808-60-7	Causes dama e to or ans throu h prolon ed or repeated exposure i inhaled: (un s)

Substances	CAS Number	Aspiration hazard
Cr stalline silica uartz	14808-60-7	Not applicable

12. Ecological Information

12.1. Toxicity

Product Ecotoxicity Data
No data available

Substance Ecotoxicity Data

Substances	C Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Cr stalline silica uartz	14808-60-7	C50(72 h) 440 m (Pseudokirchneriella subcapitata)	0(96 h) 10000 m (anio rerio)	No in ormation available	50(24 h) 10000 m (aphnia ma na)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Cr stalline silica uartz	14808-60-7	The methods or determinin biode radabilit are not applicable to inor anic substances.

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Cr stalline silica uartz	14808-60-7	No data available

12.4. Mobility in soil

Substances	CAS Number	Mobility
Cr stalline silica uartz	14808-60-7	No in ormation available

Ecotoxicity Hazard Statements
None kno n

12.6. Other adverse effects

Endocrine Disruptor Information
This product does not contain an kno n or suspected endocrine disruptors

13. Disposal Considerations

13.1. Waste treatment methods

Disposal methods practical recover and reclaim rec cle or reuse b the uidelines o an approved local reuse pro ram. hould contaminated product become a aste dispose o in a licensed industrial land ill accordin to ederal state and local re ulations.

Contaminated Packaging Follo all applicable national or local re ulations.

14. Transport Information

NZ 5433.1999

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable

Special Precautions for User None

15. Regulatory Information

New Zealand Inventory of Chemicals ll components are listed on the N oC or are sub ect to a relevant exemption permit or assessment certi icate.

HSNO Approval Number H 002512

Group Name dditives Process Chemicals and a Materials (Toxic 6.7 H 002512)

HSNO Controls e er to the N P ebsite or more in ormation: http: .epa. ovt.nz

Approved Handlers more than 10 k (Class 6) is present then an approved handler must be present hen the substance is bein handled and hen not in use the substance must be locked a a .

Poisons Schedule: None llocated

16. Other information

Additional information For additional in ormation on the use o this product contact our local Halliburton representative.

For uestions about the a et ata heet or this or other Halliburton products contact Chemical te ardship at 1-580-251-4335.

Key or legend to abbreviations and acronyms used in the safety data sheet

- The uropean reement concernin the nternational Carria e o an erous oods b oad N 1715 - Ne eland tandard on election use and maintenance o respirator protective e uipment

bw – body weight
C - Celsius
CAS – Chemical Abstracts Service
CLP – REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Classification, abellin and Packa in o substances and mixtures
EC – European Commission
EC10 – Effective Concentration 10%
EC50 – Effective Concentration 50%
EEC – European Economic Community
N 149 - uropean standard on ilterin hal masks to protect a ainst particles
ErC50 – Effective Concentration growth rate 50%

N 374 - uropean standard on Protective loves a ainst chemicals and micro-or anisms
FFP - Filterin Facepieces
h - hour
T C - nternational ir Transport ssociation nternational Civil viation r anization
IBC Code – International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
LC50 – Lethal Concentration 50%
M M - nternational Maritime an erous oods nternational Maritime r anization
LD50 – Lethal Dose 50%
LL0 – Lethal Loading 0%
LL50 – Lethal Loading 50%
M - Maximum orkplace Concentration
MARPOL – International Convention for the Prevention of Pollution from Ships
mg/kg – milligram/kilogram
mg/L – milligram/liter
m m^3 - milli ram cubic meter
mm - millimeter
mmH - millimeter mercur
NIOSH – National Institute for Occupational Safety and Health
NOEC – No Observed Effect Concentration
N - na isze dopuszczalne stkienie na stano isku prac
N - -T Poland na isze dopuszczalne stkienie na stano isku prac
NTP – National Toxicology Program
OEL – Occupational Exposure Limit
PBT – Persistent Bioaccumulative and Toxic
PC – Chemical Product category
PEL – Permissible Exposure Limit
ppm – parts per million
PROC – Process category
REACH – REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the e istration valuation uthorisation and estriction o Chemicals
H-phrases - isk Hazard-phrases
- The uropean reement concernin the nternational Carria e o an erous oods b ail
STEL – Short Term Exposure Limit
SU – Sector of Use category
- Netherlands Ministr o ocial airs and mplo ment
TWA – Time-Weighted Average
- nited in dom
UN – United Nations
- C - short-time excursion limits pain valores l mite ambientales para la exposici n de corta duraci n
- - time- ei hted avera e values or a hole ork shi t pain valores l mite ambientales para la exposici n diaria
VOC – Volatile Organic Carbon
vPvB – very Persistent and very Bioaccumulative
- ei ht ei ht

Key literature references and sources for data
.Chem .com
N CC

Revision Date: 09- ep-2020
Revision Note
sections updated:
2

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End of Safety Data Sheet

HALLIBURTON

SAFETY DATA SHEET

QUIK MUD®

Revision Date: 09- ep-2020 **Revision Number:** 10

1. Product Identifier & Identity for the Chemical

Statement of Hazardous Nature Non-Hazardous accordin to the criteria o the 7th evised dition o the loball Harmonised stem o Classi ication and abellin o Chemicals (H) Non- an erous oods accordin to the criteria o .

1.1. Product Identifier

Product Name M

Other means of Identification

Synonyms None

Hazardous Material Number: HM005333

Recommended use of the chemical and restrictions on use

Recommended Use hale nhibitor iscosi ier

Uses advised against No in ormation available

Supplier's name, address and phone number

Manufacturer/Supplier Halliburton ustralia Pt . td.
15 Marriott oad Jandakot 6164
ustralia
CN Number: 009 000 775
Telephone Number: 61 1 800 686 951
Fax Number: 61 (08) 9455 5300

E-mail Address dunexchem@halliburton.com

Emergency phone number

61 1 800 686 951
lobal ncident esponse ccess Code: 334305
Contract Number: 14012

Australian Poisons Information Centre
24 Hour ervice: - 13 11 26
Police or Fire ri ade: - 000 (exchan e): - 1100

2. Hazard Identification

Statement of Hazardous Nature Non-Hazardous accordin to the criteria o the 7th evised dition o the loball Harmonised stem o Classi ication and abellin o Chemicals (H) Non- an erous oods accordin to the criteria o .

Classification of the hazardous chemical

Not classi ied

Label elements, including precautionary statements

Hazard Pictograms

Signal Word Not Hazardous

Hazard Statements: Not Classi ied

Precautionary Statements

Prevention None
Response None
Storage None
Disposal None

Contains

Substances	**CAS Number**
H drotreated li ht petroleum distillate	64742-47-8

Other hazards which do not result in classification
None kno n

For the full text of the H-phrases mentioned in this Section, see Section 16

3. Composition/information on Ingredients

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Australia
H drotreated li ht petroleum distillate	64742-47-8	10 - 30	sp. Tox. 1 (H304)

4. First aid measures

Description of necessary first aid measures

Inhalation inhaled move victim to resh air and seek medical attention.

Eyes n case o contact immediatel lush e es ith plent o ater or at least 15 minutes and et medical attention i irritation persists.

Skin ash ith soap and ater. et medical attention i irritation persists.

Ingestion et medical attention vomitin occurs keep head lo er than hips to prevent aspiration. inse mouth. Never ive an thin b mouth to an unconscious person.

Symptoms caused by exposure
No si ni icant hazards expected.

Medical Attention and Special Treatment
Notes to Physician Treat s mptomaticall

5. Fire Fighting Measures

Suitable extinguishing equipment
Suitable Extinguishing Media
ater o carbon dioxide oam dr chemical.
Extinguishing media which must not be used for safety reasons
None kno n.

Specific hazards arising from the chemical
Special exposure hazards in a fire
ecomposition in ire ma produce harm ul ases. se ater spra to cool ire exposed sur aces.

Special protective equipment and precautions for fire fighters
Special protective equipment for firefighters
Full protective clothin and approved sel -contained breathin apparatus re uired or ire i htin personnel.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

se appropriate protective e uipment.

6.2. Environmental precautions

Prevent rom enterin se ers ater a s or lo areas.

6.3. Methods and material for containment and cleaning up

ike ar ahead o li uid spill or later disposal. oak up ith inert absorbent material. Pick up and trans er to properl labeled containers.

7. Handling and storage

7.1. Precautions for safe handling

Handling Precautions

void contact ith e es skin or clothin . void breathin vapors. ash hands a ter use. aunder contaminated clothin be ore reuse. Material is slipper under oot.

Hygiene Measures

Handle in accordance ith ood industrial h iene and sa et practice.

7.2. Conditions for safe storage, including any incompatibilities

Storage Information

tore a a rom oxidizers. eep container closed hen not in use. Product has a shel li e o 12 months.

Other Guidelines

No in ormation available

8. Exposure Controls/Personal Protection

Control parameters - exposure standards, biological monitoring

Exposure Limits

Substances	CAS Number	Australia NOHSC	ACGIH TLV-TWA
H drotreated li ht petroleum distillate	64742-47-8	Not applicable	Not applicable

Appropriate engineering controls

Engineering Controls se in a ell ventilated area. ocal exhaust ventilation should be used in areas ithout ood cross ventilation.

Personal protective equipment (PPE)

Personal Protective Equipment en ineerin controls and ork practices cannot prevent excessive exposures the selection and proper use o personal protective e uipment should be determined b an industrial h ienist or other uali ied pro essional based on the speci ic application o this product.

Respiratory Protection en ineerin controls and ork practices cannot keep exposure belo occupational exposure limits or i exposure is unkno n ear a N H certi ied uropean tandard N 149 N 1715:2009 or e uivalent respirator hen usin this product. election o and instruction on usin all personal protective e uipment includin respirators should be per ormed b an ndustrial H ienist or other uali ied pro essional. r anic vapor respirator ith a dust mist ilter. (2P2 P3)

Hand Protection mpervious loves Manu acturer s directions or use should be observed because o reat diversit o t pes.

Skin Protection ubber apron.

Eye Protection Chemical o les also ear a ace shield i splashin hazard exists.

Other Precautions None kno n.

Environmental Exposure Controls No in ormation available

9. Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Physical State: i uid
Color hite to o hite
Odor: Mild h drocarbon
Odor Threshold: No in ormation available

Propert emarks - Method	alues
pH:	5
Freezing Point / Range	No data available
Melting Point / Range	No data available
Pour Point / Range	No data available
Boiling Point / Range	105 C 221 F
Flash Point	No data available (PMCC)
Evaporation rate	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Specific Gravity	1.1
Water Solubility	ispersible
Solubility in other solvents	No data available
Partition coefficient: n-octanol/water	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
Viscosity	25 mm2 s @ 40 C
Explosive Properties	No in ormation available
Oxidizing Properties	No in ormation available

9.2. Other information

VOC Content (%) No data available

10. Stability and Reactivity

10.1. Reactivity

Not expected to be reactive.

10.2. Chemical stability

table

10.3. Possibility of hazardous reactions

ill Not ccur

10.4. Conditions to avoid

eep a a rom heat sparks and lame.

10.5. Incompatible materials

tron oxidizers. Contact ith copper. Prolon ed contact ith aluminum. Mild steel.

10.6. Hazardous decomposition products

mmonia. xides o nitro en. Carbon monoxide and carbon dioxide.

11. Toxicological Information

Information on routes of exposure

Principle Route of Exposure e or skin contact inhalation.

Symptoms related to exposure

Most Important Symptoms/Effects

No si ni icant hazards expected.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
H drotreated li ht petroleum distillate	64742-47-8	5000 m k -b (rat) (similar substance)	2000 m k -b (rabbit) (similar substance)	5.2 m (rat 4 h vapor) (similar substance)

Immediate, delayed and chronic health effects from exposure

Inhalation Ma cause mild respirator irritation.

Eye Contact Non-irritatin to rabbit s e e
Skin Contact Not irritatin to skin in rabbits.
Ingestion spiration can be a hazard i this material is s allo ed.

Chronic Effects/Carcinogenicity No data available to indicate product or components present at reater than 0.1 are chronic health hazards.

Exposure Levels
No data available

Interactive effects
un disorders.

Data limitations
No data available

Substances	CAS Number	Skin corrosion/irritation
H drotreated li ht petroleum distillate	64742-47-8	Non-irritatin to the skin (similar substances)

Substances	CAS Number	Serious eye damage/irritation
H drotreated li ht petroleum distillate	64742-47-8	Non-irritatin to rabbit s e e (similar substances)

Substances	CAS Number	Skin Sensitization
H drotreated li ht petroleum distillate	64742-47-8	id not cause sensitization on laborator animals (uinea pi) (similar substances)

Substances	CAS Number	Respiratory Sensitization
H drotreated li ht petroleum distillate	64742-47-8	ased on available data the classi ication criteria are not met.

Substances	CAS Number	Mutagenic Effects
H drotreated li ht petroleum distillate	64742-47-8	n vitro tests did not sho muta enic e ects. n vivo tests did not sho muta enic e ects. (similar substances)

Substances	CAS Number	Carcinogenic Effects
H drotreated li ht petroleum distillate	64742-47-8	id not sho carcino enic e ects in animal experiments (similar substances)

Substances	CAS Number	Reproductive toxicity
H drotreated li ht petroleum distillate	64742-47-8	nimal testin did not sho an e ects on ertilit . id not sho terato enic e ects in animal experiments. (similar substances)

Substances	CAS Number	STOT - single exposure
H drotreated li ht petroleum distillate	64742-47-8	No si ni icant toxicit observed in animal studies at concentration re uirin classi ication.

Substances	CAS Number	STOT - repeated exposure
H drotreated li ht petroleum distillate	64742-47-8	No si ni icant toxicit observed in animal studies at concentration re uirin classi ication. (similar substances)

Substances	CAS Number	Aspiration hazard
H drotreated li ht petroleum distillate	64742-47-8	spiration into the lun s ma cause chemical pneumonitis includin cou hin di icult breathin heezin cou hin up blood and pneumonia hich can be atal.

12. Ecological Information

Ecotoxicity

Substance Ecotoxicity Data

Substances	C Number	Toxicity to Algae	Toxicity to Fish	Toxicity to	Toxicity to Invertebrates

				Microorganisms	
H drotreated li ht petroleum distillate	64742-47-8	r 50(72 h) 10000 m (keletonema costatum)	C50(96 h) 10000 m (cophthalmus maximus) N (28 d) 1000 m (ish)	No in ormation available	C50(48 h) 10000 m (cartia tonsa) N (21 d) 1000 m (aphnia ma na)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
H drotreated li ht petroleum distillate	64742-47-8	eadil biode radable (68.1 @ 28d)

12.3. Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
H drotreated li ht petroleum distillate	64742-47-8	No in ormation available

12.4. Mobility in soil

Substances	CAS Number	Mobility
H drotreated li ht petroleum distillate	64742-47-8	No in ormation available

12.6. Other adverse effects

Endocrine Disruptor Information

This product does not contain an kno n or suspected endocrine disruptors

13. Disposal Considerations

Safe handling and disposal methods

isposal should be made in accordance ith ederal state and local re ulations.

Disposal of any contaminated packaging

Follo all applicable national or local re ulations.

Environmental regulations

Not applicable

14. Transport Information

Transportation Information

Australia ADG

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IMDG/IMO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

IATA/ICAO

UN Number	Not restricted
UN proper shipping name:	Not restricted
Transport Hazard Class(es):	Not applicable
Packing Group:	Not applicable
Environmental Hazards:	Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

Special precautions during transport
None

HazChem Code
None llocated

15. Regulatory Information

Safety, health and environmental regulations specific for the product

International Inventories

Australian AICS Inventory	ll components are listed on the C or are sub ect to a relevant exemption permit or assessment certi icate.
New Zealand Inventory of Chemicals	ll components are listed on the N oC or are sub ect to a relevant exemption permit or assessment certi icate.
US TSCA Inventory	ll components listed on inventor or are exempt.
Canadian Domestic Substances List (DSL)	ll components listed on inventor or are exempt.

Poisons Schedule number
None llocated

International Agreements

Montreal Protocol - Ozone Depleting Substances:	oes not appl .
Stockholm Convention - Persistent Organic Pollutants:	oes not appl
Rotterdam Convention - Prior Informed Consent:	oes not appl .
Basel Convention - Hazardous Waste:	oes not appl .

16. Other information

Date of preparation or review

Revision Date: 09- ep-2020

Revision Note
sections updated:
2

Full text of H-Statements referred to under sections 2 and 3
H304 - Ma be atal i s allo ed and enters air a s

Additional information: For additional in ormation on the use o this product contact our local Halliburton representative.

For uestions about the a et ata heet or this or other Halliburton products contact Chemical te ardship at 1-580-251-4335.

Key abreviations or acronyms used
bw – body weight
CAS – Chemical Abstracts Service
EC50 – Effective Concentration 50%
LC50 – Lethal Concentration 50%
LD50 – Lethal Dose 50%
LL50 – Lethal Loading 50%
mg/kg – milligram/kilogram
mg/L – milligram/liter
NOEC – No Observed Effect Concentration
OEL – Occupational Exposure Limit

PBT – Persistent Bioaccumulative and Toxic
ppm – parts per million
STEL – Short Term Exposure Limit
TWA – Time-Weighted Average
vPvB – very Persistent and very Bioaccumulative
h - hour
m m^3 - milli ram cubic meter
mm - millimeter
mmH - millimeter mercur
- ei ht ei ht
d - da

Key literature references and sources for data
.Chem .com
N CC

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End of Safety Data Sheet

SDS no. 066
Version 3
Revision date 02-Mar-2020
Supersedes Date: 13-Jul-2017

a et ata heet
ilica Flour 66

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name ilica Flour 66
Product code 066

1.2 Relevant identified uses of the substance or mixture and uses advised against

Recommended Use sed as a cementin additive in oil ield applications

Uses advised against Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier
chlumber er il ield ustralia Pt td
N: 74 002 459 225
CN: 002 459 225
256 t. eor es Terrace Perth 6000
47 5157 7424

@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) ustralia 61 2801 44558 sia Paci ic 65 3158 1074 China 86 10 5100 3039 urope 44 (0) 1235 239 670 Middle ast and rica 44 (0) 1235 239 671 Ne ealand 64 9929 1483 001 281 595 3518

Malaysian	ocal emer enc number 603 2161 7655

2. Hazards Identification

2.1 Classification of the substance or mixture

GHS Classification

Health hazards

peci ic tar et or an toxicit - epeated exposure	Cate or 2

Environmental hazards Not classi ied

Physical Hazards Not classi ied

2.2 Label elements



Signal word
N N

Hazard Statements
H373 - Ma cause dama e to or ans throu h prolon ed or repeated exposure

Precautionary statements
P260 - o not breathe dust ume as mist vapors spra
P314 - et medical advice attention i ou eel un ell
P501 - ispose o contents container in accordance ith local re ional national and international re ulations as applicable

-

Contains
uartz Cr stalline silica

espirable Cr stalline ilica (uartz)

2.3 Other hazards

Not classi ied as P T vPv b current criteria

Australian statement of hazardous/dangerous nature
Classi ied as Hazardous accordin to the criteria o N H C.
H T NC . N N- N .

3. Composition/information on Ingredients

3.1 Substances

Chemical Name	EC No	CAS No	Weight-%
uartz Cr stalline silica	238-878-4	14808-60-7	60-100
espirable Cr stalline ilica (uartz)	238-878-4	14808-60-7	10

3.2 Mixtures

Not applicable

Comments
This product contains a small uantit o uartz cr stalline silica. Prolon ed and repeated exposure to concentrations o cr stalline silica exceedin the orkplace exposure limit ( ) ma lead to chronic lun disease such as silicosis. C Mono raphs ol. 68 1997 concludes that there is su icient evidence that inhaled cr stalline silica in the orm o uartz or cristobalite rom occupational sources causes cancer in humans. C Classi ication roup .

4. First Aid Measures

4.1 First aid measures

Inhalation inhaled remove rom area to resh air. et medical attention i respirator irritation develops or i breathin becomes di icult.

Ingestion inse mouth. o not induce vomitin ithout medical advice. Never ive an thin b mouth to an unconscious person. et medical attention i s mptoms occur.

Skin contact ash skin thorou hl ith soap and ater. et medical attention i irritation persists.

Eye Contact Promptl ash e es ith lots o ater hile li tin e e lids. emove contact lenses i orn. et medical attention i an discom ort continues.

4.2. Most important symptoms and effects, both acute and delayed

General advice The severit o the s mptoms described ill var dependant o the concentration and the len th o exposure. adverse s mptoms develop the casualt should be trans erred to hospital as soon as possible.

Symptoms

Inhalation Please see ection 11. Toxicolo ical n ormation or urther in ormation.

Ingestion Please see ection 11. Toxicolo ical n ormation or urther in ormation.

Skin contact Please see ection 11. Toxicolo ical n ormation or urther in ormation.

Eye contact Please see ection 11. Toxicolo ical n ormation or urther in ormation.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician Treat s mptomaticall .

5. Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media
se extin uishin media appropriate or surroundin material.

Extinguishing media which must not be used for safety reasons
None kno n.

5.2. Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
eact ith h dro luoric acid (HF) ormin toxic as (iF4).

Hazardous combustion products
Thermal decomposition can lead to release o irritatin ases and vapors

5.3 Advice for firefighters

Special protective equipment for fire-fighters
s in an ire ear sel -contained breathin apparatus and ull protective ear.

Special Fire-Fighting Procedures
Containers close to ire should be removed immediatel or cooled ith ater.

6. Accidental Release Measures

6.1. Personal precautions, protective equipment and emergency procedures

se personal protective e uipment. ee also section 8.

6.2 Environmental precautions

The product should not be allo ed to enter drains ater courses or the soil.

Environmental exposure controls
void release to the environment. ocal authorities should be advised i si ni icant spilla es cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for containment
Cover po der spill ith plastic sheet or tarp to minimize spreadin . Prevent urther leaka e or spilla e i sa e to do so.

Methods for cleaning up
void dust ormation. eep up and shovel into suitable containers or disposal. ter cleanin lush a a traces ith ater.

6.4 Reference to other sections

ee section 13 or more in ormation.

7. Handling and Storage

7.1 Precautions for safe handling

Handling
Handle in accordance ith ood industrial h iene and sa et practice. void contact ith skin and e es. void dust ormation.

Hygiene Measures
se ood ork and personal h iene practices to avoid exposure. hen usin do not smoke eat or drink. ash hands and ace be ore breaks and immediatel a ter handlin the product emove contaminated clothin

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions nsure ade uate ventilation. eep airborne concentrations belo exposure limits.

Storage precautions eep containers ti htl closed in a dr cool and ell-ventilated place void contact ith: H dro luoric acid (HF) tron oxidizin a ents

Storage class Chemical stora e.

Packaging materials se speciall constructed containers onl .

8. Exposure Controls/Personal Protection

8.1 Control parameters

Exposure limits No biolo ical limit allocated

Component Information

Chemical Name	Arabic	Australia	Egypt
uartz Cr stalline silica	0.1 m m³ T	0.1m m³T respirable dust	Not determined
espirable Cr stalline ilica (uartz)	0.1 m m³ T	0.1m m³T respirable dust	Not determined
Chemical Name	**India**	**Indonesian**	**Japan**
uartz Cr stalline silica	Not determined	0.1 m m³ T	0.03 m m³
espirable Cr stalline ilica (uartz)	Not determined	0.1 m m³ T	0.03 m m³
Chemical Name	**Kazakhstan**	**Kuwait**	**New Zealand**
uartz Cr stalline silica	1 m m³ M C	0.1 m m³ T	0.1 m m³ T Con irmed carcino en

espirable Cr stalline ilica (uartz)	1 m m³ M C	0.1 m m³ T	0.1 m m³ T Con irmed carcino en
Chemical Name	**Malaysia**	**Philippines**	**Russia**
uartz Cr stalline silica	0.1 m m³ T	Not determined	3 m m³ T 1 m m³ T Fibro enic substance 1177 1178
espirable Cr stalline ilica (uartz)	0.1 m m³ T	Not determined	3 m m³ T 1 m m³ T Fibro enic substance 1177 1178
Chemical Name	**Thailand**	**Vietnam**	**Turkey**
uartz Cr stalline silica	0.025 m m³ T	Not determined	Not determined
espirable Cr stalline ilica (uartz)	0.025 m m³ T	Not determined	Not determined

8.2 Exposure controls

ll chemical Personal Protective uipment (PP) should be selected based on an assessment o both the chemical hazard present and the risk o exposure to those hazards. The PP recommendations belo are based on an assessment o the chemical hazards associated ith this product. here this product is used in a mixture ith other products or luids additional hazards ma be created and as such urther assessment o risk ma be re uired. The risk o exposure and need o respirator protection ill var rom orkplace to orkplace and should be assessed b the user in each situation.

Engineering Controls
nsure ade uate ventilation eep airborne concentrations belo exposure limits

Personal protective equipment

Eye protection se e e protection accordin to N 166 desi ned to protect a ainst dusts a et lasses ith side-shields Ti htl ittin sa et o les

Hand protection ear loves accordin to N 374 to protect a ainst skin e ects rom po ders epeated or prolon ed contact se protective loves made o : Nitrile Neoprene loves Fre uent chan e is advisable

Respiratory protection n case o insu icient ventilation ear suitable respirator e uipment uitable mask ith particle ilter P3 (uropean Norm 143) t ork in con ined or poorl ventilated spaces respirator protection ith air suppl must be used.

Skin and body protection ear appropriate personal protective clothin to prevent skin contact e ash and emer enc sho er must be available at the ork place.

Hygiene Measures ash hands be ore eatin drinkin or smokin emove and ash contaminated clothin be ore re-use



8.2.3 Environmental exposure controls

Environmental exposure se appropriate containment to avoid environmental contamination ee section 6 or more in ormation

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state olid
Appearance Po der
Odor dorless
Color Tan or hite

Odor threshold Not applicable

Property	Values	Remarks
pH	Not applicable	
pH @ dilution	No in ormation available	
Melting / freezing point	1700 C 3092 F	
Boiling point/range	No in ormation available	
Flash point	Not applicable	
Evaporation rate (BuAc =1)	No in ormation available	
Flammability (solid, gas)	Not applicable	
Flammability Limit in Air		
Upper flammability limit	Not applicable	
Lower flammability limit	Not applicable	
Vapor pressure	No in ormation available	
Vapor density	No in ormation available	
Specific gravity	2.50 - 2.70	@20 C
Bulk density	1100- 1600 k m^3	
Relative density	No in ormation available	
Water solubility	nsoluble in ater	
Solubility in other solvents	No in ormation available	
Autoignition temperature	No in ormation available	
Decomposition temperature	No in ormation available	
Kinematic viscosity	No in ormation available	
Dynamic viscosity	No in ormation available	
log Pow	No in ormation available	

Explosive properties Not applicable
Oxidizing properties None kno n.

9.2 Other information

Pour point No in ormation available
Molecular weight No in ormation available
VOC content(%) No in ormation available
Density No in ormation available

Comments
The data listed above are t pical ph sical and chemical properties and should not be construed as product speci ication.

10. Stability and Reactivity

10.1 Reactivity

eact ith h dro luoric acid (HF) ormin toxic as (iF4).

10.2 Chemical stability

table under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Hazardous pol merization does not occur.

Hazardous Reactions
None kno n.

10.4 Conditions to avoid

void dust ormation.

10.5 Incompatible materials

H dro luoric acid (HF). tron oxidizin a ents.

10.6 Hazardous decomposition products

ee ection 5.2.

11. Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

Inhalation nhalation o dust ma cause shortness o breath ti htness o the chest a sore throat and cou h. Ma cause respirator irritation. epeated or prolon ed inhalation o cr stalline silica dust can cause dela ed lun in ur and other diseases includin silicosis and lun cancer.

Eye contact ust ma cause mechanical irritation.

Skin contact epeated exposure ma cause skin dr ness or crackin .

Ingestion n estion ma cause stomach discom ort.

Unknown acute toxicity Not applicable.

Toxicology data for the components

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
uartz Cr stalline silica	No data available	No data available	No data available
espirable Cr stalline ilica (uartz)	No data available	No data available	No data available

Sensitization This product does not contain an components suspected to be sensitizin .

Mutagenic effects This product does not contain an kno n or suspected muta ens.

Carcinogenicity Contains a kno n or suspected carcino en. Cr stalline silica dust is listed b C in roup 1 as kno n to cause lun cancer in humans i inhaled.

Reproductive toxicity This product does not contain an kno n or suspected reproductive hazards.

Routes of Exposure nhalation. kin contact. e contact.

Routes of entry nhalation.

Specific target organ toxicity - Single exposure Not classi ied

Specific target organ toxicity - Repeated exposure Cate or 2.

Target organ effects espirator s stem. un s.

Aspiration hazard Not applicable.

Other information e literature re erences and sources or data. ee ection 16 or more in ormation.

12. Ecological Information

12.1 Toxicity

The product component(s) are not classi ied as environmentall hazardous. Ho ever this does not exclude the possibilit that lar e or re uent spills can have a harm ul or dama in e ect on the environment.

Toxicity to algae
This product is not considered toxic to al ae.

Toxicity to fish
This product is not considered toxic to ish.

Toxicity to daphnia and other aquatic invertebrates
This product is not considered toxic to invertebrates.

Toxicology data for the components

Chemical Name	Toxicity to fish	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates
uartz Cr stalline silica	No in ormation available	No in ormation available	No in ormation available
espirable Cr stalline ilica (uartz)	No in ormation available	No in ormation available	No in ormation available

12.2 Persistence and degradability

Not pplicable - nor anic chemical.

Chemical Name	Persistence and degradability
uartz Cr stalline silica	nor anic compound

12.3 Bioaccumulative potential

Not pplicable - nor anic chemical.

Chemical Name	Bioaccumulation
uartz Cr stalline silica	Product ubstance is inor anic

12.4 Mobility

Mobility
The product is insoluble and sinks in ater.

Chemical Name	Mobility
uartz Cr stalline silica	nsoluble in ater

Mobility in soil
No in ormation available.

Chemical Name	Mobility in soil
uartz Cr stalline silica	Not expected to adsorb on soil

12.5 Results of PBT and vPvB assessment

Not classi ied as P T vPv b current criteria.

12.6 Other adverse effects.

None kno n.

12.7 Other information

e literature re erences and sources or data. ee ection 16 or more in ormation.

13. Disposal considerations

13.1 Waste treatment methods

Waste from residues/unused products ispose o in accordance ith local re ulations.

Contaminated packaging mpt containers should be taken or local rec clin recover or aste disposal.

14. Transport information

14.1. UN number
Not re ulated

14.2. UN proper shipping name
The product is not covered b international re ulation on the transport o dan erous oods

14.3 Hazard class(es)

ADR/RID/ADN/ADG Hazard class	Not re ulated
IMDG/ANTAQ Hazard class	Not re ulated
ICAO/ANAC Hazard class/division	Not re ulated

14.4 Packing group

ADR/RID/ADN/ADG Packing group	Not re ulated
IMDG/ANTAQ Packing group	Not re ulated
ICAO/ANAC Packing group	Not re ulated

14.5 Environmental hazard
No

14.6 Special precautions
Not applicable

14.7 Transport in bulk according to Annex I/II of MARPOL 73/78 and the IBC Code
Please contact @slb.com or in o re ardin transport in ulk.

15. Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This safety data sheet complies with the requirements of:

The Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Australian Standard for the Uniform Scheduling of Drugs and Poisons
No poisons schedule number allocated

National Code of Practice for the Preparation of Material Safety Data Sheets 2nd Edition [NOHSC: 2011 (2003)].

National Occupational Health and Safety Commission's Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004) 3rd Edition].

National Occupational Health and Safety Commission's Exposure Standards for Atmospheric Contaminants in the occupational Environment [NOHSC:1003 (1995)].

Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

Not classified as dangerous goods in accordance with the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG)

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)
The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)

International inventories

USA (TSCA)	Complies
Canada (DSL)	Complies
Philippines (PICCS)	Complies
Japan (ENCS)	Complies
China (IECSC)	Complies
Australia (AICS)	Complies
Korean (KECL)	Complies
New Zealand (NZIoC)	Complies

16. Other Information

Prepared by lobal e ulator Compliance - Chemicals (C - Chemicals) Muriel Martin eurel

Supersedes Date: 13-Jul-2017

Revision date 02-Mar-2020

Version 3

This SDS has been revised in the following section(s) ll sections No chan es ith re ard to classi ication have been made.

Key literature references and sources for data
.Chem .com
upplier
National Chemical nventories
National re ulator in ormation
National occupational exposure limits

HMIS classification

Health	1
Flammabilit	1
Ph sical hazard	0
PP	

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Appendix C Risk Register

Appendix C – Risk Register

Aspect	Source of Risk	Potential environmental Impact	Inherent Risk			Risk treatment	Residual Risk		
			C	L	R		C	L	R
Physical Interaction – Soil and Vegetation	• site preparation operations • well site decommissioning and reinstatement • supporting operations.	Spread of non-indigenous species / Introduction of new WoNS or dieback	2	D	Medium	• Construction fill verified as having low weed / dieback risk • Baseline weed survey • Weed and hygiene management requirements	2	B	Low
		Damage to heritage sites / artefacts	3	B	Medium	• Heritage survey • Heritage artefact identification procedure • Consultation with Southern Yamatji	3	A	Low
		Unintentional clearing of native vegetation	3	A	Low	• Vehicles and equipment restricted to designated tracks • Complaints management system • Land Access Agreement	3	A	Low
		Inadequate site reinstatement	2	D	Medium	• Complaints management system • Land Access Agreement	2	C	Medium
Noise Emissions	• site preparation operations • drilling operations • well testing operations • all activities (including vehicle, machinery, equipment and generator use).	Disturbance to sensitive fauna or local landowners	1	C	Low	• The activities are short term and not located within a noise sensitive locality • Complaints management system	1	B	Low
Light Emissions	• drilling operations • well testing operations • supporting operations.	Disturbance to sensitive fauna or local landowners	2	D	Medium	• Complaints management system	2	C	Medium

Aspect	Source of Risk	Potential environmental Impact	Inherent Risk			Risk treatment	Residual Risk		
			C	L	R		C	L	R
Dust Emissions	• site preparation operations • well site decommissioning and reinstatement • supporting operations.	Disturbance to local landowners and impacts to vegetation.	1	D	Low	• Complaints management system • Speed limits	1	B	Low
Atmospheric Emissions	• site preparation operations • drilling operations • well suspension • well site decommissioning and reinstatement • supporting operations.	Disturbance to sensitive fauna or impacts to local landowners.	1	B	Low	• Complaints management system • Planned emissions are monitored and reported	1	A	Low
Extraction of Groundwater	• site preparation operations • drilling operations.	Drawdown of groundwater	1	B	Low	• Ground water licenses • Meter calibration and monitoring	1	B	Low
Socio Economic	• All activities.	Disruption to stakeholders	1	C	Low	• Land access agreements • Complaints management system • All non-fixed equipment taken offsite • Speed limits • induction	1	B	Low
		Third party interference	1	C	Low		1	B	Low
Physical Interaction – Fauna	• site preparation operations • drilling operations • well site decommissioning and reinstatement • support operations.	Death or injury to fauna	2	D	Medium	• Fauna exclusion and egress • Site inspections • Speed limits	2	C	Low
Fire	• site preparation operations • drilling operations • supporting operations.	Habitat and vegetation loss and / or fauna injury / fatality.	4	C	Medium	• Bush Fires Regulations 1954 • Permit to Work (PTW) • Emergency Response Plan (ERP)	4	B	Medium

Aspect	Source of Risk	Potential environmental Impact	Inherent Risk			Risk treatment	Residual Risk		
			C	L	R		C	L	R
						• Fire breaks • Subscribe to local fire notifications to identify TFB days.			
Accidental Release of Waste	• All activities.	Environmental pollution and fauna attraction and / or injury or death (from ingestion)	2	C	Medium	• Waste reduction • Appropriate rubbish bins and waste segregation • Appropriately licensed waste contractor • Waste register	2	B	Low
Accidental Release of Hydrocarbons or Hazardous Materials (excluding LOWC]	• all activities (specifically, refuelling of equipment, use and transport; an accidental release of liquid waste; and the installation, replacement and / or relocation of chemical storage).	Contamination of soil / groundwater	3	C	Medium	• Spill protection during refuelling • Chemical and hazardous liquid material storage • Solid (dry) chemical storage requirements • Dangerous goods storage requirements • Soil samples • Monitoring of groundwater • Spill kits • OSCP • ERP	3	B	Medium
Accidental Release of Drilling Fluids	• drilling operations.	Surface spill resulting in contamination of soil / groundwater	2	C	Low	• Rig Inspection • Well Management Plan (WMP)	2	B	Low
		Subsurface spill resulting in contamination of useable groundwater aquifer	2	C	Low	• Bund construction • Chemical disclosure • Low toxicity drilling fluid • Site will be manned 24 hours a day	2	B	Low

Aspect	Source of Risk	Potential environmental Impact	Inherent Risk			Risk treatment	Residual Risk		
			C	L	R		C	L	R
						• Monitoring of groundwater • Fugitive discharges are monitored and reported • OSCP			
Accidental Release of Hydrocarbons (LOWC)	• operations.	Reduction of air quality, resulting in disturbance to sensitive fauna or impacts to local landowners	4	C	Medium	• WMP • HSE Management Plan / bridging document • Soil samples • Monitoring of groundwater • Blow out control equipment and expertise • Spill kits • OSCP • ERP • Safe area for emergency flaring	4	B	Medium
		Contamination of soil / groundwater	4	C	Medium		4	B	Medium

Attachment 10.4.1c

Plan

CDN/ID 18993858

HSE Plan

Perth Basin Onshore Drilling and Completions Campaign

Review record (record the last 3 revisions here or the revisions required to achieve current approval version)

Revision	Date	Reason for issue	Reviewer/s	Consolidator	Approver
0		Issued for use		KRO	ALI
A		Issued for review	CGR, KRO, BAN, DHI, PK, DB,	KRO	

Review due	Review frequency
27/07/2022	1 year/s

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THE THREE WHATS
What can go wrong?
What could cause it to go wrong?
What can I do to prevent it?

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1 Perth Basin Onshore D&C Campaign –HSE Targets and Objectives

Key Performance indicators	%	Target Missed	Target Achieved	Target Exceeded
Visible leadership	5	Site visits do not meet Management visit schedule	Site visits meet agreed Management visit schedule	Site visits exceed Management visit schedule
Lag Indicators				
Fatality / LTI / RWC / MTI	10	>"0" Fatality, LTI & RWC	"0" Fatality, LTI & RWC	"0" Fatality, LTI, RWC & MTI
HIPO / Near misses	10	>"0" HIPO	"0" HIPO	"0" HIPO & Near misses
Reporting				
Preliminary Incident Report submitted within 24 hours of incident event	5	>24 hours	Within 24 hours	
Investigation Report submitted within 21 days of incident event	5	>21 days	Within 21 days	
Incident Investigation Corrective Actions Closed out by nominated due date	10	All actions closed out after due date	All actions closed out by due date	
Hazard /Safety Observations	10	<45% of POB per day	45-55% of POB per day	>55% of POB per day
Environment				
Minor (<10 litres) uncontained Hydrocarbon Loss of Containment	10	>1 minor loss of containment to grade	No loss of containment to grade	No loss of containment or hydraulic leaks
Large (>10 litres) uncontained Hydrocarbon Loss of Containment to grade	10	>1 large loss of containment	No loss of containment to grade	No loss of containment to grade or controlled bund
Training / Drills				
Compliance to Competency Matrix	5	<95% Compliance	95-99% Compliance	100% Compliance
Onsite Emergency Drills	5	Drills do not meet drill schedule	Drills schedule met	Drills exceed drill schedule
Well Control Certification	5	>1 person not within date certification	100% of personnel within date certification	

Key Performance indicators	%	Target Missed	Target Achieved	Target Exceeded
Personnel KPIs				
Personnel Management	5	<95% crew attendance at Weekly Safety Meeting	95-99% crew attendance at Weekly Safety Meeting Including 3rd contractors	100% crew attendance at Weekly Safety Meeting Including 3rd party
	5	<15% crew work over roster	<5% crew working over roster	Carry extra personnel for training and crew discrepancies

2 Introduction

Beach is proposing to drill up to 6 gas exploration wells in permits EP 320 and L11 in the Perth Basin near Dongara, which are planned to commence in early 2023.

The drilling campaign will include site preparation operations (including access track and camp pad preparation), drilling and completion operations including mobilisation/demobilisation and well testing operations, well decommissioning and site reinstatement

The high-level objectives of the campaign are to prove up additional reserves in the Basin and to provide additional production via the existing Beharra Springs gas plant. Wells in the Beharra Springs and adjacent fields (in L11) are candidates for early connection to the plant, while wells in EP320 have the potential to be produced later.

A summary of the well licence locations is provided in Table 1 and a location map at Figure 1.

Table 1 – Well Licence location and land types

Well Name	Licence	Land Type
Trigg 1	EP320	Cropped land
Trigg North West 1	EP320	Cropped land
Beharra Springs Deep 2_Deviated	L11	Existing lease / native vegetation
Beharra Springs Deep 3	L11	Native vegetation
Tarantula Deep 1_ Deviated	L11	Existing lease / native vegetation
Redback Deep 1_ Deviated	L11	Existing lease / native vegetation

The Perth Basin is a large basin of approximately 174,000 square kilometres that encompasses both onshore and offshore parts of south-western Western Australia. The basin extends about 1300 km from south of Perth to its northern tip offshore from Carnarvon. Beach's Perth Basin produced assets consist of the Waitsia (non-operated) and Beharra Springs (operated) assets.

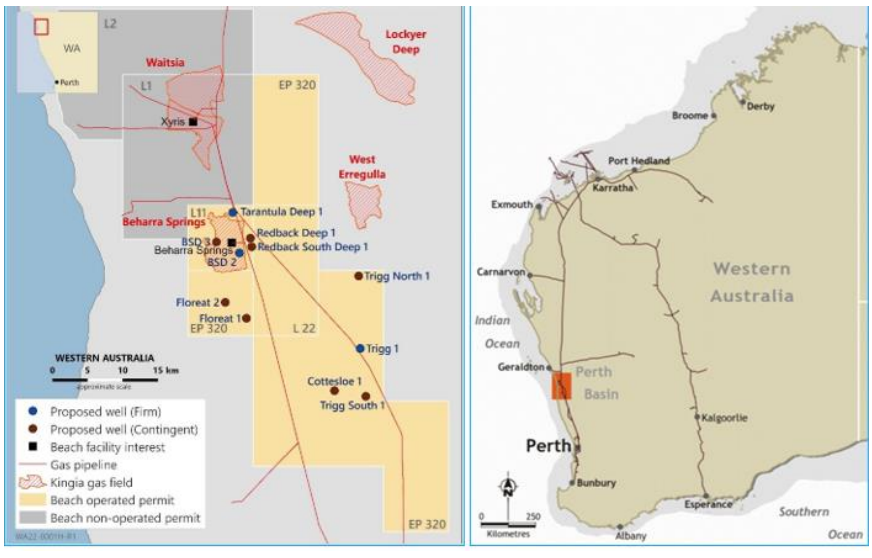


Figure 1 - Perth Basin Field Map

3 Purpose

The purpose of this HSE Plan is to:

- Demonstrate alignment with the Operational Excellence Management System (OEMS) and how those elements and processes contained within the OEMS will be implemented.
- Show how the Onshore Perth Basin Drilling, or Drilling and Completions campaign will be managed to enable it to be completed safely and effectively, and
- Document agreed Health, Safety and Environmental (HSE) Management system Elements, objectives, targets and actions that will be implemented throughout the life of this document.

4 Scope

This Health, Safety & Environmental (HSE) Plan has been developed to provide HSE guidance to drilling and completion activities for the duration of the EP320 and L11 licence operations.

At the time the plan was developed, the Principal Contractor engaged by Beach Energy is

- Ventia (previously Easternwell) to undertake the drilling program with Rig 106 plus the camp maintenance.
- ????? to undertake the Plug and Abandonment programs, and
- ???????? for Well testing

This document is reviewed if campaign risks changes or as minimum every calendar year.

This HSE Plan is not relevant for lease preparation work and the respective contractors undertaking that work scope. This is covered by the standalone Civils Safety Management Plan CDN/ID 19010950.

5 Responsibilities/Accountabilities

The HSE Responsibilities and Accountabilities for activities identified in this HSE Plan are contained in Section 7.1.2 of this plan. These responsibilities are aligned and in accordance with OEMS Element 1.1 Leadership. They are also included in the project personnel Position Descriptions in conformance to the Well Engineering and Construction Management System (WECS) Governance Guideline (INT-1000-DRL-GDL-17890752), Section 2.2 Competency Assessment.

6 Definitions/Acronyms

Terms/acronym	Definition/expansion
ALARP	As Low as Reasonably Practicable
BAC	Blood Alcohol Concentration
CHMP	Cultural Heritage Management Plan
CMO	Beach Enterprise Incident Management system

Terms/acronym	Definition/expansion
CWOP	Complete Well on Paper
D&C	Drilling and Completions
DMIRS	Department of Mines, Industry Regulation and Safety
DoE	Department of Environment (now DAWE)
DWOP	Drill Well on Paper
EMT	Emergency Management Team (Beach)
EP	Environmental Plan
EP Act	Environmental Protection Act 1986
EPP	Equipment and Personnel Plan
ERP	Emergency Response Plan
GM	General Manager
HAZID	Hazard Identification
HIPO	High Potential Incident
HSE	Health Safety and Environment
HSEMS	HSE Management System
HSEBD	Health Safety and Environment Bridging Document
H2S	Hydrogen Sulphide
IADC	International Association of Drilling Contractors
IMS	Industrial Medic Services
IOGP	International Association of Oil & Gas Producers
ISOS	International SOS is the provider of medical capability study
IWCF	International Well Control Forum
JSA	Job Safety Analysis
KPI	Key Performance Indicator
LoS	Line of Sight
MAE	Major Accident Event
MH	Major Hazard
MOC	Management of Change
MODE 1	The supplier (or contractor) provides people, processes and/or equipment for the execution of the contract under the oversight, instructions and in accordance with the Beach OEMS
MODE 2	The CONTRACTOR executes all aspects (personnel, Process & Tools) of the contract under its own Management System, providing the necessary instructions and supervision. Known as the Principal Contractor.
MODE 3	The supplier (or contractor) provides people, process, equipment, and/or facilities for the execution of the contract under its own oversight, instruction, and HSEMS/QMS. Typically, this mode applies to scopes of work carried out on Supplier owned and/or operated sites or third-party sites
MRWA	Main Roads WA
OEM	Original Equipment Manufacturer

Terms/acronym	Definition/expansion
OEMS	Operational Excellence Management System
OSCP	Oil Spill Contingency Plan
PC	Principal Contractor
PCBU	Person conducting the business. The primary duty of a PCBU under section 19 of the WHS Act is to ensure, so far as is reasonably practicable, that the health and safety of workers and others, such as clients, visitors and customers, is to not be put at risk by the work carried out by the business or undertaking.
PEARL	People, Environment, Assets, Reputation or Livelihood
PGER Act	Petroleum and Geothermal Energy Resources Act 1967
PGER(E)R	Petroleum and Geothermal Energy Resources (Environment) Regulations 2012
PAGEO	Work Health and Safety (Petroleum and Geothermal Energy Operations) (Regulations 2022
PIC	Person In Charge
PPE	Personal Protective Equipment
Principal Contractor	The Contractor in control of the site. The Site is managed in accordance with the Lead Contractors Site Safety Management Systems.
PTW	Permit to Work
Reasonably Practicable	The term 'reasonably practicable' means whatever is, or was at a particular time, reasonably able to be done in relation to ensuring health or safety.
SDR	Safety Department Representative
SDS	Safety Data Sheet
SDSV	Senior Drilling Supervisor
SID	Standard Instructions for Drillers (also known as Driller Notes)
SIMOPS	Simultaneous Operations
SMS	Safety Management System
SRS	(DMIRS) Safety Regulation System
SOP	Site Specific Procedure
SQM	Service Quality Meeting
WECS	Beach's Well Engineering and Construction System
WHS Act	Work Health and Safety Act 2020
WMP	Well Management Plan
Ventia	Principal Contractor for the drilling phase of the campaign

7 Operational Excellence Management System (OEMS)

Beach Energy's Operations Excellence Management System (OEMS) is the Company's framework which provides the basis by which it defines, aligns, standardises, and implements Company processes to manage risk and ensure successful outcomes in its operations.

The design of the OEMS is aligned to International Oil and Gas Producers (IOGP) Recommended Practice 510 "Operating Management System Framework for controlling risk and delivering high

performance in the oil and gas industry". The System includes 11 risk themes or "Elements" and associated expected outcomes that the Element requires to meet Policy requirements.

The OEMS defines the minimum standards, expectations, and behaviours that ensures the Company operates successfully (operations excellence) in all core business processes including Health, Safety, Production and Reliability, Financial and Stakeholder Management and Project Delivery. The OEMS applies to all personnel performing work within the Company's Jurisdiction.

The OEMS Elements Manual describes the overall structure of the Management System. This includes a description of each OEMS Element and subordinate OEMS Beach Standards. Each of the eleven OEMS Elements describes the expected operational performance that will result from adherence to those elements. The Manual also highlights the role of the Beach SCRIPT Values (see Figure 4) in the pursuit of operations excellence across Beach Energy.

The OEMS is applicable to all of Beach Energy, across all functions and assets. The scope includes Beach's interactions with 3rd party organisations (e.g., contractors) within Company jurisdiction.

It is the responsibility of all Beach personnel under the scope and influence of the OEMS to:

- comply with the associated Standards,
- identify and report any areas of non-compliance,
- identify opportunities for improvement in Standards, and raise them with the Element Owner,
- contribute to OEMS assurance activities as requested by the Company.

Managers will monitor the performance of their teams and through Leadership deploy the OEMS within their remit. As such, managers will:

- comply with the associated Standards,
- ensure their team members are fulfilling their OEMS duties, as described above,
- monitor the effectiveness of the OEMS Standards to identify opportunities for improvement,
- participate in OEMS assurance activities as requested by the Company.



Figure 2 - Beach Operations Excellence Management system

7.1 Element 1 - Partners, Leadership and Authority

Leadership and commitment of management at all levels of the organisation is essential to the successful development, implementation, and maintenance of the OEMS and this HSE Plan.

The purpose of the Beach Standard (BSTD1.1) is to define the minimum leadership standards (internal communication, goals, objectives and behaviours) that all Leaders must meet to support high levels of performance within Company.

Personnel with leadership roles within the Drilling and Completions (D&C) Department must be aware of and familiar with the Standard requirements:

- Health and Safety, Environment and Risk Management policies,
- Leadership and commitment,
- Organisation and responsibility,
- HSE objectives and key performance Indicators, and
- Workforce consultation and communication

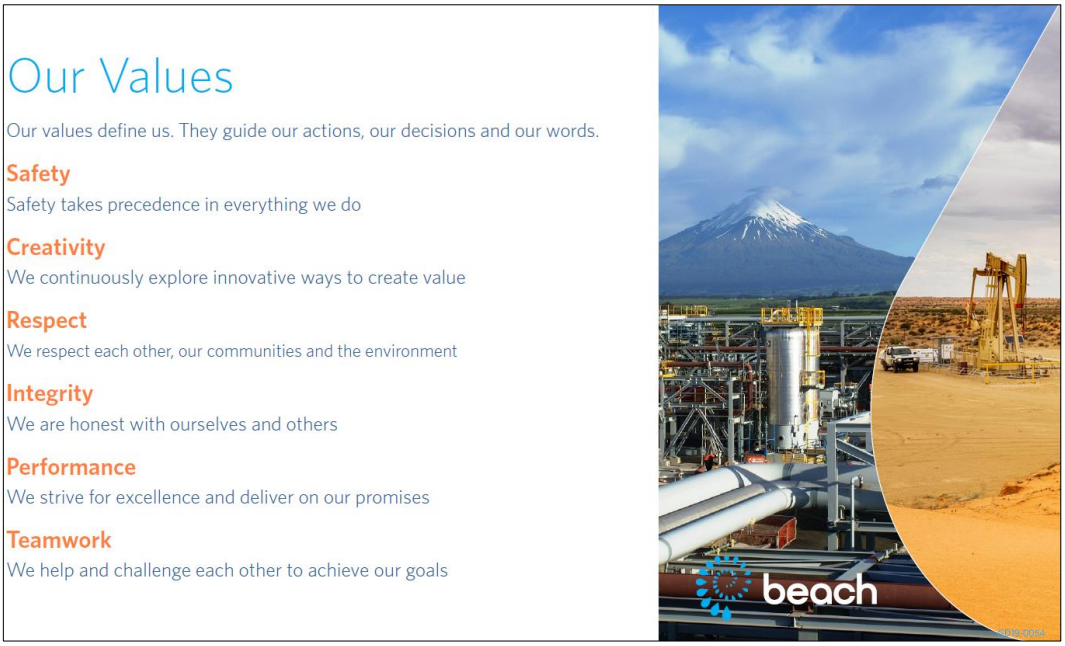


Figure 3 - Our Values (SCRIPT)

Leaders will actively work to promote the Beach leadership standard expectations among Third Party Contractors (TPC) while actively supporting the Principal Contractor to create and support the culture so that a strong HSE focus is developed and maintained for the campaign.

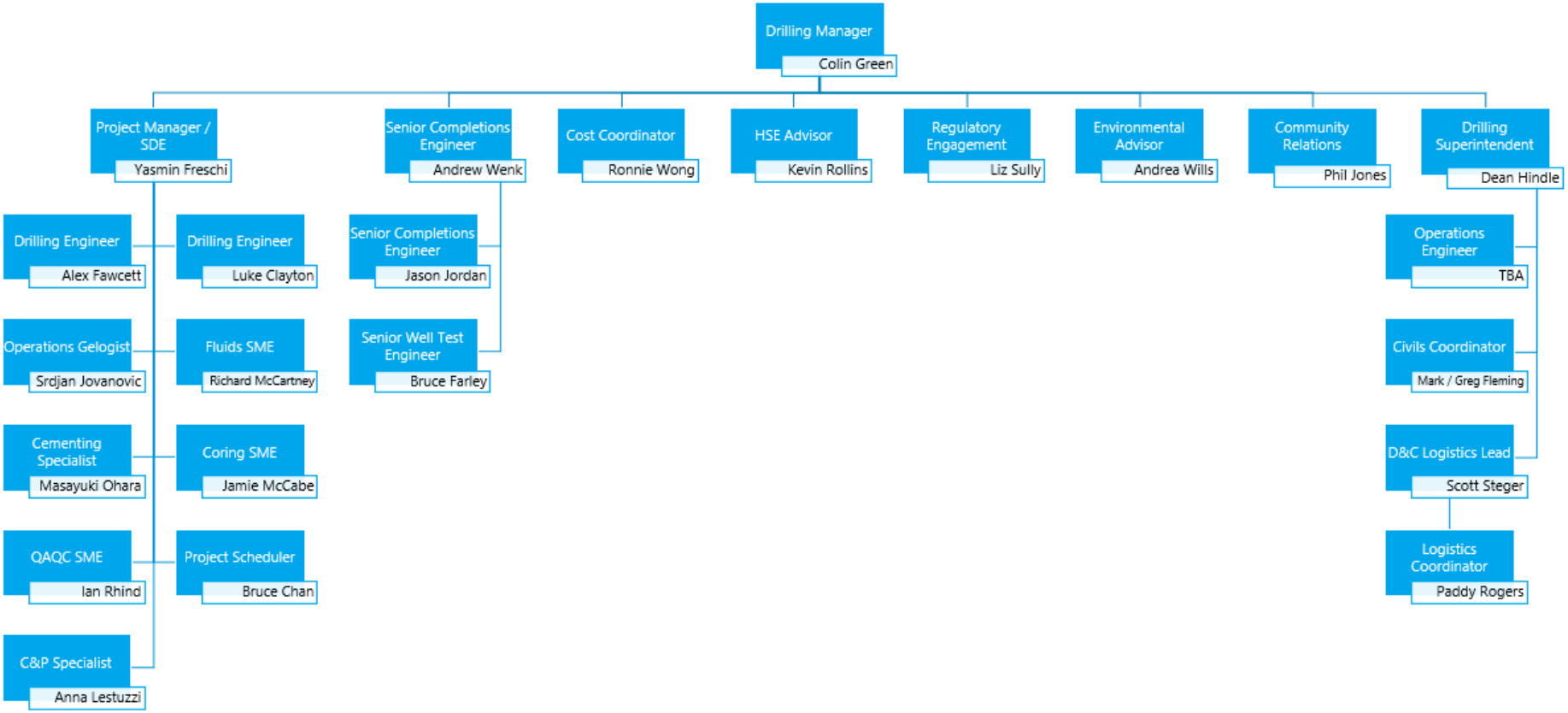
Leaders shall:

- Contribute at HSE meetings in such a way that personnel can interact with senior management and/or Beach representative and raise concerns or provide comment as necessary.
- Conduct assurance checks during scheduled visits and provide feedback any non-compliance issues to the Beach site management.
- Schedule regularly HSE meetings involving key Beach and key Contractor management personnel. Meetings to include a review of the HSE current performance, status of incidents, outstanding corrective actions and other issues as required.
- Ensure sufficient resources for HSE Plan implementation are provided.

7.1.1 HSE Organisation & Resources

The D&C Campaign organisation chart showing lines of authority and responsibility is shown below in Figure 5.

Figure 4 – Onshore Perth Basin Drilling and Completions Team



7.1.2 Responsibilities

The Onshore Perth Basin D&C team will manage HSE performance as outlined by the roles and responsibilities listed below in Table 2 - Campaign HSE Roles and Responsibilities.

Table 2 - Campaign HSE Roles and Responsibilities

Role	Responsibility
General Manager – Drilling and Completions	• Setting expectations for successful implementation of the HSE Policies and Management System • Perform leadership visits
Wells Manager – Onshore / Completion & Well Intervention Manager	• Appoint Project Team as required • Approve this HSE Plan • Providing Project Leadership in ensuring all HSE Plan commitments are met • Investigate incidents assessed (in consultation with Senior HSE Advisor Onshore) as having a potential HSE impact • Review legislative changes and update plans and procedures as necessary • Perform leadership visits • Be accountable for all regulatory commitments
Drilling Superintendent / Completions Superintendent	• Verify that all drilling activities are carried out in accordance with the detailed well program, HSE Plan (this document), HSE Management System, WECS, HSE Bridging documents, Safety Case Bridging and relevant Environment Plans. • Lead by example by promoting HSE at every opportunity • Verify all personnel are inducted and are aware of their HSE responsibilities • Report all incidents to the Wells Manager Onshore who will then forward information to the GM – Drilling and Completions • Perform incident investigations when required • Perform regular leadership visits
Senior Site Supervisor	• Verify that site personnel have received appropriate HSE training to fulfil their obligations • Lead by example by promoting HSE at every opportunity • Participate in relevant HSE meetings and programs • Perform/participate in regular safety reviews/themes. • Communicate HSE performance and initiatives • Report HSE incidents in accordance with the Incident reporting procedure and associated flow charts in this plan • Delegated person on site to be contacted in the event of emergencies or complaints • Line of Sight (LoS) responsibility – ensuring barriers to Major Accident Events (MAE) are in place and healthy and reporting on same
Contract Owners for Third Party Contractors	• Managing HSE over the contract lifecycle (pre-engagement, engagement, contract initiation, monitor and review and contract close-out) to ensure contractors meet Beach HSE expectations and the contract HSE requirements • May delegate their responsibilities and obtain whatever assistance is necessary to help them meet their accountabilities, however the Contract

	Owner remains the single point of accountability for ensuring that the HSE performance requirements are met.
Lead HSE Advisor	• Endorse this plan and all supporting documents and risk assessments that underpin this document • Provide support, direction and functional and management oversight of the Senior Onshore HSE Advisor • Provide necessary resources to ensure compliance to the HSE Plan and the departments targets and objectives • Be the interface between D&C HSE and the wider Health and Safety Team • Lead regular HSE performance discussions and present findings to the wider D&C organisation • Perform leadership visits
Senior Onshore HSE Advisor	• Provide HSE advice to the Perth Basin D&C team • Develop and execute an annual HSE Assurance schedule • Provide assurance on the implementation of this plan and other deliverables • Monitor contractor activities associated with their HSE deliverables • Monitor the HSE requirements applicable to the lead contractors • Monitor HSE performance and prepare HSE input into the monthly reports • Assist with any incident investigation and follow up requirements as required • Recording of incidents and accidents in the Beach incident reporting system CMO (in the absence off or to support the Field HSE Advisor) • Participate in After-Action Review (AAR) and provide to Lead HSE Advisor for future incorporation into company systems and processes
Field HSE Advisor	• Provide coaching, monitoring and support to all field Perth Basin D&C operations to ensure the objectives of this plan are being met • Implementing HSE programs in conjunction with Principal Contractors (PC) Person in Charge (PIC) and other HSE personnel • Assist Principal Contractor with incident investigations as required • Performing routine inspections, assurance, audits and LoS barrier assessments, including LSR verification for related high-risk work activities in line with the approved assurance schedule • Conduct HSE Assurances in accordance with the HSE Assurance Plan • Perform regular in field site visits especially during high-risk work activities. • Recording of incidents and accidents in the incident reporting system CMO and following actions to ensure that they are closed out and verified in the field. • Check Total Fire Ban status for following day and complete DFES Prescribed Activity Checklist as required. • Coordinate Total Fire Ban DFES Notification submissions as required
Perth Basin Environmental Advisor	• Coordinate environmental, regulatory document preparation and submissions • Provide environmental advice to the Perth Basin D&C team • Verify environmental performance objectives in the accepted EP. • Assist with any Environmental incident investigation and follow up requirements where required • Notify DMIRS for any Environmental reportable incidents

	• Complete monthly DMIRS report for environment • Custodian for the Waste Management Plan
All Project Personnel	• Carrying out work safely and without harm to themselves, others, equipment, or the environment and in accordance with their training, operating procedures and work instructions described within THEIR respective HSE MS and this plan. • Only complete tasks/activities that they have been instructed to do, and ensure they have the required competency and experience to undertake the activity/task • Identifying and assessing hazards/risks associated with their work and ensuring suitable controls are in place before and during completion of the work • Enacting STOP THE JOB in the case of an immediate threat to the health or safety of any person • Reporting any hazards, unsafe acts or incidents observed in the workplace or deficiencies observed in work practice or procedures to their supervisor. • Participating in training and development activities and competency reviews as and when required • Attend scheduled safety meetings (pre job, pre our, weekly etc.)

7.1.3 Objectives and Targets

This Plan describes the agreed Health, Safety and Environmental (HSE) targets and objectives campaign, this is detailed in Section 1 of this Plan.

7.1.4 Beach Perth Basin Induction

Prior to arriving in the Perth Basin, Beach and associated contractors will need to complete all Beach Perth Basin inductions. Inductions are available to the contractors through MyPass and through Success Factors for Beach employees. See Section 7.4.2 for further information on MyPass.

7.1.5 Beach (IOGP) Life Saving Rules

Beach have adopted the International Association of Oil & Gas Producers (IOGP) Life Saving Rules (IOGP Report 459) – see Figure 6. The Life Saving Rules (LSR) define the minimum mandatory requirements for the management and control high risk activities. The LSR focus on the activities which, through rigorous data analysis, have been shown to most likely result in fatalities.

All employees and Contractors are responsible for:

- Complying with the Company LSR
- Stopping work at any time and when anybody considers the work task or conditions to be unsafe or in breach of the LSR.

The LSR will be covered during site arrival inductions and reinforced regularly throughout operations. The LSR will be prominently displayed at the rig and camp sites.

Verification of the LSR will be completed for all high-risk tasks, dedicated checklist shall be used for this assurance and reported on through the HSE Assurance Plan.

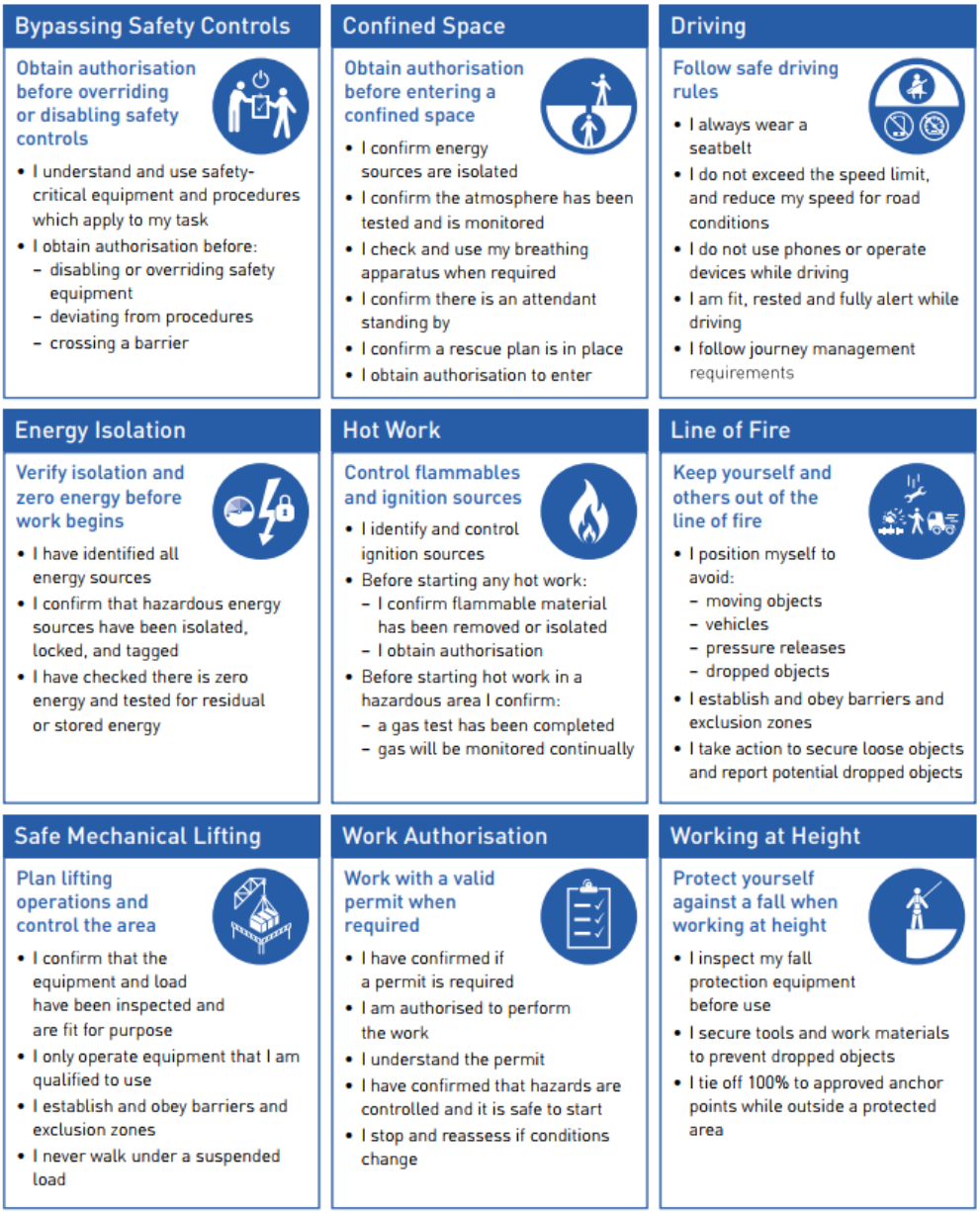


Figure 5 - The 9 IOGP Life Saving Rules

7.1.6 HSE Commitments

All HSE commitments generated from the suite of HSE documents for this campaign are captured in the Perth Basin Commitments Register. The register lists individual commitments, references back to the document and nominates the responsible person for acting on the commitment. The Commitment Register can be located C:\OneDrive - Beach Energy\Documents - Perth Basin E&A Phase 2\General\00. Project & Admin\13. Regulatory (except Env)

7.1.7 HSE Complaints

Should a HSE related complaint be received from either an internal or external source, regarding the campaign, the complaint shall be recorded in the CMO and investigated as an incident. Following investigation, the complaint shall be satisfactorily resolved with the party raising it, using if necessary, formal dispute resolution mechanisms including the contractor where relevant.

7.1.8 HSE Communication

Effective two-way communication on all HSE issues must always be maintained throughout the Onshore D&C operations.

The following means will be used to communicate HSE activities and issues. These will consist of regular HSE meetings involving key Beach and contractor management personnel.

7.1.8.1 Drill Well on Paper (DWOP), Complete Well on Paper (CWOP), and Well Test on Paper (WTOP)

A desktop review, DWOP, CWOP, or WTOP will be undertaken with key personnel onshore, as part of the preparation for the drilling and completing campaigns.

7.1.8.2 Pre-Phase Meetings

Prior to each section or critical operation of the well, a pre-phase meeting will be held at the rig, with key personnel to review the upcoming key details and objectives.

Any deficiencies identified that cannot be immediately resolved, will be added to the Lessons Learnt Register, prioritised and closed out in a timely manner.

7.1.8.3 Morning Call / Meeting

Beach shall conduct a morning call to review activities in the previous 24 hours and plan forward activities as appropriate. The meeting shall consider as a minimum HSE, change, operations, logistical issues and any additional requirements. The morning call is open to key Beach, Principal Contractor PIC and appropriate contractor personnel.

The HSE element of the meeting will cover the following points.

- Any incident details in the last 24 hours.
- Quantity of observation cards submitted in the last 24 hours. Where appropriate select a small number (2 or 3) and discuss.
- What went well in the last 24 hours.
- Any areas for improvement identified in the last 24 hours
- What the hazards, safety and high-risk activity focus areas are for the next 24 hours. How will we control them to ALARP.

7.1.8.4 Daily Pre-Tour Meetings

Daily pre-tour meetings will be attended by all personnel at and involved in the rig operations in that tour. The meetings will be used to discuss relevant HSE issues including hazards, high risk activities and the plan for the daily activities. Pre-tour meetings are held prior to commencement of each shift, every day (05.45hrs/ 11.45hrs/17.45hrs/ 23.45hrs). Each member of the crew must attend a pre-tour at least once in a 24-hour period.

7.1.8.5 Beach Site Supervisor/ Rig Manager / Contractors Meeting

The Beach Site Supervisor shall conduct a daily meeting with the Rig Manager and Beach Contractors to communicate planning activities and relevant HSE issues and high-risk focus.

The Beach Site Supervisor shall also conduct a face-to-face meeting with all third-party contractor personnel when they first come to site to complement the Principal Contractors site induction. As a minimum the Site Supervisor will discuss

- The requirements of the Contractor Call Out Checklist (See Section 7.5.1) including siting equipment certification and appropriate training records
- Any site specific HSE/operations issues or concerns relevant to their operation and period onsite.
- Any previous onsite incidents and learning.
- Heat Stress requirements (during Oct-Mar)
- Any COVID requirements if appropriate.

7.1.8.6 SIMOPs Operations

Where there is SIMOPs operations involving sub-surface infrastructure or activities requiring engagement of the Perth Basin production, a SIMOPS plan is to be developed and daily meetings held and attended by key personnel/teams to organise and communicate planning, safety concerns and controls.

Planned activities for the following 24hr period will be discussed and conflicts resolved where necessary.

Where SIMOPS activities are required between the rig and Beach production facilities an agreed method for PTW control will be utilised. This will be described in the developed SIMOPs Plan.

Any deviations must be communicated to all other relevant work groups before implementing a revised work program.

7.1.8.7 Safety Meetings

All Beach team and contractors must attend a weekly safety meeting held at the rig. The Principal Contractors PIC or designate will chair these meetings. Timings for the meeting will be covered during the site arrival induction.

7.1.8.8 Contractor Meetings

Beach Contract Owners shall initially communicate with contractors onshore in their area of responsibility through a contract kick off meeting. Ongoing contract meetings can be weekly, monthly, or activity based as determined by operational and/or HSE needs. Service quality meetings (SQM) will be held quarterly at a mutually agreed time frame.

7.1.8.9 Beach – Contractor Monthly HSE Meeting

Beach will schedule a monthly meeting with Principal Contractors key personnel, to review the campaign HSE performance, foster two-way communication, share learning, and disseminate required information. The monthly HSE meeting will be led by Beach and will include agenda items such as:

- Safety Moment Discussion.
- Overview of incidents.
- Incident report review comments and feedback.
- Corrective Actions related to HSE aspects and assurance, those closed out and those becoming overdue.
- Upcoming audits and assurance plans, leadership and activities.
- Management of change as required.
- Focus areas due to observations, trends or upcoming areas or operation.
- COVID Planning (as required).

Meeting timings will be agreed with Beach. Attendees as a minimum should be

- Beach Senior HSE Advisor Onshore (Chair)
- Beach Field HSE (on tour)
- Principal Contractor HSE Manager
- Contractor Field HSE (on tour)
- Beach Drilling Superintendent
- Principal Contractor Site Supervisor
- Principal Contractor Superintendent

7.1.8.10 After Action Reviews (AAR's)

At the end of each well section, or significant activity, as listed in the Detailed Drilling Program, Beach and Contractor personnel will conduct AAR's to capture key learning's that will be incorporated into future work phases during the campaign. These will be captured in the Wells Onshore Lessons Learned Register and closed out as required.

Any safety improvements or problems will be documented and provided to the HSE Lead for review and for further incorporation into business processes and systems

7.2 Financial Management and Business Planning

This OEMS element is not applicable for this HSE plan.

7.3 Information Management and Legal Requirements

7.3.1 Document Hierarchy

The hierarchy and structure of the Onshore Perth Basin Drilling campaign HSE Management is: -

- Legislative requirements including Safety Case.
- Principal Contractor/Beach Safety Case Bridging Document
- Principal Contractor/Beach HSE Bridging Document.
- Perth Basin D&C Risk Assessment
- Perth Basin Environmental Plan– Drilling.
- Detailed Drilling Programme for each well.
- Principal Contractor HSE MS for all on rig activities
- Operational Excellence Management System (OEMS) related Beach activities, detailed requirements within this plan.
- Beach Onshore Perth Basin HSE Plan (this document)
- Principal Contactor / Beach Well Control Bridging document.
- Contractor HSE Management Plans specific to operations related to this onshore campaign
- Contractor Equipment and Personnel Plans (EPP) specific to work scopes carried out.

7.3.2 HSE Document Management

All Beach Energy documentation developed and used will be controlled by the Beach documentation management system. Documents can be found via the following

- OEMS documents can be found at - Operations Excellence Management System - Home (sharepoint.com)
- **ADD our DIRECTORY LINK**

7.4 People, Capability and Health

7.4.1 Training and Competence

Beach is committed to ensuring adequate systems and checks are in place to deliver competent personnel, including contractors for the campaign, through adherence to BSTD 4.1 – Training and Competency Standard.

Beach personnel in senior roles within the campaign are assessed for competence in line with WECS section 7.2. Well Control certification and expiry dates for Beach and Ventia personnel are maintained and verified regularly in line with the contract KPI requirements.

All contractors are required to have appropriate experience, qualifications, and training to ensure their competency to undertake their tasks. The competency of contractor personnel is managed through their relevant Equipment and Personnel Plans whereby the Contractor demonstrates how they manage the competency of their personnel. This process is owned by the Contract Owner and verified by the HSE team.

7.4.2 MyPass

Beach manages contractor training and competency information through MyPass® MYPASS is an industry recognised workforce management system, designed to help companies in highly regulated industries reduce their risk while improving efficiency of operations. The system is designed to manage onboarding, competency compliance, workforce management (including sub-contractor management) and allows real-time access to verify training and qualifications.

Beach now requires that all suppliers and service providers engaged to undertake work at Beach sites sign up to MYPASS to enable them to provide the information required to demonstrate they are complying with their training and competency obligations through the MYPASS platform.

The adoption of the MyPass platform provides significant value and efficiency to both Beach and our Service Providers by removing repetitive and manual competency management processes and making it easier for service providers to provide Beach with the information required to demonstrate compliance with their training and competency obligations.

For assistance to set up a MyPass business profile contact HSE.ContractorInductions@beachenergy.com.au.

For MyPass Technical Support contact MyPass direct at support@mypassglobal.com

Table 3 - Minimum Training and Competency Requirements

Requirement	Applicable to
Beach Perth Basin Induction	All personnel prior to arriving onsite
Rig site / Camp Specific Induction	All personnel to complete either on arrival at the rig or camp
Onshore Wellsite Permit to Work Rev 3	Beach Site Supervisor, Work Permit Authorities, Work Permit Holders
IWCF/IADC Well Control Certification or Internationally recognised equivalent	As per WECS INT-1000-DRL-STD-17891671 – Section 7.2 Table 2 and SLR training matrix
Beach Life Saving Rules Awareness	All personnel prior to arriving onsite.
Heat Stress Awareness	All personnel between October - March
Viridis 'Arawa' Farm Induction	All personnel. ONLY Relevant to EP320 Trigg 1 location. See Section 7.4.3.

7.4.3 Viridis Arawa Farm Induction

'Arawa' Farm Induction is required by all personnel including contractors and visiting accessing gas exploration tenements EP320 Trigg 1 well location at the 'Arawa' farm.

The induction provides an overview of the general Health, Safety and Environmental HSE) requirements on the farm, including rules for interacting with farming machinery and reporting

protocols associated with farm plant and infrastructure used by Beach Energy workers. The induction can be completed via the link below or by hovering your phone camera over the QR Code below that has been created for Beach Energy.

Beach Energy has been added to the list of companies and you can select that when creating your login. The farm to select is Arawa as per the screenshot attached.

https://greenroom.luciditysoftware.com.au/induction/manageuser/createaccount



7.4.4 Health and Fitness for Work

The Health and Medical Assessment Procedure CDN/ID 18985403 outlines the general requirements of employee fitness for work and covers pre-employment fitness for work, and drug and/or alcohol impairment. At a minimum all personnel working onshore will require a previous pre-employment medical prior to travelling to site.

7.4.5 Monitoring the Working Environment

The HSE risks to personnel associated with the working environment are, as far as reasonably practicable, to be eliminated or mitigated to ALARP. Personnel working in the Perth Basin will be protected from hazards and effects associated with their working environment. Hazards may include.

- Occupational risks and hazards associated with the environment (e.g. dust, heat)
- Potential major risks and hazards associated with normal operations.
- Chemical exposure (e.g. hazardous substances, H2S, drilling fluids, etc);
- Noise and vibration
- Fatigue

Personnel will be appropriately trained and inducted prior to starting work. Appropriate PPE is to be used and work will be undertaken in accordance with drilling contractor procedures and work permits. Control of work will be described in further detail in the campaign risk assessments.

7.4.6 COVID Management

Onsite COVID management will be managed under the Principal Contractors COVID Management Plan. The plan is to be reviewed regularly to ensure it is up to date and in line with any COVID directions, outbreaks and associated travel restrictions.

7.4.7 Medivac and First Aid

The Principal Contractor have suitably qualified first aiders responsible for providing an initial medical assessment and first aid treatment of an injured person. Contact is to be made with the Principal Contractors nominated onshore medical service provider for medical advice, assessment, and confirmation of a required medivac if applicable. Beach will conduct audits to ensure medical and first aid arrangements comply with HSE MS commitments.

A medivac will normally be required for critical and urgent medical transfers. Critical emergencies are categorised as those which are life or limb threatening emergencies.

An urgent medical transfer is one where the patient's condition is not life or limb threatening, but they require prompt medical attention.

Further details are available in the Perth Basin D&C Emergency Response Plan Bridging (CDN/ID 1893856). Information within this ERP are supported by a recently completed Medical Capability Study of the Perth Basin completed by International SOS in May 2022.

7.4.8 Drugs and Alcohol

BSTD 4.2 - OEMS Health Management Standard prohibits personnel from working while under the influence of drugs or alcohol and is supported by various forms of testing regimes including fitness for work testing, post incident/for cause testing and random tests. Such testing regimes apply to all personnel working in Onshore Perth Basin Drilling and Completions operations including employees, contractors, suppliers and visitors. The Beach Drug and Alcohol Management Procedure (CDN/ID 14865045) details the operational and testing requirements.

Any personnel undertaking business activities including travelling to a worksite must have a Breath Alcohol Content (BAC) of 0.00% and will not be under the influence of illicit drugs. All personnel will be subject to random breath testing.

Any personnel registering a positive BAC result will be permitted a second test after 20 minutes, if the second test is also positive, will be stood down from work on that day. The relevant parties will be notified, and decision made based on the Beach Drug and Alcohol Management Procedure requirements.

7.4.9 Working Hours and Fatigue Management

The Fatigue Risk Management Procedure is currently managed under HSE PRO 30 Fatigue Management. A new Beach fatigue procedure under the new OEMS is currently under development and will supersede the HSE PRO 30 when issued. Document control number for the revised procedure will be CDN/ID 18985402 when issued.

Until the release of the new Beach Fatigue procedure the HSE PRO 30 will be the applicable controlled document. This HSE PRO mandates the fatigue risk management process and how any deviation from the procedure is to be addressed through management of change

The Beach fatigue management procedure has the following requirements:

- Maximum of 21 days of consecutive work,
- A minimum of 7 days off in a 28-day period,
- Planned work must not exceed 12.5 hrs in any one day,
- Work up to 16 hours per day may occur with written approval, however a 10-hour break must ensue prior to starting work again,
- No less than 10 hours between work periods is required.

7.4.10 Working in Hot Environments

The Perth Basin can experience extreme daytime heat from October through to March each year. Working in heat can be hazardous and can cause harm to workers. The human body needs to maintain a body temperature of approximately 37°C. If the body must work too hard to keep cool or starts to overheat a worker begins to suffer from heat-related illness.

As a minimum, heat stress, its effects and controls shall be considered as part of any project risk assessment that may be scheduled during the warmer months. Where possible, major projects and shutdown activities should be planned for the cooler months (April to August). All schedules must be clearly communicated with site personnel.

However, if planning in cooler months is not possible, other considerations must be made to ensure the risks are controlled. This must also consider appropriate manning levels for the hotter months to ensure workers are able to cycle through cool areas in addition to the requirements of this management plan.

Beach HSE PRO 22-MP-01 (Working in Hot Environments Plan) outlines in more details on responsibilities, heat related conditions and controls for Working in Hot Environments. Principal Contractors are required to comply with this plan, including to have a Heat Stress Plan and associated risk assessment that meets or exceeds the requirements of HSE PRO 22-MP-01.

7.4.11 Injury Management and Rehabilitation

For Beach personnel, Injury management and rehabilitation processes are maintained utilising expertise from external medical providers and internal advisers. A medical provider experienced in industrial medicine has been engaged to work with management and employees as the initial contact point for non-critical work-related medical matters.

Beach provider Jobfit Health Group is one of Australia's largest providers of occupational health and occupational medicine services. Jobfit delivers a broad range of occupational health services to thousands of businesses nationally including.

- pre-employment medical assessments

- work fitness assessments
- injury management and prevention
- drug and alcohol screening
- health surveillance
- health and wellness programmes.

The Injury Management, Rehabilitation and return to work procedure was under development when this document was released.

Principal Contractors must have a documented Injury Management and Rehabilitation procedure. This procedure must Include in this procedure, a process how they will manage post incident and injured person(s) care after being mobilised offsite to a medical care facility.

7.5 Contracts and Procurement

The D&C team will monitor all contractors, suppliers and partners in accordance with the Beach Contracts and Procurement standard (BSTD 5.1) and the HSEQ Management of Suppliers Procedure (CDN/ID 18823808). The Contract Owner is ultimately accountable for the overall performance under the individual contract.

Beach will both pre-qualify and assess its 3rd Party Contractors (and equipment) to ensure it meets the HSE policies and standards. The key aspects of the contractor management process are:

- Contractor pre-qualification
- Assurance of contractor HSEQ performance
- Management of competency (through QAQC EPP process)
- Contract management HSE Plan in place

The approval for a contractor to commence the work under contract is subject to the Contractor demonstrating appropriate HSE management planning and preparation. To demonstrate that preparation has taken place, the following document, as a minimum, will be presented by the contractor prior to mobilization and submitted to the Beach for assessment and approval:

- HSE Management Plan including a Hazard / Risk register identifying risk management controls and verification activities.
- Equipment and Personnel Plan (EPP) identifying all the equipment and personnel required to carry out the work scope, along with verification activities and evidence to demonstrate compliance with HSE requirements.

The effective management of Beach 3rd party contractors will be a key HSE management requirement throughout. The tools and processes that the Contract Owner can will utilise to achieve acceptable standards of Contractor safety management will include:

- Review of Contractor bid documents against specified HSE management requirements including Beach's Contractor Management Directive HSE prequalification
- Assessment of activity specific HSE management plans and hazard/ risk registers.
- Audit of the Contractor HSE management plans against requirements of the HSE Management Standards and Beach's Contractor Management Directive.

This approach will be applied throughout the Onshore Perth Basin Campaign. Where appropriate 3rd Party Contractor HSE performance statistics shall be reported and incorporated into the campaign HSE statistics.

7.5.1 Third Party Contractor Call Out Checklist

The Beach Energy Third-Party Contractor Call Out Checklist (Document No. 19010949) is designed to be completed for all contractors as part of the onboarding process prior to them arriving to site. The checklist outlines both Beach Energy and/or the Principal Contractor site requirements and standards.

The checklist has 6 sections that need to be completed. Sections 1 through 4 are to be completed by the Beach Energy Engineer. Section 5 and 6 are to be completed by the inbound third-party contractor.

The sections are

- Section 1 Contractor Details (general information)
- Section 2 What will happen when you arrive (who to report to, inductions on arrival etc.)
- Section 3 Things you should know about your upcoming visit (Beach site requirements, who manages the site, D&A policy etc)
- Section 4 Items you are responsible for bringing to site ((JSA, procedures, certifications etc.)
- Section 5 Information required by Beach before arrival, (your arrival time, accommodation requirements etc.)
- Section 6 Onsite services required (electrical, air, water, fuel, communications etc.)

Where the third party will be sending major equipment to site, this will be checked when the equipment arrives on site by the Principal Contractor as part of the Contractors Third Party Equipment Check process.

7.6 Asset Management

7.6.1 Detailed Drilling / Workover / Intervention / Abandonment Programme

Drilling activities will be managed in accordance with the approved well specific Detailed Drilling / Workover / Intervention / Abandonment Programme.

7.6.2 Well Engineering and Construction Management System (WECS)

Beach's Well Engineering and Construction System (WECS) contains standards and processes which will ensure a consistent and systemic approach to the management, planning and execution of drilling during the project.

The WECS system is used to develop the Drilling Program. The drilling contractor and Beach contractors will be required to adhere to the Beach Drilling Program.

Competent personnel shall be used for all design related activities. The drilling activities will be outlined in the Detailed Drilling Program.

Pre-Spud meetings will be used to communicate any HSE matters related to construction of the wells.

7.6.3 Well Control Bridging Document

Rig 106 Well Control Bridging document CDN/ID 19011903 will apply for drilling operations and will serve as a reference for any specific well control practices to be adopted and will also bridge the policies & procedures between Ventia and Beach Energy in relation to well control.

7.6.4 Plant and Equipment

Plant and equipment being utilised by Beach contractors is to be maintained by the application of the following principles:

- The design of equipment and system meets with service requirements.
- Purchased products conforms to specified requirements and standards.
- Materials and fabrication meet with the design specification.
- Equipment is fit for purpose.
- Equipment installation and ongoing operation is consistent with design specification and manufacturer's instructions and ensuring the ongoing equipment integrity by the application of maintenance, testing and inspection procedures.
- Be subject to pre-mobilisation risk assessments / inspections and/or site inspection on arrival, and at regular intervals to ensure ongoing integrity.

All plant and equipment will comply with the appropriate regulatory requirements and be maintained in accordance with the OEM guidelines. As per the Beach EPP, equipment may be subject to pre-mobilisation inspections and competency checks for crew operating that equipment.

7.7 Operational Control

7.7.1 Person Controlling a Business Undertaking

Under the WHS Act 2020 Section 5, all PCBUs have a primary duty of care to ensure the health and safety of their workers while they are at work. In this context, 'workers' are those engaged, or caused to be engaged by the person and those whose activities in carrying out the work are influenced or directed by the person.

This primary duty of care requires PCBUs to ensure health and safety, so far as is reasonably practicable, by eliminating risks to health and safety. If this is not reasonably practicable, risks must be minimised so far as is reasonably practicable.

Under the primary duty of care, a PCBU must ensure, so far as is reasonably practicable:

- the provision and maintenance of a working environment that is safe and without risks to health, including safe access to and exit from the workplace
- the provision and maintenance of plant, structure and systems of work that are safe and do not pose health risks (for example, providing effective guards on machines and regulating the pace and frequency of work)
- the safe use, handling, storage and transport of plant, structure and substances (for example, toxic chemicals, dusts and fibres)
- the provision of adequate facilities for the welfare of workers at work (for example, access to washrooms, lockers and dining areas)
- the provision of information, instruction, training or supervision to workers needed for them to work without risks to their health and safety and that of others around them
- that the health of workers and the conditions of the workplace are monitored to prevent injury or illness arising out of the conduct of the business or undertaking
- the maintenance of any accommodation owned or under their management and control to ensure the health and safety of workers occupying the premises.

As the licensee, Beach is considered the Site owner under WHS Legislation. As the Site owner Beach need to ensure due diligence in ensuring contractors have appropriate WHS Safety Systems that align with Beach Energy systems. As the site owner Beach will undertake regular assurance /audits of the work and systems on site to ensure compliance.

7.7.2 D&C Onshore HSE Plan

Beach will monitor all activities described in this HSE Plan. All drilling and completion activities will be managed in accordance with the following:

- Beach's Well Engineering and Construction System (WECS).
- Detailed drilling and completion program(s).
- Principal Contractors HSE Management System
- Rig 106 Safety Case (EWP-4036-OP-00101)
- Perth Basin E&A Safety Case Bridging Document (CDN/ID 19011892)
- Perth D&C Risk Assessment (CDN 19011763)

7.7.3 Standing Instruction to Driller (SID)

The Beach Site Supervisor will issue procedures to the Principal Contractors PIC in the form of a Standing Instruction to Driller (drillers notes).

The SID is drafted from the Detailed Program and reviewed with relevant Principal Contractor and 3rd party personnel. SID can be developed for a specific operation or to cover the next 24 hr planned operations.

7.7.4 Operational Safety Site Management

Beach will adopt the Principal Contractor safety management system in terms of Operational Safety Management at site.

7.7.5 Principal Contractors

At the time the plan was developed, the Principal Contractors engaged by Beach Energy for the different operational phases are in accordance with Table 1 below.

Table 4 - List of intended Principal Contractors

Operational Phase	Principal Contractor	Locations
Lease construction	Lenane Holdings	All agreed well pad construction sites
Cellar, conductor, water and monitoring bores	Clear Cut Interventions	All agreed well pad construction sites
Drilling and Completion	Ventia	All wells in the drilling programme
Well testing	TBA	3 x wells (Beharra Springs Deep 2, Tarantula Deep 1 and Redback Deep 1) and Trigg area.
Well Decommissioning		Beharra Springs 1, 2, 4
Phase I (rig less)	Halliburton	
Phase II (rig operations)	Clear Cut Interventions	
Phase III (surface rehab)	Lenane Holdings	

7.7.6 Principal Contractor HSE Management System

All Principal Contractors are Mode 2 contractors and will execute under their HSE MS and site specific SOP's. They must maintain SOP's for all routine and non-routine work tasks and/or processes that they are responsible for performing the work. Activities without SOP, activities directly involving Beach, multiple contractors, or activities where participants are unfamiliar with the procedures, will be subject to a JSA/JHA as a minimum.

Beach will undertake periodic assurance activities against the contractors HSE Management System to verify compliance.

7.7.7 Safety Case Documents

In addition to the HSEMS requirements in Section 7.7.5, the following operational phases will be covered under the safety case regime outlined in the PAGEO Regulations.

- Drilling – Ventia Rig 106 Safety Case– EWP-4036-OP-00101
- Drilling - CDN/ID 19011892 Perth Base EA Bridging Document
- Plug & Abandonment - CDN/ID 3677590 Beharra Springs Facility Safety Case
- Well Testing – CDN/ID 3677590 Beharra Springs Facility Safety Case
- **ADD SAFETY CASE REFERENCE INCLUDING ADDENDUMS / BRIDGING DOCUMENT**S

7.7.8 Personal Protective Equipment (PPE)

PPE will be utilised as required. To determine what PPE is required for a task, the Beach PPE procedure CDN/ID 18985400 or where applicable, the PPE listed within safety data sheets (SDS) will be used. Any extra PPE identified through toolbox talks, during any stop work moments and AAR's shall be implemented into the task specific SOP/JSA.

7.7.9 Management of Change

All Beach project changes shall be managed in accordance with the BSTD 7.3- OEMS Management of Change Standard and subsequent Wells (WECS) MOC Form. Change needs to be managed effectively to minimise impact on safety, the environment and commercial aspects of the campaign.

Where a Beach D&C change is proposed and may impact the Principal Contractors activities (and vice versa), the MOC form and risk assessment will include a review by the respective contractor management and other involved parties as required.

7.8 Risk Management and Hazard Controls

7.8.1 HSE Risk Management

The primary objective of Beach's HSE risk management is to ensure that all hazards and risks, to which people, environment and asset are exposed, are systematically identified, risks are evaluated and measures for reducing them to levels that are As Low as Reasonably Practicable (ALARP) are put in place, documented and maintained.

This is achieved by applying appropriate risk assessment techniques during the various phases of the campaign planning and execution stages.

The Perth Basin Onshore campaign were subjected to a Risk Assessment process, with the risk register (CDN 19011763) developed and reviewed to ensure they meet legislative, company and contractor requirements.

Any actions generated because of the risk assessment will be tracked to ensure completion by the required due dates.

Risk assessments can be found in the Wells Cooper Basin Teams SharePoint under HSE – Risk Assessments. See Section 7.3.2 HSE Document Management for more details.

7.8.2 Crisis and Emergency Management

Any emergency that cannot be contained within the Principal Contractors Emergency Response Manual that requires outside assistance or that may impact People, Environment, Assets, Reputation or Livelihood (PEARL) or that has the attention of the media, shall be immediately escalated to the EMT.

The Perth Basin D&C Emergency Response Plan Bridging Document CDN/ID 1893856 describes the response requirements specific to the campaign activities and the interface between the Beach and the contractors ERPs.

The Principal Contractor Emergency Response Plans and procedures will be reviewed and accepted by Beach prior to operations commencing. The contractor's ERP must anticipate and cover all types of emergencies that might be encountered at the work site specific to their equipment.

7.8.3 Site Emergency Response Manual

Principal Contractors ER Manual shall describe the specific emergency response provisions in place for an emergency occurring at the operating site and camp site. As a minimum this shall include;

- Incidents and emergency escalations
- Call out and mobilisation or resources.
- Resources available
- Emergency organisation and Roles and Responsibilities
- Interfaces with external organisations
- Contingency plans for specific scenarios
- Communications directory

7.8.4 Total Fire Ban Management

Bushfires can happen all year round, but during the hottest and driest times of the year (October – April), bushfire risk is at its highest. On hot, dry and windy days, there's a much higher chance of a bushfire starting and getting out of control.

Department of Fire and Emergency Services (DFES) declare a Total Fire Ban (TFB) on a day when a fire is most likely to spread rapidly (because of extreme weather) or if there are already widespread fires and DFES don't have the resources to fight more.

What you need to know about TFB

- TFBs are announced either in the afternoon, the day before, or on the actual day.
- TFBs usually start at midnight and last 24 hours.
- The need for a ban is assessed throughout the day and may be cancelled depending on conditions.

7.8.5 Prescribed Activities

When operating on a total fire ban day and carrying out any of the prescribed activities regulated by the Bush Fire Regulations 1954 (ie. hot work, off-road or gas flaring activities), work can proceed, provided you can comply with the prescribed activity conditions in the associated TFB Checklist. The checklist templates can be found on the DFES Total Fire Ban webpage via this link Total fire ban - Department of Fire and Emergency Services (dfes.wa.gov.au)

Hot work includes but not limited to

- Use of a fire pit
- Using a grinder, welder or undertaking any other ”hot work”.
- Open air flare (gas Flaring includes well testing and use of vertical flare stacks0

Off road is any areas where there is vegetation (off road), where off road is accessed by equipment powered by an internal combustion engine. Examples are

- Excavators or any other similar equipment i.e. bulldozers, bobcats.
- Cars
- Generators

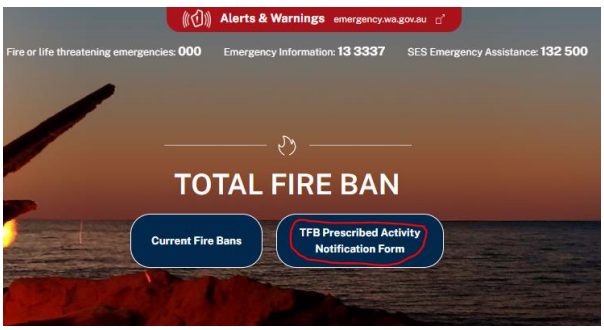
7.8.6 Total Fire Ban Notification

It is a condition of each prescribed activity (ie. hot work, off-road or gas flaring activities) that notification is provided between 24 hours and 30 minutes prior to any works commencing on a TFB day.

The online notification form once completed and submitted will provide notification to both DFES and the relevant local government authority that works are being carried out within their area on a TFB day. Notification is to be provided via the TFB Prescribed Activity Notification Form found on the DFES Total Fire Ban webpage, as shown below.

Once the online notification has been submitted, your notification will be returned with a unique NOT number (i.e. NOT-II-0012345) that should be noted for future reference, if required.

https://www.dfes.wa.gov.au/hazard-information/bushfire/total-fire-ban



7.8.7 TFB Notification Process Flowchart

The TFB Notification Flow Chart for Lease Construction at Appendix D is designed to walk the users through the process from when the TFB is declared, to acceptance by DFES and confirmation provided back to Lenane and CCI. The flowchart outlines who is responsible, includes notes and contact details.

7.8.8 How can I find out if there is a TFB

You can check if there is a TFB on any day by

- Visiting the Emergency WA website (emergency.wa.gov.au)
- Calling 13 DFES (133337)
- Calling TFB Hotline 1800 709355
- Following DFES on Twitter
- Following DFES on Facebook
- Listening to ABC local radio or other media outlets
- Looking out for Main Roads WA Variable Message Signs
- Looking for local government roadside Fire Danger Rating sign

For more information on Total Fire Bans, visit **dfes.wa.gov.au/totalfirebans**

7.8.9 Total Fire Ban Breaches

A breach of the Total Fire Ban requirements could result in an infringement of $1,000 by police, local government or DFES. If convicted, you could receive a fine of $25,000 and/or be jailed for 12 months.

If you see someone acting in a manner that breaches a TFB, contact the relevant local government directly via the Total Fire Ban Hotline (1800 709 355). If the behaviour is related to arson, report this to police immediately.

7.9 Harvest and Vehicle Movement Bans

Local shires (Irwin and Three Springs) have the power to invoke a Harvest and Vehicle Movement Ban under Regulation 24C (Notice to ban the use of engines, vehicles, plant or machinery likely to cause a bushfire when a total fire ban is declared) of the Bush Fire Regulations 1954.

Harvest and Off Road Activity Bans are declared by a Fire Control Officer and in consultation with the Shire. They can be declared when fire weather conditions are most likely to threaten lives and property or when a fire is already underway and firefighting resources are committed. Special conditions and exemptions may apply depending on the type and reason for the ban.

7.9.1 Permitted Work during a Ban

Use or operation of any vehicle on gazetted roads, lanes, driveways, yards, or other areas that provide access to, or a parking facility at, any residential, farming or business premises, if the area has been sufficiently cleared of inflammable material (i.e. vegetation) to prevent the escape of fire.

7.9.2 Definitions

- Off-Road - Includes areas such as paddocks, bushland, uncleared land and land with stubble or long grass.
- Off-Road Activity - Includes the use of anything activated by an internal combustion engine used off-road. e.g. excavators, chain saws and generators.

7.9.3 How can I find out about a Harvest and Vehicle Movement Ban

To find out if a Harvest and Vehicle Movement Ban has been issued for your area, contact shire and ask to speak to their Bush Fire Control Officer.

- Shire of Irwin – 08 99270000 or email receiption@irwin.wa.gov.au

- Shire of Three Springs – 08 99552001 or 0429 377 911 (after hours)

Both shires provide a SMS notification service when Harvest and Vehicle Movement Bans are declared. Onsite Supervisors from Beach and Civils Principal Contractors (Lenane / CCI) are to register through the respective shires to receive the SMS to your mobile phone.

7.9.4 Harvest and Vehicle Movement Ban Flowchart

The TFB Notification Flow Chart for Lease Construction at Appendix D provide information on the process when a Harvest and Vehicle Movement Ban is declared. The flowchart outlines who is responsible, includes notes and contact details.

7.9.5 Drills and Exercises

Emergency drills and exercises will be conducted as per the Principal Contractors approved Drill Schedule. Where there is a significant change out of personnel, it will be at the discretion of the Beach Site Supervisor as to whether an additional exercises and drills performed.

7.9.6 Chemical Management

All chemicals and hazardous materials that are planned to be used onsite must be approved for use and have a current Australian SDS, prior to being brought to site. A register of approved products is to be maintained by the contractor. SDS must be within their 5-year validity date.

All waste chemical products used during the drilling campaign will managed and disposed of in accordance with Beach Waste Management Procedures. (CDN/ID 19011901)

7.10 Incident Management

BSTD 9.1- OEMS Incident Management Standard, requires the use of CMO for incident reporting and notification requirements. The Beach Incident Management Procedure (18985406) details the incident reporting, investigation documentation and analysis requirements.

All incidents will be recorded in CMO for consistency across Beach. Specific regulatory reporting arrangements are detailed within the HSE Bridging document.

All incidents must be reported as soon as is practicable, regardless of the actual severity, from the Beach Site Supervisor to the Beach Drilling Superintendent.

- All incidents are to be reported initially utilising the Principal Contractors incident reporting system.
- The Principal Contractors Site Supervisor or delegate is to verbally inform the Beach Site Supervisor immediately.
- The Beach Site Supervisor, in turn will report immediately to the Beach Drilling Superintendent.
- Initial incident details are to be provided to the Beach Site Supervisor within 2 hours of the event. Follow up written notification to be provided within 24 hours.
- The Principal Contractor will classify events based on their HSE MS procedure. Beach will classify the actual and potential severity of all reportable and recordables event in line with the

Beach risk matrix and Beach Incident Management Procedure (18985406) see Appendix A for the Beach risk matrix.

- In addition to the Principal Contractors Initial Incident Report, the Beach Site Supervisor and / or Field HSE Advisor are to complete the Beach Incident Notification Flash Report (CDN/ID 18986899) with the initial relevant facts. The report is to be send to the email distribution list dlbeachenergy-flashreport@beachenergy.com.au. within 2 hours of the incident occurring.

- Notification and reporting of incidents to regulator is to occur, as soon as practicable as per the Beach Incident Management Procedure 18985406 Section 6.4 Incident Notification – External. Beach is responsible for reporting Regulatory Incident Notification, see flow chart at Appendix D. Principal Contractor is responsible for reporting to Safework WA.

- All incidents are to be recorded in the Beach Daily Report.

- The incident is to be classified for actual outcome and potential risk, as soon as practicable, or at the latest, within 24 hours of occurrence to determine the level of investigation required.

- The incident is to be investigated, root cause and casual factors established, and recommendations tracked to closure.

- Agree terms of references for investigations shall be developed jointly between Beach and Principal Contractor based on the potential severity and / or when requested.

See Appendix B for detailed Incident Notification and Investigation Interface flow charts.

Incidents at the operating site or camp will be investigated in accordance with the Principal Contractor incident investigation process. A finalised investigation report is required within 30 days. Beach's Site Supervisor and the Field HSE Advisor will participate in investigations where required and / or requested.

Where Beach determines a Beach led or independent investigation is required, the investigation shall be carried out in accordance with OEMS Incident Management Standard. Where appropriate, incident reports will be prepared in cooperation with Beach's Contract Owners and provided to the Beach Onshore Drilling Manager.

7.10.1 Beach Incident Severity Classification

All actual and potential incidents and hazardous occurrences are assessed and categorised on a scale ranging from Low to Extreme according to the Beach Risk Matrix (See appendix A). The analysis and reporting requirements are determined by the assessed risk. Incident reports and corrective actions are managed using the Enterprise Incident Management System (CMO) for tracking and close-out.

7.10.2 Resumption of Work Following a Significant Incident

In the event of a significant incident, work cannot be resumed until the risk is assessed, and actions have been taken to reduce the risk of recurrence, to the satisfaction of relevant regulators/authorities (if required). Authorisation to resume work is then to be given at the Superintendent level.

7.10.3 Learnings from Incident Investigation

Investigation of significant hazards and incidents are shared with other sites and business areas and learnings are used to improve systems and processes to prevent recurrence. Investigations and learnings are distributed via HSE Alerts for serious issues relevant to the business.

7.11 Environment and Community

7.11.1 Environmental Effects and Management

The Perth Basin D&C EP defines the minimum requirements for the management of all environmental aspects that may arise from Beach activities. A copy of all Perth Basin EPs, OSCP and Commitment Registers is at

7.11.2 Environmental Aspects and Impacts

Onsite Principal Contractor will operate according to their environmental standards and in line with the commitments made in the Beach EP.

7.12 Approval to commence earthworks and land disturbance

The Beach Site Supervisor must ensure any Earthworks and Land Disturbance is planned in accordance with HSE PRO 36A and all required actionable tasks are properly completed and verified on the Beach Earthworks and Land Disturbance Approval Checklist (HSE Pro 36 F01) prior to earthworks commencing.

HSE Pro 36 F01 is in pad form. When completed, the white copy is retained by the Beach Site Supervisor to scan and upload into the relevant well in the Earthworks Approval Portal. The yellow copy is detached and provided to the Principal Contractor Earthworks Contractor.

7.13 Site Handover Earthworks Completed

On completion of the earthworks, a site handover will occur onsite between the civils Principal Contractor Site Supervisor and the Beach Site Supervisor to hand the site over. As part of the handover the site verifications is to be provided via completion of the HSE Pro 36 F02 – Earthworks Compliance Audit Checklist by the Beach Site Supervisor

7.14 Earthworks Approval Portal

The Pre-Earthworks Approval Portal (EWP) guideline contains information on the technical use of the portal from access, site creation to approval, including relevant screen shots, flowchart, definitions and contact. The guideline should be used in conjunction with HSE PRO 48 Pre-Earthworks Approval Portal and reviewed prior to first use of the portal.

Any Earthworks Project that commences without EWP Approval will constitute a non-conformance of HSE PRO48. All non-conformances must be logged in the Beach incident management system (CMO) and may be investigated. The portal may also be used as a post incident investigation tool and to assist in relevant audits.

7.15 Weed Management and Control

The Perth Basin area has a variety of pest plants (weeds), pest animals and environmental or agricultural diseases which need to be taken into consideration when undertaking civil activities

Prior to the commencement of civils work involving the movement of vehicles, equipment, and machinery from/to locations where pest plants or weeds may occur, it is the responsibility of the Beach Site Supervisor to ensure vehicles arrive onsite clean and with a valid and current Weed Declaration.

Weed Management and Control is managed under HSE Pro 41. Additional controls or requirements may be imposed once the relevant EP is approved and this plan will be updated to reflect.

7.15.1

7.15.2 Spill Management

Spill Management will be contained, controlled and recovered in accordance with the Principal Contractors Spill Management procedures and the Beach EP and OSRP. Spill drills are to be conducted in accordance with Principal Contractors drill schedule to test spill team's response and demonstrate the availability of spill kits.

7.15.3 Waste Management

Existing Beach systems will be utilised to ensure that the collection, handling, storage, transport, treatment and disposal of campaign waste materials generated including hazardous wastes does not present a risk to health and safety of people or harm to the environment.

All wastes generated is to be eliminated, reduced, recycled, reused or appropriately treated and disposed of, as far as reasonably practicable as detailed in EP and the E&A Waste Management Plan (CDN/ID 19011901)

Waste Management practices shall be audited in accordance with the HSE Assurance Plan.

7.16 Performance Measurement and Reporting

The Senior HSE Advisor will track and monitor status of the project against the HSE Objectives and KPI's and track and monitor the status of any internal or external audit recommendations and report the progress on these monthly to the Onshore management and the HSE Lead.

7.16.1 Contractor performance

The Principal Contractors HSE Manager or representative will report manhours and lead indicators to Beach monthly or more frequently as required. The Onshore Senior HSE Advisor will collate and report to the wellsite team, and the HSE Lead.

HSE performance against company Objectives and KPI's tabled at Section 1 of this document will be reported by Beach contractors as a part of their quarterly Service Quality Meeting (SQM).

7.16.2 Audits, Inspections and Review

Beach has developed an HSE Assurance Plan (Doc ID 22159124) as per the BSTD 11.2 - OEMS Assurance Management Standard specifically for the D&C Cooper Basin operations. Audits and reviews are completed as per the requirements of this standard to:

- Monitor compliance with regulatory requirements and standards.
- Measure compliance with the requirements of this HSE plan.

- Provide feedback to management on the successful implementation of systems designed to reduce process and behavioural risk.

All specific plans and relevant documents are reviewed to ensure all detailed requirements are included in the assurance schedule.

7.16.3 Drilling and Completions Assurance

D&C has an approach for the verification, assurance and audit for safe and effective Perth Basin operations. The tiers include:

- Verification – First line of defence:
    - Beach Site Supervisor and Field HSE Advisor continuous verification of conformance with requirements to deliver safe and effective rig operations through the HSE Assurance Plan and assurance schedule.
    - Verification will focus on HSE systems compliance, MAE controls (Line of Sight) and areas of operational performance concern. Principal Contractors Site Supervisors are encouraged to participate and should also perform rigor audits to demonstrate verification of their systems in use
- Assurance – Second line of defence
    - Beach Drilling / Completion Superintendent and/or Senior HSE Advisor undertakes safety and performance Assurance reviews during rig site visits.
    - Lessons from across Beach and Industry are considered and shared.
    - Assurance reviews will focus on MAE controls and areas of operational performance concern
- Audit – Third line of defence
    - Beach Drilling Manager initiates audit to health check and audit particular areas which may impact safety and operational performance
    - Lessons from across Beach, and Industry to be considered.
    - The Drilling Manager will select appropriate resource to undertake any formalised audits.

7.16.3.1 Line of Sight Verification Program

The purpose of the Line of Sight (LOS) system is to provide operational focus on how we manage critical controls and give site and senior management visibility on the status of those controls to prevent Major Accident Events (MAE).

The Perth Basin Drilling Line of Sight Tool (Doc ID 22158953) details the requirements of the system. The objectives of the system are to:

- Provide a systematic audit / check of implementation and control maintenance.

- Provide clear Roles and Responsibilities in the application of the LOS tool.
- Facilitate the use of leading measurement to mitigate Risk.
- Verification by site management on risk prevention activities and control health checks
- Visibility and assurance to senior management of controls status and escalation of degraded controls.

Any recommendations will be discussed with the Rig Manager and Beach Site Supervisor. Findings are recorded in the Corrective Action Register and the report distributed to the appropriate stakeholders.

7.16.4 Review

Following the completion of each well, a 'Lessons Learned' session will be conducted. The outcomes of the Lessons Learned should be recorded for use in future operations. The output will be captured in the Lessons Learned Register.

8 References / Associated documents

Reference	Document	Control Number
1	Operations Excellence Management System (OEMS) Elements Manual	CDN/ID 18985300
2	Well Engineering and Construction Management System (WECS) Governance Guideline	INT-1000-DRL-GDL-17890752
3	International Association of Oil & Gas Producers (IOGP) Life Saving Rules	IOGP Report 459
5	COVID 19 Control Plan – Beharra Springs	CDN/ID 18855134
6	Onshore Campaign Action Register	Not Numbered
7	Wells Onshore Lessons Learned Register	Not Numbered
9	Perth Basin Emergency Contact Directory	CDN/ID 19010647
10	Emergency Response Plan Perth Basin	EWD-4036-SA-00301
11	Beharra Springs Emergency Response Plan	CDN/ID 3677589
12	Well Management Plan EP320	CDN/ID 190109575
13	Well Management Plan L11	CDN/ID 19010973
15	Rig 106 / Beach Well Control Bridging Document	CDN/ID 19011903
16	Rig 106 Safety Case	EWP-4036-OP-00101
	Perth Basin E&A Safety Case Bridge	??????
17	Perth Basin Onshore HSE Assurance Plan	Doc No. 22159124
18	ISOS Medical Capabilities Study	June 2022
19	EP320 Exploration Drilling Environment Plan (Trigg 1 & Trigg North 1)	CDN/ID 18993855
20	EP320 Exploration Drilling Environment Plan Summary (Trigg 1 & Trigg North 1)	CDN/ID 18993854

Reference	Document	Control Number
21	L11 Exploration Drilling Environment Plan (Tarantula Deep 1 & Redback Deep 1)	CDN/ID 18993853
22	Beharra Wells Appraisal & Production Drilling EP	CDN/ID 18993851
23	Oil Spill Contingency Plan	CDN/ID 18993973
24	Petroleum and Geothermal Energy Resource Act	1967
25	WA Work Health and Safety Act	2020
26	WA Work Health and Safety (Petroleum and Geothermal Energy Operations) Regulations	2022
27	Training and Competency Standard	BSTD 4.1
28	Well Engineering and Construction Management System Standards (WECS)	INT-1000-DRL-STD-17891671
29	health and Medical Assessment Procedure	CDN/ID 18985403
30	Fatigue Management Procedure	18985402
31	Contracts and Procurement standard	BSTD 5.1
32	HSE&R Management of Suppliers Procedure	CDN/ID 18823808
33	OEMS Incident Management Standard	BSTD 9.1-
34	OEMS Assurance Management Standard	BSTD 11.2
35	Beach Incident Management Procedure	18985406
36	Beach Incident Notification Flash Report	CDN/ID 18986899
37	Drug and Alcohol Management Procedure	14865045
38	Perth Basin Line of Sight Tool	22158953
39	Perth Basin D&C Risk Assessment	CDN 19011763
40	Personal Protective Equipment Procedure	28985400
41	Working in Hot Environments	HSE Pro 22
42	Waste Management Plan	CDN/ID 19011901

9 Document information and history

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Document history

Rev	Date	Changes made in document	Reviewer/s	Consolidator	Approver
A					
0					
1	06/04/2022	Issued for approval	-	-	

Appendix A Beach Risk Matrix

Risk Matrix

CONSEQUENCE CATEGORY

CONSEQUENCE	PEOPLE	ENVIRONMENT	REPUTATION	FINANCIAL	LEGAL
	Impact to Beach or contracting personnel	**Natural environment**	**Community safety, reputation/social licence. media, items of cultural significance.**	**Financial impact (e.g. due to loss of revenue, business interruption, asset loss etc.)**	**E.G. Breach of law, prosecution, civil action**
6 Catastrophic	Multiple fatalities >4 or severe irreversible disability to large group of people (>10)	Catastrophic offsite or onsite release or spill; long-term destruction of highly significant ecosystems; significant effects on endangered species or habitats; irreversible or very long-term impact	Multiple community fatalities; complete loss of social licence; prolonged negative national media; complete loss of items of cultural significance	> AUD$500m	Prolonged and complex civil and/or regulatory litigation; potential jail terms and/or very high fines and/or damages claim
5 Critical	1-3 fatalities or serious irreversible disability (>30%) to multiple persons (<10)	Significant offsite or onsite release or spill; eradication or impairment of the ecosystem; significant impact on highly valued species or habitats; widespread long-term impact	Community fatality; significant loss of social licence; negative national media for 2 or more days; significant damage to items of cultural significance	AUD$100m-$500m	Civil and/or regulatory litigation; potential significant fines and/or damages claim
4 Major	Serious permanent injury/ illness or moderate irreversible disability (<30%) to one or more persons	Major Offsite or onsite release or spill; very serious environmental effects, such as displacement of species and partial impairment of ecosystem; major impact on highly valued species or habitats; widespread medium and some long-term impact	Serious permanent injury to community member; major damage to social licence; negative national media; major damage to items of cultural significance	AUD$10m-$100m	Civil and/or regulatory litigation; potential major fine and damages claim
3 Serious	Serious reversible/ temporary injury/illness; Lost Time Injury >5 days or Alternate/Restricted Duties > 1 month	Minor offsite or onsite release or spill; serious short-term effect to ecosystem functions; serious impact on valued species or habitats; moderate effects on biological or physical environment	Serious reversible injury to community member; serious damage to social licence; negative state media; serious damage to items of cultural significance	AUD$1m-$10m	Serious potential breach of law; report and investigation by regulator; possible prosecution or regulatory notice (e.g. improvement notice or equivalent), or possible civil litigation and serious damages claim
2 Moderate	Reversible temporary injury/ illness requiring Medical Treatment; Lost Time Injury ≤5 days or Alternate/Restricted Duties for ≤ 1 month	Event contained within site; short- term effects but not affecting ecosystem functions; some impact on valued species or habitats; minor short-term damage to biological and/or physical environment	Moderate injury to community member; moderate impact to social licence; negative local media; moderate damage to items of cultural significance	AUD$100,000-$1m	Potential Breach of law or non-compliance; inquiry by a regulator leading to Low- level legal issues; possible civil litigation and moderate damages claim
1 Minor	First Aid Injury/illness	Spill limited to release location; minor effects but not affecting ecosystem functions; no impact on valued species or habitats; low-level impacts on biological and physical environment	Minor injury to community member, public concern restricted to local complaints, minor damage to items of cultural significance	<AUD$100,000	Minor potential breach of law; not reportable to a regulator; on the spot fine or technical non-compliance

LIKELIHOOD	A. Remote	B. Highly Unlikely	C. Unlikely	D. Possible	E. Likely	F. Almost Certain
	<1% chance of occurring within the next year. Requires exceptional circumstances, unlikely event in the long-term future. Only occur as a 100-year event	>1% chance of occurring within the next year. May occur but not anticipated. Could occur years to decades	>5% chance of occurring within the next year. May occur but not for a while. Could occur within a few years	>10% chance of occurring within the next year. May occur shortly but a distinct probability it won't. Could occur within months to years	>50% chance of occurring within the next year. Balance of probability will occur. Could occur within weeks to months	99% chance of occurring within the next year. Impact is occurring now. Could occur within days to weeks
6 Catastrophic	HIGH	HIGH	SEVERE	SEVERE	EXTREME	EXTREME
5 Critical	MEDIUM	MEDIUM	HIGH	SEVERE	SEVERE	EXTREME
4 Major	MEDIUM	MEDIUM	MEDIUM	HIGH	SEVERE	SEVERE
3 Serious	LOW	MEDIUM	MEDIUM	MEDIUM	HIGH	SEVERE
2 Moderate	LOW	LOW	MEDIUM	MEDIUM	MEDIUM	HIGH
1 Minor	LOW	LOW	LOW	MEDIUM	MEDIUM	MEDIUM

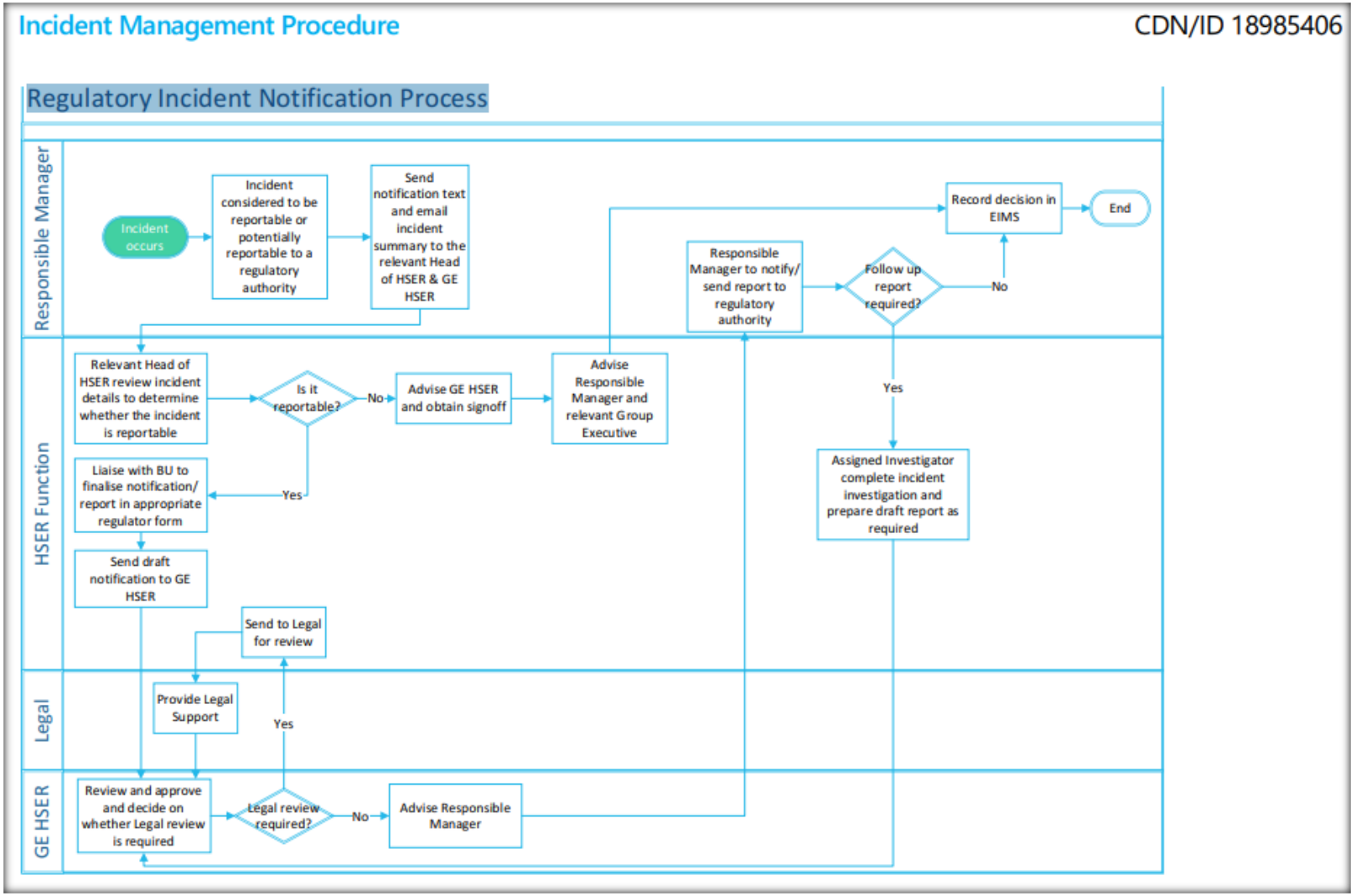
Appendix B Emergency Management Team Notification Table

All potentially damaging events and issues should be evaluated against the Classification Matrix to determine the appropriate level of team response and escalation. The highest severity rating determines the overall severity of the event.

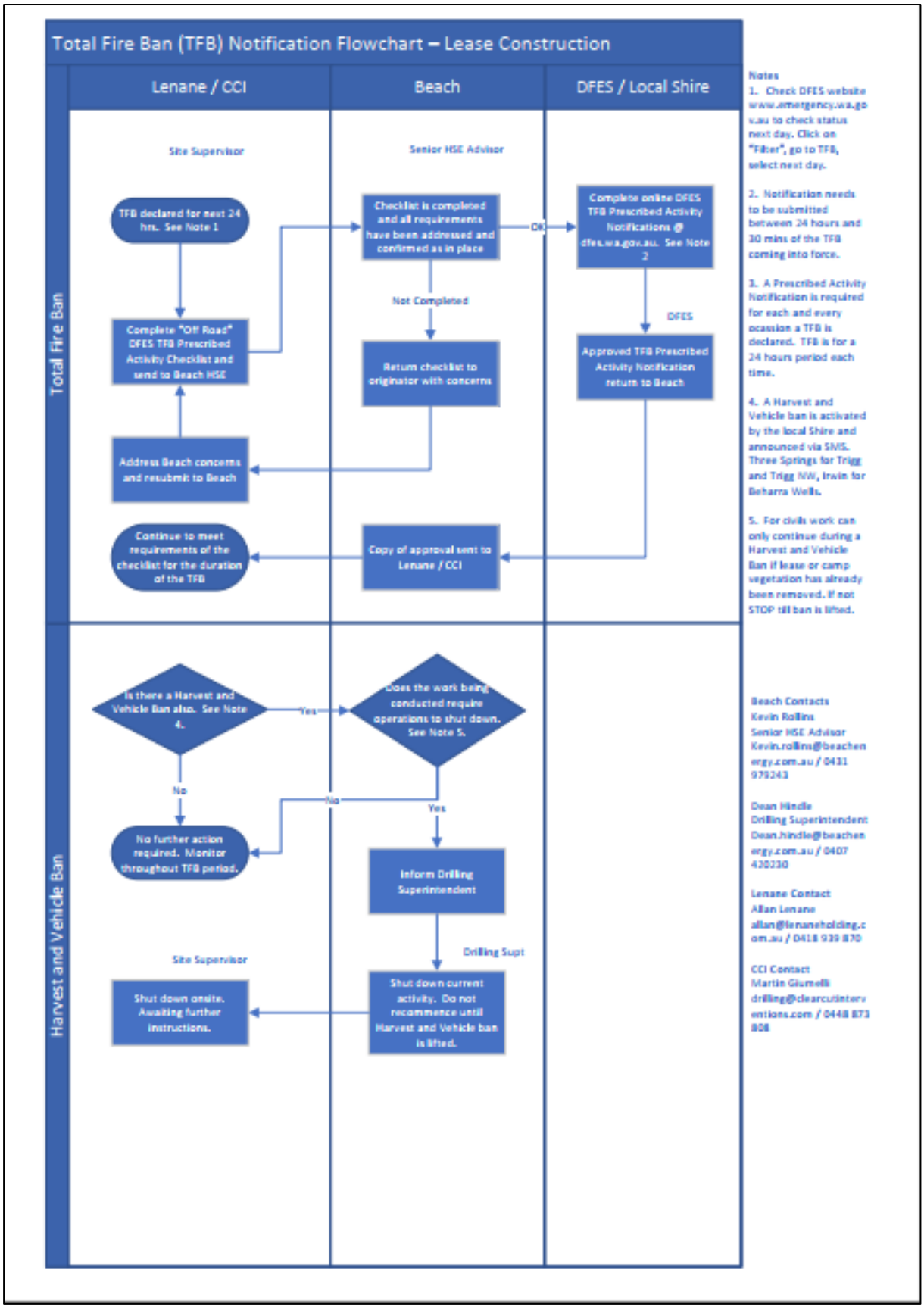
Response / Outcome	Low Site Emergency Response Team	Medium Emergency Management Team	High Crisis Management Team
People			
Injury/Health	Injury involving hospitalisation. Localised outbreak of communicable disease.	Potential fatality or multiple injuries. Epidemic outbreak of a communicable disease.	Single or potential multiple fatalities, DHS designated pandemic.
Missing/Trapped personnel	People/person missing/trapped but confirmed alive and uninjured.	People/persons confirmed missing /trapped and not able to make contact.	People/persons missing/trapped and no contact >12 hours.
Security (Physical)	Credible intelligence regarding threat against individuals/assets/requiring investigation. Minor civil unrest/protest.	Confirmed threats against individuals/assets requiring police. Civil unrest/need for security changes and impacting a single site.	Kidnap or extortion demand or actions. Campaign of civil unrest/need for significant security changes to single or multiple sites.
Community	Localised impact requiring site resources and communication with community groups/land holders.	Whole asset impact exceeding site resources, requiring communication and coordinated external assistance.	Significant impact affecting Beach's social licence to operate.
Environment			
Environmental Impact	Event that requires regulatory reporting with potential for off-site impacts.	Event that requires regulatory reporting with confirmed off-site impacts, involving any pollutant (oil, gas, condensate, diesel) and activation of additional IMTs.	Significant off-site impacts exceeding Beach's response capability.
Assets			
Technical damage/recovery considerations required	Geotechnical or infrastructure failure affecting site operations plan, requiring a formal recovery plan.	Geotechnical or infrastructure failure impacting region's operating plan and ability to remain within market guidance/outlook for the region.	Geotechnical or infrastructure failure impacting operations such that it would require revising overall company guidance/outlook to market.
Loss of control of communications/IT /data/control systems	Outage or critical site systems (s) within the site to restore/recover, but outside previously defined maximum acceptable outage.	Outage/cyber-attack to critical site systems resulting in sensitive data theft/loss exceeding previously defined maximum acceptable outages.	Outages/targeted cyber-attack/sensitive data theft/loss affecting site with potential impact to additional sites/regions.
Impact to production/project execution	Reduction of expected production or project delay of one month.	Reduction of expected production or project delay >one month.	Complete loss of production >one month or indefinite halt of project.
Contractor or supply chain, partner impact	Strong likelihood of interruption to critical suppliers, essential services or equipment needs.	Critical contractors, suppliers or essential services disrupted with impact to operations.	Critical contractors, suppliers or essential service partners in crisis affecting multiple operations.
Reputation			
Media (includes social media)	Three or more days of local, negative, media activity focussing on a specific issue expected or occurring.	Three or more days of national, negative media activity causing short-term reputational impacts for Beach.	Three or more days of negative media coverage causing longer term reputational impacts for Beach.
Breach of ethics	Formal allegations of improper unethical behaviour.	Formal charges by law enforcement agency against Beach staff members for unethical behaviour.	Formal charges by law enforcement agency against officers of the company.
Livelihood			
Regulatory action	Regulatory action with potential to impact site operations for one month.	Regulatory action with potential impact to asset/project for > one month.	Regulatory action impacting multiple operating regions.
Government order/legislative action	Government order/legislation negatively impacting single operation.	Government order/legislation negatively impacting site/s.	Government order/legislation halting operation/project; critical operating permits indefinitely revoked/denied.
Labour relations/actions	Labour disruption impacting site operations/project for >one shift.	Labour disruption impacting operations/ production for > 48 hours.	Longer-term labour disruptions impacting multiple sites.
Legal issue	Allegations of illegal acts with potential for police intervention.	Allegations or charges of illegal acts resulting in police intervention. Legal action by or against Beach with potential to impact continuity of operations at single site.	Allegations or charges resulting in police intervention. Legal action by or against Beach with potential to impact asset/s.

Appendix C Beach Regulatory Incident Notification Process

The flowchart below is an extract from Beach Incident Management Procedure CDN/ID 18985406 Section 6.4 Incident Notification – External -Figure 2



Appendix D Total Fire Ban (TFB) Notification Flowchart



Government of Western Australia
Department of Mines, Industry Regulation and Safety
Resource and Environmental Regulation

Your ref A12 OCR235434
Our ref A1701/202201
Enquiries Steven Batty — 9222 3104
Steven.BATTY@dmirs.wa.gov.au

Keith Woodward PSM
Chief Executive Officer
Three Springs Shire Council
Sent by Email — general@threesprings.wa.gov.au
PO Box 117 Three Springs WA 6519

Dear Keith Woodward PSM

SHIRE OF THREE SPRINGS - PROPOSED WORKFORCE ACCOMMODATION - 2135 LOT 10711 TOMKINS ROAD ARROWSMITH EAST

Thank you for your letter dated 01/03/2023 inviting comment on the proposed temporary Workforce Accommodation at No 2135, Lot 10711 (DP209764) Tomkins Road Arrowsmith East

The Department of Mines, Industry Regulation and Safety (DMIRS) has assessed this proposal with respect to mineral and petroleum resources, geothermal energy, and basic raw materials and makes the following comment.

The drill and camp sites are located within granted E 70/6001held by Anaheim Pty Ltd (tenement managers C/- McMahon Mining Title Services Pty Ltd, PO Box 6301, East Perth, WA, 6892). While the activity and infrastructure are temporary it would be preferred if the tenement holder were contacted to ensure the drill site and camp and associated activities will not impact any short-term exploration activity planned by the tenement holder. While long-term exploration clearly will not be impacted any exploration in the area could increase risk of vehicle interactions and basic communication between the active parties should resolve any short-term issues.

DMIRS lodges no objections to the above development application.

Yours sincerely



Steven Batty
Senior Geologist
Mineral and Energy Resources Directorate
02 March 2023

Mineral House 100 Plain Street East Perth Western Australia 6004
Postal address: Locked Bag 100 East Perth WA 6892
Telephone +61 8 9222 3333 Facsimile +61 8 9222 3862
www.dmirs.wa.gov.au
ABN 69 410 335 356

From: Planning and Land Development Referrals [mailto:planning.land.development.referrals@westernpower.com.au]
Sent: Friday, 10 March 2023 11:01 AM
To: General <general@threesprings.wa.gov.au>
Subject: Proposed Workforce Accommodation - 2135 (Lot 10711) Tomkins Road, Arrowsmith East

Dear Keith

Thank you for your submission to Western Power for Ref: Proposed Workforce Accommodation - 2135 (Lot 10711) Tomkins Road, Arrowsmith East. Ref: A12/OCR235440.
Unfortunately requests for general comments, feedback and approval for proposals can't be provided for without application and the investigation and dialogue that allows.
We suggest:

- Reviewing your query against the processes referred to in our Strategic Planning web page
- Where a change of land use, or permanent road closure will affect our ability to access our infrastructure for maintenance or in an emergency, the original accessway or an alternative must be maintained. Changed access conditions should be communicated via our Land entry preferences form,
- Use our provided mapping tools and "Before You Dig" to locate any assets that would be affected by any proposed change or development,
- If there are transmission assets (66,000VOLTS-330,000 VOLTS) in proximity to your work, apply via our move or remove transmission and communication assets form,
- Ensuring any developers involved are aware that they will need to make an application to deal with any assets that are in the development area as well as for the power requirements for the development.

Thank you and we look forward to receiving your information/applications through the correct channels.

Kind Regards,

Jeremy
Customer Service Officer - Planning and Land Development
Customer Experience
A 363 Wellington St. Perth 6000 | **T** 13 10 87
E planning.land.development.referrals@westernpower.com.au
westernpower.com.au

Ngala kaaditj Noongar moort keyen kaadak nidja boodja.
Western Power acknowledges the Traditional Owners of the lands on which we operate, and recognises their continuing connection to lands, waters and communities.

Electricity Networks Corporation, trading as Western Power
ABN: 18 540 492 861
TO THE ADDRESSEE - this email is for the intended addressee only and may contain information that is confidential. If you have received this email in error, please notify us immediately by return email or by telephone. Please also destroy this message and any electronic or hard copies of this message.
Any claim to confidentiality is not waived or lost by reason of mistaken transmission of this email.
Unencrypted email is not secure and may not be authentic. Western Power cannot guarantee the accuracy, reliability, completeness or confidentiality of this email and any attachments.
VIRUSES - Western Power scans all outgoing emails and attachments for viruses, however it is the recipient's responsibility to ensure this email is free of viruses.

From: Crowson, Chris [mailto:Chris.Crowson@atco.com]
Sent: Monday, 13 March 2023 2:56 PM
To: General <general@threesprings.wa.gov.au>
Subject: ATCO Response - LM23177

Good afternoon

Re: Proposed Workforce Accommodation – 2135 (Lot 10711) Tomkins Road, Arrowsmith East
ATCO Reference: LM23177

ATCO Gas Australia (ATCO) has no objection to the proposed application, based on the information and plan provided.

ATCO advice notes:

1. Anyone proposing to carry out construction or excavation works must contact *'Before You Dig Australia' (www.byda.com.au*) to determine the location of buried gas infrastructure. Refer to ATCO document *AGA-O&M-PR24- Additional Information for Working Around Gas Infrastructure https://www.atco.com/en-au/for-home/natural-gas/wa-gas-network/working-around-gas.html*
2. Proposed construction and excavation works need to be managed in accordance with the ATCO document *Additional Information for Working Around Gas Infrastructure - AGA-O&M-PR24 https://www.atco.com/en-au/for-home/natural-gas/wa-gas-network/working-around-gas.html*

Please accept this email as ATCO's written response.

Should you have any queries regarding the information above, please contact us on 13 13 56 or eservices@atco.com.

Kind Regards

Chris Crowson
Land Management Coordinator
Gas Division

E. chris.crowson@atco.com
A. 81 Prinsep Road, Jandakot, Western Australia 6164

ATCO.com.au LinkedIn Facebook Twitter

ATCO acknowledges the Traditional Owners of country throughout Australia and their continuing connection to land, sea and community. We pay respect to their Elders past, present and emerging, and in the spirit of reconciliation, we commit to working together for our shared future.

The information transmitted is intended only for the addressee and may contain confidential, proprietary and/or privileged material. Any unauthorized review, distribution or other use of or the taking of any action in reliance upon this information is prohibited. If you receive this in error, please contact the sender and delete or destroy this message and any copies.

Enquiries: Mark Willson (08) 9956 1234
Our Ref: 21/3346 (002-304)
Your Ref:

14 March 2023

Chief Executive Officer
Shire of Three Springs
PO Box 117
Three Springs WA 6519

By email: general@threesprings.wa.gov.au

Dear Sir,

Beach Energy Work Force Accommodation - Lot 10711 Tomkins Road, Arrowsmith East

Thank you for consulting Main Roads on the proposed Work Force Accommodation.

The proposal is not located within or adjacent to a road reserve under Main Roads jurisdiction. Main Roads has no current plans in the area that would affect Lot. Accordingly, Main Roads does not object to the proposal and provides the following advice:

a) Main Roads recommends the Shire consider acquiring contributions from developments creating traffic that impact Brand Highway and Mount Adams Road intersection:

- to seal the intersection to improve skid resistance and facilitate the swept path movement of all vehicles and;
- seal a minimum of 60m metres from the edge of the Brand Highway along Mount Adams Road to prevent dirt and debris being deposited on the road network.

a) Extension of the Restricted Access Vehicle (RAV) Network access or Heavy Vehicle Accreditation requires a separate application made to Main Roads Heavy Vehicle Services Branch. Information can also be found on the Heavy Vehicles Access Requirements in WA section of the Main Roads website.

Main Roads support of the proposal is valid for a period of two (2) years from the date of this letter. Any changes or date extensions relating to this development application must be referred to Main Roads for comment and recommendation.

Should the Shire disagree with or resolve not to include as part of its conditional approval any of the above conditions or advice, Main Roads requests an opportunity to meet and discuss the application further, prior to a final determination being made.

If you would like any further information please contact Mark Willson on (08) 9956 1234 or by email mark.willson@mainroads.wa.gov.au

Yours sincerely,

Louise Adamson
Network Manager
Mid West-Gascoyne Region

Department of
Primary Industries and Regional Development

GOVERNMENT OF WESTERN AUSTRALIA

Your reference: OCR235357
Our reference: LUP 1535
Enquiries: Greg Doncon

Keith Woodward
Chief Executive Officer
PO Box 117
Three Springs WA 6519
general@threesprings.wa.gov.au

7 February 2023

Dear Keith

Proposed Workforce Accommodation – Lot 10711 (P209764), 2135 Tomkins Road, Arrowsmith East

Thank you for inviting the Department of Primary Industries and Regional Development (DPIRD) to comment on the above proposal.

DPIRD does not object to the proposal and offers the following comments:

The rig site and the main camp, associated with the exploration drilling program, will be located on the soil-landscape type referred to as the Mount Adams 6 subsystem. Soils of this subsystem are comprised of Pale and Gravelly pale deep sands with common gravel soils and some Yellow deep sand. These soils predominately have a low risk of water erosion (100%). The main risks associated with these soils is a moderate to high risk of wind erosion (82%), high risk of phosphorus export (28%) and a moderate to high risk of water repellence.

The site is surrounded by vegetation, so the risk of wind erosion is low. The aerial photography suggests that the rig site and main camp may be located on/or near bare areas which combined with water repellent soils, gentle slope terrain transitioning into valley floor) and a slight drainage depression increases the risk of stormwater runoff into and through the camp sites.

DPIRD suggests implementing surface water management measures to ensure that water movement through the site is controlled and the soil is protected. This will also improve the amenity for staff residing onsite.

75 York Road Northam 6401
PO Box 483 Northam WA 6401
Telephone +61 (0)8 9690 2000 landuse.planning@dpird.wa.gov.au
dpird.wa.gov.au
ABN: 18 951 343 745

There are limited details of the future plan for the main camp, however as the drilling program is expected to be completed within a period of 80-95 days and no plans are outlined for the ongoing use of the rig site facilities after the completion of the drilling program, DPIRD requests approval should be conditional on a decommissioning and rehabilitation plan to ensure the land is restored to either its current or improved agricultural potential or revegetated to prevent wind erosion.

For more information, please contact Greg Doncon on 90813117 or Greg.Doncon@dpird.wa.gov.au

Yours sincerely

Dr Melanie Strawbridge
Director Agriculture Resource Management Assessment
Sustainability and Biosecurity

From: Fiona Dempster
Sent: Wednesday, 22 March 2023 9:07 PM
To: General <general@threesprings.wa.gov.au <mailto:general@threesprings.wa.gov.au
Subject: workforce accommodation - 2135 Tompkins Rd

Dear Council

We provide feedback on the workforce accommodation proposed for 2135 Tompkins Rd, Arrowsmith East. We reside and operate a grain/ livestock business on the adjacent properties on Tompkins and Natta Road.

1. Access to the proposed facility is located near the school services bus route. What measures will be taken to manage additional traffic and ensure safety on these roads during school bus hours?

2. Our farming enterprise relies on quality roads for safe grain and fertiliser haulage. Which roads will be the main access route to the facility and what upgrades will be needed to these roads to manage the additional traffic? It is unclear in the proposal provided on the website.

3. Upgrading the phone tower to provide 5G phone signal and including a backup generator in the instance of power outages (which are frequent during the fire season) are necessary to ensure the safety of the workforce when faced with a fire emergency.

4. Bushfire is a serious risk to farmland on neighbouring properties. There are three local fire brigades that operate in the district: Mingenew and Three Springs and Irwin. These brigades are the first responders to fire in the district and volunteer groups. Will workers be trained in bushfire/ emergency management? Will there be a bushfire management plan for the facility?

Kind regards

Fiona (on behalf of Goldsand Farms)

Fiona Dempster

PhD, BaSci(hon)

Goldsand Farms

PO Box 55 Mingenew 6522

GOVERNMENT OF WESTERN AUSTRALIA

Department of **Biodiversity, Conservation and Attractions**

PARKS AND WILDLIFE SERVICE

Your ref: A12
Our ref: PRS 50222
Enquiries: Nick Detchon
Phone: 9964 0901
Email: nicholas.detchon@dbca.wa.gov.au

Mr Keith Woodward PSM
Chief Executive Officer
Shire of Three Springs
PO Box 117
THREE SPRINGS WA 6519

Email: general@threesprings.wa.gov.au

Dear Mr Woodward

PROPOSED WORKFORCE ACCOMMODATION - 2135 (Lot 10711) TOMKINS ROAD, ARROWSMITH EAST

Thank you for your letter of 01 March 2023 regarding the workforce accommodation proposal.

The Department of Biodiversity, Conservation and Attractions has no objections to the proposal as outlined in your letter. It is anticipated that the proposed workforce accommodation proposal and any associated environmental impacts will be appropriately managed through the existing planning framework.

Thank you for raising this matter to our attention. If you have any queries regarding this matter, please contact Nick Detchon on 9964 0901.

Yours sincerely



Allison Donovan
REGIONAL MANAGER
Midwest Region

23 March 2023

From: DFES Land Use Planning <advice@dfes.wa.gov.au>
Sent: Friday, 24 March 2023 1:36 PM
To: Patricia Mckeon <es@threesprings.wa.gov.au>
Cc: General <general@threesprings.wa.gov.au>
Subject: ICR2318860 - OCR235430 - Lot 10711 (2135) Tomkins Road Arrowsmith East - Proposed Workforce Accommodation - DFES Response

DFES Reference: D27951
City Reference: OCR235430

Re: 2135 (Lot 10711) Tomkins Road, Arrowsmith East

Dear Mr Woodward

I refer to your email dated 1 March 2023 in relation to the referral of proposed development application for 2135 (Lot 10711) Tomkins Road, Arrowsmith East.

It is unclear from the documentation provided if the Three Springs Shire Council has applied *State Planning Policy 3.7 – Planning in Bushfire Prone Areas* (SPP 3.7) to this proposal.

Exemptions from the requirements of SPP 3.7 should be applied pragmatically by the decision maker and are identified in *Guidelines for Planning in Bushfire Prone Areas (section 2.6)*.

Should you apply SPP 3.7 then, we request the relevant information pursuant to this policy be forwarded to DFES to allow us to review and provide comment prior to the determination of the application.

Section 3.2.1 of the Guidelines for Planning In Bushfire Prone Areas notes that a BAL assessment (basic) can be completed where the site is of a significant enough size that the building envelope to which the proposal relates is not within 100m of bushfire prone vegetation. From the information provided, it appears that this may be the case, however this should be verified by the decision maker.

If there is some other reason which has given you cause to consider a referral to DFES, could you please provide detail on the attached 'Referral to DFES Checklist'.

Kind regards

Michael Ball
Senior Land Use Planning Officer

20 Stockton Bend, Cockburn Central, Perth WA 6164
T: 08 9395 9819 | **E:** advice@dfes.wa.gov.au | **W:** dfes.wa.gov.au



Acknowledgement of Country: DFES acknowledges the Traditional Owners of Country throughout Australia, and their connections to land, sea and community. We pay our respects to Elders past and present.

From: Lebessis, Anthony <anthony.lebessis@team.telstra.com>
Sent: Sunday, 16 April 2023 11:12 AM
To: Patricia Mckeon <es@threesprings.wa.gov.au>
Subject: Re: Proposed Workforce Accommodation – 2135 (Lot 10711) Tomkins Road, Arrowsmith East

Good afternoon,

Please be advised that Telstra **has no objections** to the proposed workforce accommodation – 2135 (Lot 10711) Tomkins Road, Arrowsmith East. Please note that there is a property lead-in cable traversing from Tomknis road in the North all the way to the dwelling in the South. If there any intentions to do any works please locate this cable before any works commence to avoid any damage.The Telstra plans can be obtained via BYDA (www.1100.com.au).

Regards

Anthony Lebessis
Planned Services-Consultant
Network Technical-Specialist
Road Closures/Openings, Tenures & Reticulations
Planned Services
GBS Field Services
Brisbane QLD 4001
Australia

P +07 3455 2365
M 0455 431 696
E Anthony.Lebessis@team.telstra.com
W www.telstra.com

This email may contain confidential information.
If I've sent it to you by accident, please reply to this email to notify the sender of its incorrect delivery and then delete both it and your reply.

PLEASE NOTE:

Please email your future requests to F0501488@team.telstra.com * DO NOT POST ***. Also ensure that clear and legible plans or maps are provided in order to avoid delays in processing your request .**

BEFORE YOU DIG www.byda.com.au
Zero Damage - Zero Harm

Schedule of Submissions - Temporary Workforce Accommodation – 2135 (Lot 10711) Tomkins Road, Arrowsmith East				
Submission & Date Received	Respondent	Nature of Submission	Comment	Recommendation
1 (2/3/23)	Department of Mines, Industry Regulation & Safety	DMIRS lodges no objection to the development. DMIRS has assessed this proposal with respect to mineral and petroleum resources, geothermal energy, and basic raw materials and makes the following comment. The drill and camp sites are located within granted E70/6001 held by Anaheim Pty Ltd. While the activity and infrastructure are temporary it would be preferred if the tenement holder were contacted to ensure the drill site and camp and associated activities will not impact any short-term exploration activity planned by the tenement holder. While long-term exploration clearly will not be impacted any exploration in the area could increase risk of vehicle interactions and basic communication between the active parties should resolve any short-term issues.	Copy of DMIRS submission has been provided to the applicant to ensure they are aware of received comments. The applicant has advised they will contact and advise tenement owner Anaheim Pty Ltd of the planned camp activities. It is noted that the issue, and subsequent management, of Exploration Permit 320 (Beach Energy Pty Ltd) and Exploration Permit 70/6001 (Anahaim Pty Ltd) is a matter overseen by DMIRS. In the event that there are overlapping aspects and impacts this is a matter for DMIRS to give consideration to in its assessment of applications and subsequent management thereof. Local government is not party to the issuing of petroleum and mining licences.	Note submission.
2 (10/3/23)	Western Power	Unfortunately requests for general comments, feedback and approval for proposals can't be provided for without application and the investigation and dialogue that allows. We suggest: • Reviewing your query against the processes referred to in our Strategic Planning web page • Where a change of land use, or permanent road closure will affect our ability to access our infrastructure for maintenance or in an emergency, the original accessway or an alternative must be maintained. Changed access conditions should be communicated via our land entry preferences form, • Use our provided mapping tools and "Before You Dig" to locate any assets that would be affected by any proposed change or development, • If there are transmission assets (66,000-330,000 volts) in proximity to your work, apply via our move or remove transmission and communication assets form, • Ensuring any developers involved are aware that they will need to make an application to deal with any assets that are in the development area as well as for the power requirements for the development. Thank you and we look forward to receiving your information/applications through the correct channels.	Unfortunately Western Power have again chosen to abrogate its responsibility to provide comment to local government in this matter and in other planning matters including scheme reviews, rezonings, development applications, road and ROW closures and general planning enquiries. The Shire wrote directly to Western Power providing sufficient information for it to be able to make comment upon this application. Copy of Western Power submission has been provided to applicant to ensure they are aware of their Dial Before Your Dig requirements prior to commencement. Applicant has advised that no issues were raised through the DBYD process. In the event that the applicant seeks to make/upgrade power connection this will be required to be done through their direct approach to Western Power and at their expense, as is standard Western Power practice.	Note submission.
3 (13/3/23)	ATCO Gas	ATCO has no objection to the proposed application based on the information and plan provided.	Copy of ATCO submission has been provided to applicant to ensure they are aware of their Dial Before Your Dig requirements prior to	Note submission and include advice note as

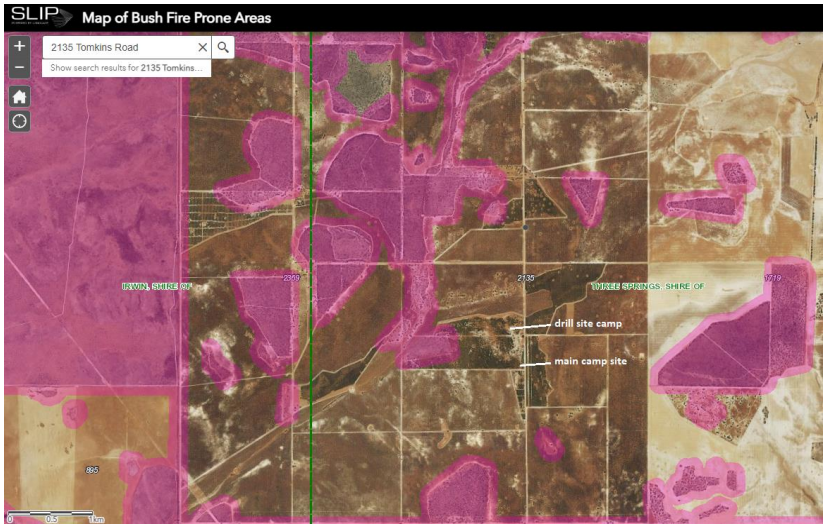
Schedule of Submissions - Temporary Workforce Accommodation – 2135 (Lot 10711) Tomkins Road, Arrowsmith East				
Submission & Date Received	Respondent	Nature of Submission	Comment	Recommendation
		Anyone proposing to carry out construction or excavation works must contact *'Before You Dig Australia'* to determine the location of buried gas infrastructure. Proposed construction and excavation works need to be managed in accordance with the ATCO document *Additional Information for Working Around Gas Infrastructure - AGA-O&M-PR24.*	commencement. Applicant has advised that no issues were raised through the DBYD process. In the event that Council approves the application it is recommended that the following advice note be included with the determination: *"The applicant is advised that this planning approval does not negate the requirement for any additional approvals which may be required under separate legislation including but not limited to the obtaining of any required approvals from the Department of Health, the Department of Mines, Industry Regulation & Safety, the Department of Water & Environment Regulation and Main Roads WA. It is the applicant's responsibility to obtain any additional approvals required before the development/use lawfully commences."*	outlined in Comment section.
4 (14/3/23)	Main Roads WA	The proposal is not located within or adjacent to a road reserve under MRWA jurisdiction. MRWA has no current plans in the area that would affect Lot 10711. MRWA does not object to the proposal and provides the following advice. MRWA recommends the Shire consider acquiring contributions from developments creating traffic that impact Brand Highway and Mount Adams Road intersection • to seal the intersection to improve skid resistance and facilitate the swept path movement of all vehicles and; • seal a minimum of 60m from the edge of the Brand Highway along Mount Adams Road to prevent dirt and debris being deposited on the road network. Extension of the Restricted Access Vehicle (RAV) Network access or Heavy Vehicle Accreditation requires a separate application made to MRWA Heavy Vehicle Services Branch. MRWA support of the proposal is valid for a period of 2 years from the date of this letter. Any changes or date extensions	Copy of MRWA submission has been provided to applicant to ensure they are aware of their advice. Applicant has advised that: *"Beach is aware that additional road maintenance on these roads caused by our heavy traffic that may be required and commit to maintaining the road in a safe condition*." The applicant's Traffic Management Plan estimates that during the mobilisation and demobilisation phases there would be on average 10 truck movements per day (estimated 102 total loads) and on average 2 truck movements per day during the drilling phase (estimated 45 total loads). In the event that Council approves the application, the following condition be applied to the determination: *"The applicant shall make payment to the local government for the repair, reinstatement or replacement of any road infrastructure that is damaged, becomes unsafe or fails to meet appropriate engineering standards where the damage to the road network is caused by reason of use of the road in connection with the approved development (or where agreed to by the local government, the applicant may instead arrange for such repair, reinstatement or replacement works to be undertaken to the satisfaction of the local government)."*	Note submission and include conditions and advice note as outlined in Comment section

Schedule of Submissions - Temporary Workforce Accommodation – 2135 (Lot 10711) Tomkins Road, Arrowsmith East				
Submission & Date Received	Respondent	Nature of Submission	Comment	Recommendation
		relating to this development application must be referred to MRWA for comment and recommendation. Should the Shire disagree with or resolve not to include as part of its conditional approval any of the above conditions or advice, MRWA requests an opportunity to meet and discuss the application further, prior to a final determination being made.	It is also recommended that the following advice notes be included with any approval determination: *"The applicant is advised that this planning approval does not negate the requirement for any additional approvals which may be required under separate legislation including but not limited to the obtaining of any required approvals from the Department of Health, the Department of Mines, Industry Regulation & Safety, the Department of Water & Environment Regulation and Main Roads WA. It is the applicant's responsibility to obtain any additional approvals required before the development/use lawfully commences."* *"The applicant will need to consult with the Main Roads WA Heavy Vehicle Services branch to ascertain any approval requirements that may be required for their proposed heavy vehicle combinations, transport routes and operations."*	
5 (21/3/23)	Department of Primary Industries & Regional Develop-ment	DPIRD does not object to the proposal and offers the following comments: The rig site and the main camp, associated with the exploration drilling program, will be located on the soil-landscape type referred to as the Mount Adams 6 subsystem. Soils of this subsystem are comprised of pale and gravelly pale deep sands with common gravel soils and some yellow deep sand. These soils predominately have a low risk of water erosion (100%). The main risks associated with these soils is a moderate to high risk of wind erosion (82%), high risk of phosphorus export (28%) and a moderate to high risk of water repellence. The site is surrounded by vegetation, so the risk of wind erosion is low. The aerial photography suggests that the rig site and main camp may be located on/or near bare areas which combined with water repellent soils, gentle slope terrain transitioning into valley floor) and a slight drainage depression increases the risk of stormwater runoff into and through the camp sites.	Copy of DPIRD submission has been provided to applicant to ensure they are aware of their advice. The applicant's Environment Plan noted in regards to wind the following: *"Dust can cause reduced air quality, acute and chronic health effects, as well as amenity impacts due to reduced visibility and settling on surfaces causing soiling and staining (DEC 2011). Using a dust risk assessment tool (DEC 2011), which considered the soil type, wind speeds and location context, the risks associated with dust caused by the activities described in this EP were classed as negligible, with no provisions or contingency arrangements required.* *A long-term monitoring program that investigated impacts of dust on vegetation for a significant development in the Pilbara over a 5 year period, where significantly higher volumes of vehicles (heavy and light) and earthworks were present, determined that no adverse impacts occurred to plant health or vegetation communities as a result of construction dust loads (Chevron Australia 2015).* *Given that all activities occur within the Development Envelope, and the Development Envelope is approximately 2 km from the closest*	Note submission and include condition and advice note as outlined in Comment section

Schedule of Submissions - Temporary Workforce Accommodation – 2135 (Lot 10711) Tomkins Road, Arrowsmith East				
Submission & Date Received	Respondent	Nature of Submission	Comment	Recommendation
		DPIRD suggests implementing surface water management measures to ensure that water movement through the site is controlled and the soil is protected. This will also improve the amenity for staff residing onsite. There are limited details of the future plan for the main camp, however as the drilling program is expected to be completed within a period of 80-95 days and no plans are outlined for the ongoing use of the rig site facilities after the completion of the drilling program, DPIRD requests approval should be conditional on a decommissioning and rehabilitation plan to ensure the land is restored to either its current or improved agricultural potential or revegetated to prevent wind erosion.	*residential receptor and away from native vegetation, the dust generated is not expected to cause a significant impact to local landowners or vegetation."* Sections 2.8 and 2.10 and Table 2.8 of the applicant's Environment Plan addresses their decommissioning and rehabilitation procedures. It is recommended that, in the event that Council approves the application, the following conditions be applied to the determination: *"The applicant is to prepare, submit and adhere to a Management Plan to the approval of the local government."* *"The applicant is to implement and maintain reporting mechanisms for complaints concerning the operation of the development. In the event of a substantiated complaint being received the applicant is required to demonstrate mitigation response(s) to the approval of the local government. Such response(s) will be treated as conditions of approval/required modifications to the Management Plan."* It is also recommended that any approval include advice note stating that: *"The Management Plan is to include sections relating to Fire Management, Emergency Response Plan, Waste Management, Noise/Light/Dust Management and Post Camp Rehabilitation (that details post-closure obligations and clean-up and rehabilitation of the site) to the approval of the local government. In the event that the camps are sited within an area identified upon the Department of Fire & Emergency Services State Map of Bushfire Prone Areas the Fire Management Plan must be submitted as a separate document and prepared and implemented to the requirements of the Department of Fire & Emergency Services."*	
6 (22/3/23)	F Dempster (Goldsand Farms)	We reside and operate a grain/ livestock business on the adjacent properties on Tompkins and Natta Road. Access to the proposed facility is located near the school services bus route. What measures will be taken to manage	Copy of the submission (with personal contact details redacted) was provided to the applicant to make them aware of the queries raised in the submission. The applicant has responded as follows:	Note submission and include conditions and advice note as outlined in

Schedule of Submissions - Temporary Workforce Accommodation – 2135 (Lot 10711) Tomkins Road, Arrowsmith East				
Submission & Date Received	Respondent	Nature of Submission	Comment	Recommendation
		additional traffic and ensure safety on these roads during school bus hours? Our farming enterprise relies on quality roads for safe grain and fertiliser haulage. Which roads will be the main access route to the facility and what upgrades will be needed to these roads to manage the additional traffic? It is unclear in the proposal provided on the website. Upgrading the phone tower to provide 5G phone signal and including a backup generator in the instance of power outages (which are frequent during the fire season) are necessary to ensure the safety of the workforce when faced with a fire emergency. Bushfire is a serious risk to farmland on neighbouring properties. There are 3 local fire brigades that operate in the district: Mingenew and Three Springs and Irwin. These brigades are the first responders to fire in the district and volunteer groups. Will workers be trained in bushfire/emergency management? Will there be a bushfire management plan for the facility?	"*Beach has been in contact with the Three Springs shire and their school bus providers. The Beach Traffic Management Plan (CDN/ID 19010952) Section 10.2 covers Traffic impact around peak school times. Where our operations impact on a school bus route the above plan is clear that vehicles with a Gross Vehicle Mass (GVM) greater than 40.5t, gravel trucks or non-placard loads are not permitted to use school bus identified route roads during school bus schedules. (0730hrs to 0900hrs and 1430hrs to 1600hrs. WA school terms are also listed in the plan. This awareness will be promoted in inductions. Access to the site will be via Mount Adams Road, Tomkins Road and Robb Road.* *Beach is aware that additional road maintenance on these roads caused by our heavy traffic that may be required and commit to maintaining the road in a safe condition*. *Beach has their own onsite dedicated communications and is not reliant on local phone towers. There is no intention by Beach to contribute to any phone tower upgrades or backup generators.* *A comprehensive risk assessment has been completed for our operations which capture all potential emergences including bushfire and other onsite fire type emergencies. All controls identified are in place including necessary training requirements, notification process with DFES, additional water source and pumps. Our bushfire and onsite fire emergencies requirements are reviewed and verified as in place and appropriate daily.* *Bushfire Management is built into our HSE Plan, and we are registered with DFES and Shire of Irwin for SMS notifications – Harvest and Vehicle Movement."* It is considered reasonable that Council should be able to impose conditions relating to use of its local road network by project operators. It is recommended that, in the event that Council approves the application, the following conditions be applied to the determination:	Comment section.

			"The applicant is to prepare, submit and adhere to a Management Plan to the approval of the local government." *"The applicant is to implement and maintain reporting mechanisms for complaints concerning the operation of the development. In the event of a substantiated complaint being received the applicant is required to demonstrate mitigation response(s) to the approval of the local government. Such response(s) will be treated as conditions of approval/required modifications to the Management Plan."* *"The applicant shall make payment to the local government for the repair, reinstatement or replacement of any road infrastructure that is damaged, becomes unsafe or fails to meet appropriate engineering standards where the damage to the road network is caused by reason of use of the road in connection with the approved development (or where agreed to by the local government, the applicant may instead arrange for such repair, reinstatement or replacement works to be undertaken to the satisfaction of the local government)."* *"The location, design and construction/upgrading of the access point(s) onto the road network shall be to the requirements of the local government."* *"The installation of any directional/traffic/warning/safety signage in the vicinity of the development's access point(s) onto the road network and relating to the development shall be to the requirements of the local government."* *"All parking of vehicles associated with the development shall be provided for within the property boundary."* It is also recommended that any approval include an advice note stating that: "*The applicant will need to consult with the Main Roads WA Heavy Vehicle Services branch to ascertain any approval requirements that may be required for their proposed heavy vehicle combinations and transport routes."*	

Schedule of Submissions - Temporary Workforce Accommodation – 2135 (Lot 10711) Tomkins Road, Arrowsmith East				
Submission & Date Received	Respondent	Nature of Submission	Comment	Recommendation
7 (23/3/23)	Department of Biodiversity Conserv-ation & Attractions	*No objection* DBCA has no objections to the proposal. It is anticipated that the proposed workforce accommodation and any associated environmental impacts will be appropriately managed through the existing planning framework.	No additional comment	Note submission
8 (24/3/23)	Department of Fire & Emergency Services	*Comment provided* It is unclear from the documentation provided if the Shire has applied *State Planning Policy 3.7–Planning in Bushfire Prone Areas* (SPP 3.7) to this proposal. Exemptions from the requirements of SPP 3.7 should be applied pragmatically by the decision maker and are identified in *Guidelines for Planning in Bushfire Prone Areas (section 2.6)*. Should you apply SPP 3.7 then, we request the relevant information pursuant to this policy be forwarded to DFES to allow us to review and provide comment prior to the Shire's endorsement of the application. Section 3.2.1 of the Guidelines for Planning In Bushfire Prone Areas notes that a BAL assessment (basic) can be completed where the site is of a significant enough size that the building envelope to which the proposal relates is not within 100m of bushfire prone vegetation. From the information provided, it appears that this may be the case, however this should be verified by the decision maker.	The proposed drill site and main camp site are identified as being outside the area identified as bushfire prone upon the DFES State Map of Bushfire Prone Areas (see below).  However, it would appear that the DFES modelling is based upon dated aerial photography and on this basis it would be reasonable for the applicant to address the issue of fire management. Bushfire management is discussed in Sections 7.8 and 7.9 of the applicant's Health, Safety and Environmental Plan and Section 5.82 of the Environment Plan. It is recommended that, in the event that Council approves the application, the following condition be applied to the determination:	Note submission and include conditions and advice note as outlined in Comment section.

Schedule of Submissions - Temporary Workforce Accommodation – 2135 (Lot 10711) Tomkins Road, Arrowsmith East				
Submission & Date Received	Respondent	Nature of Submission	Comment	Recommendation
			"The applicant is to prepare, submit and adhere to a Management Plan to the approval of the local government." It is also recommended that an advice note be applied stating that: *"The Management Plan is to include sections relating to Fire Management, Emergency Response Plan, Waste Management, Noise/Light/Dust Management and Post Camp Rehabilitation (that details post-closure obligations and clean-up and rehabilitation of the site) to the approval of the local government."* It is noted that the drilling operations itself, which is the activity considered more likely to pose fire risk than the siting of a camp, has already been approved by the State Government. The applicant has been issued with a petroleum exploration permit (EP320) by the Department of Mines, Industry Regulation & Safety under the *Petroleum and Geothermal Energy Resources Act 1967* over the western portion of the Shire of Three Springs and south-eastern portion of the Shire of Irwin. Section 38 of the *Petroleum and Geothermal Energy Resources Act 1967* allows the registered holder of a petroleum exploration permit to explore for petroleum and to carry on such operations and execute such works as are necessary for that purpose in the permit area. Under Section 5 of the Act petroleum is defined to include any naturally occurring hydrocarbon whether in gaseous, liquid or solid state. The applicant has been issued with a petroleum exploration permit by the Department of Mines, Industry Regulation & Safety and the scope of this application to the local government is limited to the matter of the temporary workforce accommodation camps and the access points onto, and use of the local road network, and not the ultimate purpose for which the camps are required to serve, as this is addressed by the overriding State approval.	

Schedule of Submissions - Temporary Workforce Accommodation – 2135 (Lot 10711) Tomkins Road, Arrowsmith East				
Submission & Date Received	Respondent	Nature of Submission	Comment	Recommendation
9 (16/4/23)	Telstra	Telstra has no objections to the proposed workforce accommodation. Please note there is a property lead-in cable traversing from Tomkins road in the north all the way to the dwelling in the south. If there any intentions to do any works please locate this cable before any works commence to avoid any damage. The Telstra plans can be obtained via BYDA	Copy of Telstra's late submission has been provided to the applicant to ensure they are aware of their Dial Before Your Dig requirements prior to commencement. In the event that Council approves the application it is recommended that the following advice note be included with the determination: *"The applicant is advised that this planning approval does not negate the requirement for any additional approvals, or compliance, that may be required under separate legislation including but not limited to the following where required, Environmental Protection Act 1986 and the Mines Safety and Inspection Act 1994. It is the landowner's responsibility to obtain any additional approvals required before the development lawfully commences."*	Note submission and include advice note as outlined in Comment section.

The following table summarises the feedback received by the Shire of Three Springs during the advertised period of our Trigg NW 1 camp application and our Beach responses.

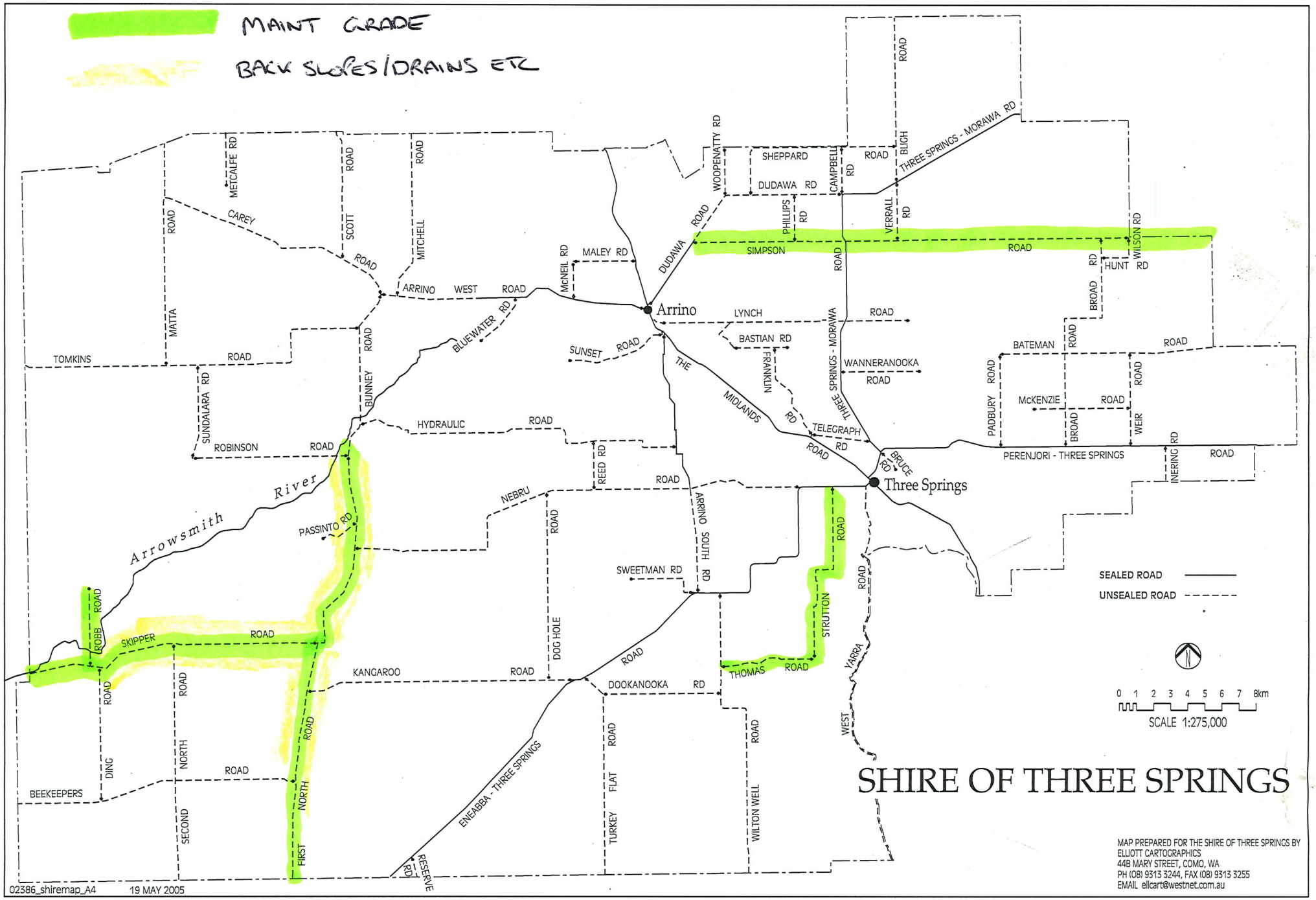
Stakeholder	Date	Consultation Type	Summary of Consultation feedback	Beach Response
Western Power	10/03/2023	Email	Where Western Power's access is going to be impeded, communication should be made via "Land entry preferences form" Proponent should use "Before You Dig Australia" If assets are present the proponent should apply via the "move or remove transmission and communication assets" form.	Western Power were contacted as part of the BYDA process (Job Number 33156955). There were no issues raised through this BYDA process.
DMIRS	02/03/2023	Letter	Camp and minicamp are located within Sheffield Resources Limited (tenement managers C/- McMahon Mining Title Services Pty Ltd, PO Box 6301, East Perth, WA, 6892) mining tenement E 70/4292 and pending M 70/1419. It is suggested that Beach notify the tenement holder of the temporary camps.	Beach will advise tenement owner Anaheim Pty Ltd (via McMahon Mining Title Services Pty Ltd) of the planned camp activities
DFES	24/03/2023	Email	As the site is not within a bushfire prone area and would not require a bushfire management plan. Not considered to require referral to DFES.	Bushfire Management is built into our HSE Plan, and we are registered with DFES and Shire of Irwin for SMS notifications – Harvest and Vehicle Movement.
DPIRD	07/02/2023	Letter	DPIRD suggests implementing surface water management measures to ensure that water movement through the site is controlled and the soil is protected.	The Trigg NW1 approved Environment Plan (CDN/ID 19011222) outlines both the management of wind and water erosion (Section 5.1) and decommissioning and rehabilitation (section 2.8).

			DPIRD requests approval should be conditional on a decommissioning and rehabilitation plan to ensure the land is restored to either its current or improved agricultural potential.	
Main Roads	15/03/2022?	Letter	The proposal is not located within or adjacent to a road reserve under Main Roads jurisdiction. Main Roads support for the proposal is valid for two years from the date of this letter.	Public Roads were contacted as part of the BYDA process (Job Number 33156955). There were no issues raised through this BYDA process. Information on traffic volumes is included in the Traffic Management Plan (CDN/ID 19010952) Section 10.1 Project Phases & Traffic Impact.
ATCO	09/02/2023	Email	No construction or excavation works should be carried out in the DBNGP corridor. Proponents are to contact 'Before You Dig Australia' to determine the location of buried gas infrastructure.	BYDA process (Job Number 33156955). There were no issues raised through this BYDA process.
Local Landowner	13/02/2023	Written Form	Feedback on Proposed Camp 1. Access to the proposed facility is located near the school services bus route. What measures will be taken to manage additional traffic and ensure safety on these roads during school bus hours? 2. Our farming enterprise relies on quality roads for safe grain and fertiliser haulage. Which roads will be the main access route to the facility and what upgrades will be needed to these roads to manage the additional traffic? It is unclear in the proposal provided on the website.	Beach has been in contact with the Three Springs shire and their school bus providers. The Beach Traffic Management Plan (CDN/ID 19010952) Section 10.2 covers Traffic impact around peak school times. Where our operations impact on a school bus route the above plan is clear that vehicles with a Gross Vehicle Mass (GVM) greater than 40.5t, gravel trucks or non-placard loads are not permitted to use school bus identified route roads during school bus schedules. (0730hrs to 0900hrs and 1430hrs to 1600hrs. WA school terms are also listed in the plan. This awareness will be promoted in inductions. Access to the site will be via Mount Adams Road, Tomkins Road and Robb Road. Beach is aware that additional road maintenance on these roads caused by our heavy traffic that may be required and commit to maintaining the road in a safe condition.

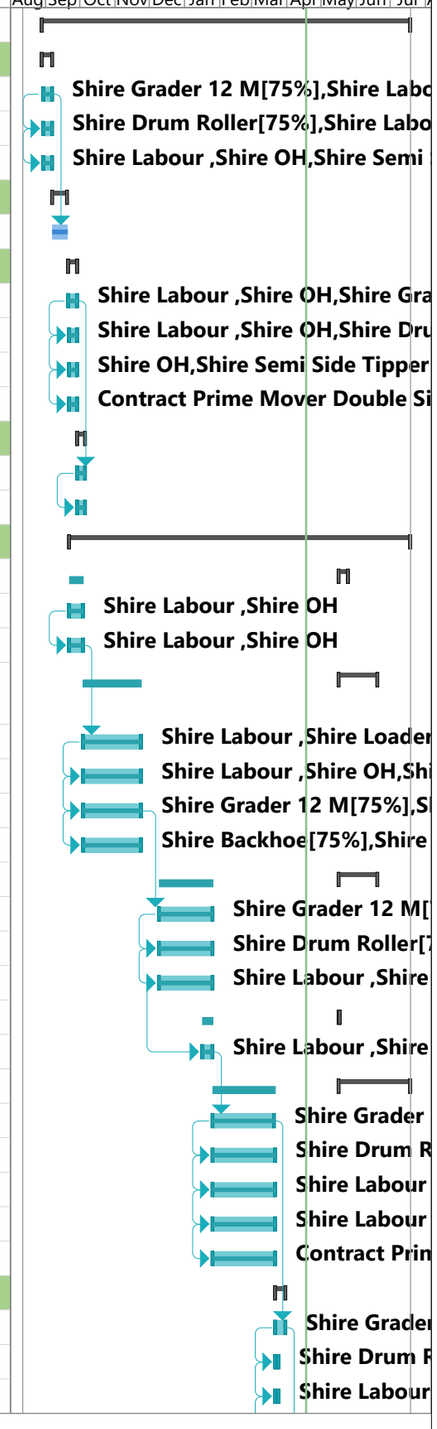
			3. Upgrading the phone tower to provide 5G phone signal and including a backup generator in the instance of power outages (which are frequent during the fire season) are necessary to ensure the safety of the workforce when faced with a fire emergency. 4. Bushfire is a serious risk to farmland on neighbouring properties. There are three local fire brigades that operate in the district: Mingenew and Three Springs and Irwin. These brigades are the first responders to fire in the district and volunteer groups. Will workers be trained in bushfire/ emergency management? Will there be a bushfire management plan for the facility?	Beach has their own onsite dedicated communications and is not reliant on local phone towers. There is no intention by Beach to contribute to any phone tower upgrades or backup generators. A comprehensive risk assessment has been completed for our operations which capture all potential emergences including bushfire and other onsite fire type emergencies. All controls identified are in place including necessary training requirements, notification process with DFES, additional water source and pumps. Our bushfire and onsite fire emergencies requirements are reviewed and verified as in place and appropriate daily.
Telstra	16/04/2023	Email	Please be advised that Telstra has no objections to the proposed workforce accommodation – 2135 (Lot 10711) Tomkins Road, Arrowsmith East. Please note that there is a property lead-in cable traversing from Tomknis road in the North all the way to the dwelling in the South. If there any intentions to do any works please locate this cable before any works commence to avoid any damage.The Telstra plans can be obtained via BYDA (www.1100.com.au).	BYDA process (Job Number 33156955) raised the presence of the Telstra cable. Maps were sourced and a Telstra provider did cable locating along the length of the access track to ensure avoidance prior to any works.

MAINT GRADE MARCH/APRIL

Attachment 10.5



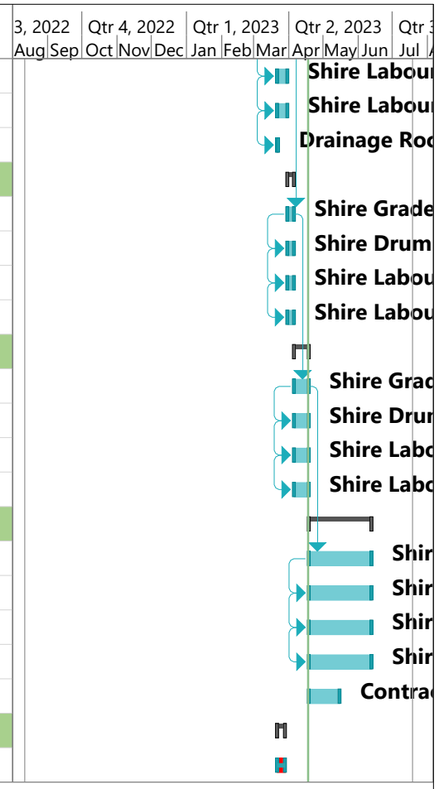
ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Cost
1		**Shire of Three Springs Capital Works 2022-23**	**171.89 days?**	**Mon 29/08/22**	**Tue 18/07/23**		**$763,347.14**
2		**Mc Kenzie Road**	**5 days**	**Mon 29/08/22**	**Tue 6/09/22**		**$19,801.80**
3		Shire Grader	5 days	Mon 29/08/22	Tue 6/09/22		$5,981.85
4		Shire Roller	5 days	Mon 29/08/22	Tue 6/09/22	3SS	$5,644.35
5		Shire Water	5 days	Mon 29/08/22	Tue 6/09/22	4SS	$8,175.60
6		**Rain Response**	**7.33 days**	**Tue 6/09/22**	**Mon 19/09/22**		**$0.00**
7		Crew (Not Planned)	1.5 wks	Tue 6/09/22	Mon 19/09/22	3FS+1 day	$0.00
8		**Broad Road**	**4.11 days**	**Wed 21/09/22**	**Wed 28/09/22**		**$8,000.04**
9		Grader	4.11 days	Wed 21/09/22	Wed 28/09/22		$132.93
10		Roller	4.11 days	Wed 21/09/22	Wed 28/09/22	9SS	$125.43
11		Water Truck	4.11 days	Wed 21/09/22	Wed 28/09/22	10SS	$181.68
12		Contract Semi	4 days	Wed 21/09/22	Wed 28/09/22	11SS	$7,560.00
13		**Pot Holes**	**4 days**	**Wed 28/09/22**	**Wed 5/10/22**		**$0.00**
14		Crew One - Town Streets (Not Planned)	4 days	Wed 28/09/22	Wed 5/10/22	9	$0.00
15		Crew Two - Rural Roads (Not Planned)	4 days	Wed 28/09/22	Wed 5/10/22	14SS	$0.00
16		**Project Dudawa Road (Shoulder to Shoulder edge 10m. Seal 8 m)**	**157.89 days?**	**Wed 21/09/22**	**Tue 18/07/23**		**$441,848.25**
17		**Administration and Planning**	**4.44 days?**	**Tue 16/05/23**	**Wed 24/05/23**		**$6,226.20**
18		Traffic Management	5 days	Wed 21/09/22	Mon 3/10/22		$3,113.10
19		Mark Centre Line and Design Seal Width	5 days	Wed 21/09/22	Mon 3/10/22	18SS	$3,113.10
20		**Stage One - Clear Road Reserve of Vegetation, Debris and Windrows. Establish and Clear Drainage and Headwalls**	**17.78 days?**	**Tue 16/05/23**	**Mon 19/06/23**		**$150,274.08**
21		Shire Loader	6 wks	Mon 3/10/22	Wed 23/11/22	19	$33,113.52
22		Shire Truck	6 wks	Mon 3/10/22	Wed 23/11/22	21SS	$47,963.52
23		Shire Grader	6 wks	Mon 3/10/22	Wed 23/11/22	22SS	$35,093.52
24		Shire Backhoe	6 wks	Mon 3/10/22	Wed 23/11/22	23SS	$34,103.52
25		**Basic Trim to Level (Stage One)**	**17.78 days?**	**Tue 16/05/23**	**Mon 19/06/23**		**$77,447.04**
26		Shire Grader	4 wks	Fri 9/12/22	Wed 25/01/23	23FS+2 wks	$23,395.68
27		Shire Roller	4 wks	Fri 9/12/22	Wed 25/01/23	26SS	$22,075.68
28		Shire Water	4 wks	Fri 9/12/22	Wed 25/01/23	27SS	$31,975.68
29		**Stage Two Shoulder Widening**	**0.89 days?**	**Tue 16/05/23**	**Wed 17/05/23**		**$3,043.92**
30		Offset pegs every 50 m	1 wk	Mon 16/01/23	Wed 25/01/23	28SS+3 wks	$3,043.92
31		**Rip shoulder, Cart Road base/Blend, Widen, Compact, and Trim**	**35.56 days?**	**Tue 16/05/23**	**Tue 18/07/23**		**$204,857.01**
32		Shire Grader	6.02 wks	Wed 25/01/23	Tue 21/03/23	30	$35,226.45
33		Shire Roller	6 wks	Wed 25/01/23	Tue 21/03/23	32SS	$33,113.52
34		Shire Water	6 wks	Wed 25/01/23	Tue 21/03/23	33SS	$47,963.52
35		Loader/Rubber/Truck	6 wks	Wed 25/01/23	Tue 21/03/23	34SS	$33,113.52
36		Contract Road Train Side Tip-Contractor to Self Load use the Shire Loader	6 wks	Wed 25/01/23	Tue 21/03/23	35SS	$55,440.00
37		**Hydraulic Road**	**6 days?**	**Tue 21/03/23**	**Thu 30/03/23**		**$45,979.13**
38		Shire Grader	6 days	Tue 21/03/23	Thu 30/03/23	32	$7,178.22
39		Shire Roller	3 days	Tue 21/03/23	Fri 24/03/23	38SS	$3,386.61
40		Shire Water	3 days	Tue 21/03/23	Fri 24/03/23	39SS	$4,905.36



Project: Road Projects March 20
Date: Tue 18/04/23

Task	Project Summary	Manual Task	Start-only	Deadline	
Split	Inactive Task	Duration-only	Finish-only	Progress	
Milestone	Inactive Milestone	Manual Summary Rollup	External Tasks	Manual Progress	
Summary	Inactive Summary	Manual Summary	External Milestone		

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Cost
41		Loader/Rubber/Truck	6 days	Tue 21/03/23	Thu 30/03/23	40SS	$6,773.22
42		Labour	6 days	Tue 21/03/23	Thu 30/03/23	41SS	$3,735.72
43		Rocks	1 day?	Tue 21/03/23	Wed 22/03/23	42SS	$20,000.00
44		**Strutton Road**	**3 days**	**Thu 30/03/23**	**Wed 5/04/23**		**$15,267.69**
45		Shire Grader	3 days	Thu 30/03/23	Wed 5/04/23	38	$3,589.11
46		Shire Roller	3 days	Thu 30/03/23	Wed 5/04/23	45SS	$3,386.61
47		Shire Water	3 days	Thu 30/03/23	Wed 5/04/23	46SS	$4,905.36
48		Loader/Rubber/Truck	3 days	Thu 30/03/23	Wed 5/04/23	47SS	$3,386.61
49		**Second North Road**	**5 days**	**Wed 5/04/23**	**Tue 18/04/23**		**$25,446.15**
50		Shire Grader	5 days	Wed 5/04/23	Tue 18/04/23	45	$5,981.85
51		Shire Roller	5 days	Wed 5/04/23	Tue 18/04/23	50SS	$5,644.35
52		Shire Water	5 days	Wed 5/04/23	Tue 18/04/23	51SS	$8,175.60
53		Loader/Rubber/Truck	5 days	Wed 5/04/23	Tue 18/04/23	52SS	$5,644.35
54		**Bunny Road**	**29.33 days**	**Tue 18/04/23**	**Mon 12/06/23**		**$177,004.08**
55		Shire Grader	6 wks	Tue 18/04/23	Mon 12/06/23	50	$35,093.52
56		Shire Roller	6 wks	Tue 18/04/23	Mon 12/06/23	55SS	$33,113.52
57		Shire Water	6 wks	Tue 18/04/23	Mon 12/06/23	56SS	$47,963.52
58		Shire Truck	6 wks	Tue 18/04/23	Mon 12/06/23	57SS	$33,113.52
59		Contract Truck	3 wks	Tue 18/04/23	Mon 15/05/23		$27,720.00
60		**Bitumen Works**	**4.89 days**	**Tue 21/03/23**	**Tue 28/03/23**		**$30,000.00**
61		Town Streets Crack Sealing	1 wk	Tue 21/03/23	Tue 28/03/23		$30,000.00



Project: Road Projects March 20
Date: Tue 18/04/23

Task	Project Summary	Manual Task	Start-only	Deadline
Split	Inactive Task	Duration-only	Finish-only	Progress
Milestone	Inactive Milestone	Manual Summary Rollup	External Tasks	Manual Progress
Summary	Inactive Summary	Manual Summary	External Milestone	

COMMUNITY SMALL GRANT APPLICATION

132 Railway Road
PO Box 117
THREE SPRINGS WA 6519

(08) 9954 1001

general@threesprings.wa.gov.au
www.threesprings.wa.gov.au

Office Hours
8.00am - 4.00pm
Monday - Friday

Section A: APPLICANTS DETAILS				
Name of Organisation:	Three Springs Golf Club			
Postal Address:	Post Office Three Springs			
Contact Person:	David Mutter			
Email: (will be used for funding remittance)	Mtleonorafarm@outlook.com			
Phone:	**(B/H)** 0427547035		**(Mob)**	
Is your organisation registered for GST	☒ **YES**	☐ **NO**	**ABN**	26916415901
Is your organisation Incorporated	☒ **YES**	☐ **NO**	**Incorporation No.**	A0821522H
Do you have Public Liability Insurance?	☒ **YES**	☐ **NO**		

Section B: PROJECT / EVENT SUMMARY				
Type of Project / Event:	Equipment Replacement			
Name of Project / Event:	Replacement of current vertical blinds to Holland Blinds			
Project or Event Date/s:	2023			
Total Budget:	$3180			
Requested Funding:	$3000			
Project Description Objectives, expected outcomes, proposed actions / purchases You are welcome to attach additional pages, or your project plan, should there be insufficient space.	We are requesting funding to replace the current vertical blinds, which are old, broken and in need of replacement. We have 9 windows in the club house and our kitchen window were updated with a new Holland blind when the kitchen was upgraded. As some of the current tracks are not working and we believe this will help with security of the club house.			
Will revenue be generated as a result of the project / event?	☐ **YES**	☒ **NO**	**Expected Revenue:**	$
Is this a fund raising project / event?	☐ **YES**	☒ **NO**	**Beneficiaries?**	
Are you working with any other community groups or businesses in delivery of this project / event?	**Group / Business**		**Contact Name**	**Phone**
Have you applied for other external funding?	**Funding Body**		**Status**	**Amount**
				$
				$

Attachment 10.6

COMMUNITY SMALL GRANT APPLICATION

Section C: PROJECT /EVENT BENEFITS

You are welcome to attach additional pages, or your project plan, should there be insufficient space.

Why is this project / event important?

It's important to maintain our infrastructure and equipment and overall upkeep of the club house for future members. We believe as the current committee it is our responsibility to maintain the buildings to seek funding in the way of grants or sponsorship to do so. As a committee we are also applying for funding from Lotteries West for an outbuilding project. We also have secured a sea container as part of this outbuilding project from the Talc Mine, so we are being proactive in the continuous improvement of the clubhouse and grounds.

I have attached the quote from All Decor Geraldton

Please describe how this project / event will benefit members of your organisation

As above

Does your project benefit the wider community? Please CLEARLY explain how others will benefit from your project / event

It will benefit the overall appearance of the club house.

Does your project / event meet any of the Community Grant objective/s **If YES, please state which objective/s your project / event meets and how your project / event will achieve that objective/s**	☒ **YES**	☐ **NO**

Improvement of the overall appearance of the club house
Members pride in their club and the impact this will have on visitors to our future events..

If NO, please provide a comprehensive explanation as to why Council should consider your proposal

COMMUNITY SMALL GRANT APPLICATION

Section D: FINANCIAL DETAILS						
BUDGET: Please provide a detailed budget for the project / event you are requesting support for from Council. All costs should be itemised in the space provided below. Please note that your income and expenditure should match. If the project / event is fundraising to be retained, please indicate as retained profit. Please refer to the Guidelines for in-kind support information.						
INCOME						
INTERNAL FUNDING - CASH						**AMOUNT**
1.	Applicants Cash Contribution					$180.00
2.	In-Kind Volunteer Labour	5	Hours @ $25		Hours @ $40	$125.00
3.	In-Kind Donated Materials					$
4.	Other					$
5.	Fundraising - Retained Profit					$
6.	**TOTAL INTERNAL FUNDING (SUM OF 1:5)**					**$**305.00
EXTERNAL FUNDING						
7.	Shire of Three Springs Funding					$3000.00
8.	Funding Organisation 1					$
9.	Funding Organisation 2					$
10.	Participant Fees (if applicable)					$
11.	Other					$
12.	Other					$
13.	**TOTAL EXTERNAL FUNDING (SUM OF 7:12)**					**$**3000.00
14.	**TOTAL INCOME (SUM OF 6 + 13)**					**$**
EXPENDITURE						
	ITEM					AMOUNT
15.						$
16.						$
17.						$
18.						$
19.						$

COMMUNITY SMALL GRANT APPLICATION

20.		$
21.		$
22.		$
23.		$
24.		$
25.	**TOTAL EXPENDITURE**	$ 3305.00

Total cost of project / event (25)	$3305.00
Amount of council funding requested (7)	$3000.00
Your internal funding (6 - 5)	$305.00
Fundraising Profit	$
Contribution from other sources (13 - 7)	$

Section E: DECLARATION

I hereby declare that the information supplied on behalf of the named organisation is correct. I consent to the Shire of Three Springs collecting the personal contact details provided in this application. We acknowledge your right to have access to our personal information, in accordance with the Privacy Act 2000.
I also declare that I have read the Shire of Three Springs Community Small Grants Guidelines and agree to comply with the provisions included.

Signature				
Name	David Mutter		**Date**	12/04/2023
Position * (Must be an executive committee member)	President			
Bank Account	**BSB**	086 937	**ACC**	508371400
Account Name	Three Springs Golf Club			

Office Use Only					
Date Received		Records Ref		File Ref	
Approval under delegated Authority? ☐YES ☐ NO*			*Report to Council required		

COMMUNITY SMALL GRANT APPLICATION

Authorised Officer under the instrument of Delegation Number							
☐ Approved	$	☐ Declined		Reason:			
*If No, Council Meeting Date		*Outcome of Council Decision		☐ Approved ☐ Declined, OMC No			
Applicant Notified	☐ YES	Date		Records Ref		File Ref	

DAVID MUTTER | DM. Mutter | 12.4.2023

Name of Committee Chairperson | **Signature** | **Date**

@ALLDECOR
alldecor.com.au

Shop 1/2 Jensen St, PO Box 795, Geraldton WA 6531
Sales Ph (08) 9964 4233 Sales Fx (08 9964 1115
Email sales@alldecor.com.au ABN 54 607 945 206

QUOTE NO: PM7329

PROJECT OUTLINE

CLIENT:	**SITE ADDRESS:**	**DATE:**	27/3/23
Attn: Jenny and David Mutter	Three Springs Golf Club Three Springs WA	PHONE:	0427 547 035
		EMAIL:	djmutter@outlook.com

*** **INSTALLATION GUARANTEE: FIVE YEARS** ***

- A deposit of 50% or a purchase order to process this order.
- Account details BSB 126 573 Account 2215 3864 – Quote valid for 30 days.

Supply and Install;
Blinds

Area	9x clubhouse windows
Product	Holland roller blinds in Affinity blockout 'easyclean' fabric
Colour	TBA
Notes	includes metal bottom rails and matching chains

Fitted in Three springs $3180 including GST

CONSULTANT – PETER MOUNTFORD 0400 826 995

SHIRE OF THREE SPRINGS

2023/2024 DIFFERENTIAL RATE MODEL

STATEMENT OF OBJECTS AND REASONS

Objects and Reasons for implementing a Differential Rate
In accordance with Section 6.36 of the Local Government Act 1995 and the Council's "Notice of Intention to impose Differential Rates", the following information details the objectives and reasons for those proposals.

What are Rates?
The raising of rates is the primary source of revenue for all Councils throughout Australia. The purpose of levying rates is to meet Council's proposed budget requirements each year in a manner that is fair and equitable to the ratepayers of the community.

In Western Australia land is valued by Landgate Valuation Services (Valuer General's Office - a state government agency) and those values are forwarded to each Local Government.

Two types of values are calculated:
- Gross Rental Value (GRV) for urban areas; and
- Unimproved Value (UV) for rural land.

To calculate the rate account, councils multiply a rate in the dollar by the supplied value. The rate in the dollar is determined by the level of revenue the council wishes to raise and is dependent on their proposed budget.

Apart from the need to ensure sufficient revenue to meet its expenditure needs Council must be mindful of the impact and affordability of rates to the community.

The following are proposed Differential Rates and Minimum Payments for the Shire of Three Springs for the 2023/24 financial year.

	Rate in the Dollar (Cents)	*Minimum $*
GRV – TS Town	12.7549	$500.00
GRV - Mining	23.9212	$500.00
UV – Rural & Arrino Town	01.2917	$500.00
UV – Mining	6.0800	$500.00

<u>Differential Rating</u>

Local Governments, under section 6.33 of the Local Government Act, have the power to implement differential rating in order to take into account certain characteristics of the rateable land as follows:

(1)A local government may impose differential general rates according to any, or a combination, of the following characteristics —

(a) the purpose for which the land is zoned, whether or not under a local planning scheme or improvement scheme in force under the Planning and Development Act 2005; or

(b) a purpose for which the land is held or used as determined by the local government; or

(c) whether or not the land is vacant land; or

(d) any other characteristic or combination of characteristics prescribed.

Differential rates may be applied according to any, or a combination of the above characteristics. However, local governments are constrained in the range of differential rates that they may impose.

The overall objective for differential rating is an attempt to ensure revenue is collected on an equitable basis from all properties, enabling the Shire to provide facilities, infrastructure and services to the entire community.

The Shire of Three Springs proposes to differentially rate all Unimproved Valued land. The minimum payments proposed for all rate categories have been set at what are considered to be the maximum for the long term.

The Shire of Three Springs provides services to a diverse region consisting of residential, commercial, industrial, agriculture and mining. All sectors benefit from the services provided by the Shire, though it is inevitable that some sectors may benefit more from any particular service. Persons operating within all sectors have the right to use the services provided and the Shire does not seek to restrict the use of its services by any sector.

GRV – Town

The object of the GRV town rate and minimum payments is to ensure a fair contribution to the revenue requirements of the Shire, to provide a diverse range of services and facilities to the residents and business proprietors of Three Springs, while not risking additional financial pressure of the town residents that affect their long term viability. The town residents have in the past and will continue to provide significant support for the social and economic sustainability of the Shire.

The reasons for the level of rates set for Gross Rental Values is that this allows for a fair contribution to the maintenance and provision of town services and infrastructure to a sustainable level.

GRV – Mining

The object of the GRV rates associated with Mining is to ensure the mining sector contributes to the maintenance of the Shire's assets.

Mines benefit greatly from the road infrastructure including bridges. The mining sector transports large tonnage each year on Shire roads. The Gross Rental Value for mining allows for a reasonable contribution to the Shire's infrastructure and reflects the cost of road maintenance to accommodate heavy vehicle movements both on rural roads and in residential areas of the Three Springs townsite (sometimes up to 20 movements per day).

In 2019-20 the rate in the dollar was reduced from 23.9212 to 11.9606 due to Shire administration error when following the process for imposing differential rates. Since then ratepayers in this category (of whom there is currently only one) have enjoyed a 50% reduction in rates.

Council have taken the action this year of imposing the rate previously set in 2018-19 of 23.9212, thereby raising a similar rates revenue for this category as what had been raised in 2018-19.

UV – Rural & Arrino Town
This differential rate is applied to those properties that are outside of the townsite that are used in farming activities and/or agricultural production. The object of the UV Rural and Arrino town rate is to ensure that the proportion of total rate revenue derived from UV Rural & Arrino Town is comparable to previous years so that the Shire can continue to operate efficiently and provide a diverse range of services and infrastructure. UV Rural & Arrino Town provides the base rate to assess the other UV rated properties.

The reason for the lower rate for UV Rural & Arrino Town is to reflect the lower impact on transport infrastructure compared to the UV Mining category.

The UV Rural & Arrino Town rate applies generally to broad acre faming which is vulnerable to factors such as adverse weather, bushfires, drought, demand for products and fluctuations in export prices. Importantly the rural areas cover vast tracts of land that is often marginal and input costs are far more extensive to gain a smaller return than for mining.

There has been no increase to the rate compared to the previous year. The UV Rural & Town rate ensures that every landowner makes a reasonable contribution to the rate burden.

UV – Mining
The objective of the differential rate on UV mining is to ensure that mining contributes to the maintenance of the Shire's assets and infrastructure to the extent that the mining operators and their connections use them. The UV Mining differential rate is applied to properties that are used for mining, exploration or prospecting purposes.

The Valuer General values each category of mining tenement differently with prospecting and exploration licenses valued lower and mining leases valued higher. The valuations therefore mean that the Shire rates paid by each category of mining tenement are appropriately scaled and there is no requirement to set individual rates for each tenement type.

In 2018-19 the rate in the dollar for UV Mining was reduced from 11.7261 to 3.0667 due to Shire administration error when following the process for imposing differential rates. Since then ratepayers in this category have enjoyed a significant reduction in rates. This rate burden has been spread through other categories to ensure there is no shortfall when setting the annual budget.

This is not fair to other ratepayers and council have taken the action this year of increasing the rate for UV Mining from 1.2917 to 6.0800. The increase is to ensure that there is no shortfall in the budget and rates revenue is in line with the LTFP.

In dealing with the object of the rate, it should be considered that operators in the mining industry when they come to the district have the advantage of utilising established Shire services and facilities which often have been provided by the rates contributed in the long term by ratepayers in other sectors and who will continue to contribute in the long term future in the same way. The maintenance of Shires assets and services are for the benefit of all users; assets such as recreation facilities, medical and dental services, emergency services, maintenance and provision of high standard sealed and unsealed roads are available to all rate categories. However they have been provided over a long period of time, in the main by long term rural ratepayers but benefited by mining ratepayers who generally are relatively short term contributors.

It should be noted that it is not uncommon for operators in the mining sector to be present in the district for a short period with a prospect of withdrawing substantial profits while in the district. This is not a criticism but simply recognises the often transitory nature of mining enterprises. However the mining sector stands to be a beneficiary of the existence and

maintenance of the Shire's assets and services to the extent that the mining operators use them.

The reason for setting UV Mining rate at a higher level than UV Rural is to ensure a sector of ratepayers, that essentially are transitory, contributes to the maintenance of the Shire's established assets and services to the extent that the mining operators use them.

These include:

- Unsealed roads - amongst the services utilised by ratepayers with tenements would be the extensive network of unsealed roads within the Shire. A substantial amount of budgeted capital and maintenance expenditure is for works on Shire roads.
- Resources - Mining removes finite resources from the shire. Ultimately this will have an impact on the mining industry within the shire, which will in turn impact rate revenue in future years.
- Shire administration - Mining, Exploration and Prospecting activities impose a greater administration service requirement on the shire (applications, enquiries, tenement changes and revaluations).

Minimums

Council has established a minimum rate for all categories. This minimum may exceed the amount that would be calculated for each assessment.

The setting of a minimum rate is to ensure that every landowner makes a reasonable contribution to the rate burden.

SHIRE OF THREE SPRINGS

MONTHLY FINANCIAL REPORT
(Containing the Statement of Financial Activity)
For the Period Ended 31 March 2023

LOCAL GOVERNMENT ACT 1995

LOCAL GOVERNMENT (FINANCIAL MANAGEMENT) REGULATIONS 1996

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KEY INFORMATION

Items of Significance
The material variance adopted by the Shire for the 2022/23 year is $10,000 and 10%. The following selected items have been highlighted due to the amount of the variance to the budget or due to the nature of the revenue/expenditure. A full listing and explanation of all items considered of significant/material variance is disclosed in Note 15.

	% Collected / Completed	Amended Annual Budget	Amended YTD Budget	YTD Actual	Variance (Under)/Over
Significant Projects					
Duffy Store Redevelopment Capex	0%	2,600,000	0	0	0
Admin - Transportable building for Archive purposes (Capital)	104%	37,000	37,000	38,649	(1,649)
CCTV equipment	0%	21,000	21,000	0	21,000
Purchase of Caterpillar Loader	100%	292,450	292,450	292,450	0
New Elevated Work Platform	0%	20,000	0	0	0
Mulitpac Roller	0%	195,000	0	0	0
Tri-Axle Semi Side Tipper Trailer (TS7001)	0%	110,000	0	0	0
Silo Projection Project	82%	230,000	230,000	188,179	41,821
Roads - Bitumen Sealing Towns Streets - General (Budgeting Only)	0%	50,000	50,000	0	50,000
Roads - Crack Sealing Towns Streets - General (Budgeting Only)	0%	26,050	0	0	0
McKenzie Road 2021-22 Gravel resheet SLK 0-3800 (R2R)	100%	51,433	51,432	51,433	(1)
Bunney Road (R2R)	0%	180,000	0	0	0
Arrino South Road Sealed 2021-22 SLK 9.75-13.96 (RRG)	43%	29,581	29,581	12,653	16,928
Dudawa Road Sealed 2021-22 SLK 3.53 - 8.39 (RRG)	1%	96,064	96,054	949	95,105
Dudawa Road Sealed 2022-23 SLK 0-5 Table drain reinstatement (RRG)	108%	323,745	323,737	349,613	(25,876)
Dudawa Road Sealed 2022-23 - SLK 0-0.63 Rd reconstruction & road widenin	0%	323,745	323,737	0	323,737
Community Hall - Carter Street - Building (Capital)	5%	839,656	47,000	45,605	1,395
Lovelock Soak Plumbings	1%	40,000	39,996	400	39,596
Netball Courts & Lighting Capital Works	100%	1,870	1,870	1,870	0
Admin - Server	0%	35,000	35,000	0	35,000
Grants, Subsidies and Contributions					
Operating Grants, Subsidies and Contributions	83%	729,667	606,081	606,451	370
Non-operating Grants, Subsidies and Contributions	10%	3,658,061	3,046,853	383,678	(2,663,175)
	23%	4,387,728	3,652,934	990,129	(2,662,805)
Rates Levied	100%	2,324,339	2,324,338	2,323,020	(1,318)

% Compares current ytd actuals to annual budget

Financial Position		Prior Year 31 March 2022	Current Year 31 March 2023
Adjusted Net Current Assets	419%	$ 617,560	$ 2,585,757
Cash and Equivalent - Unrestricted	500%	$ 617,364	$ 3,088,522
Cash and Equivalent - Restricted	86%	$ 2,118,064	$ 1,816,173
Receivables - Rates	110%	$ 139,402	$ 153,108
Receivables - Other	117%	$ 49,843	$ 58,405
Payables	113%	$ 42,815	$ 48,206

% Compares current ytd actuals to prior year actuals at the same time

Note: The Statements and accompanying notes are prepared based on all transactions recorded at the time of preparation and may vary due

SUMMARY INFORMATION

PREPARATION TIMING AND REVIEW

Date prepared: All known transactions up to 31 March 2023
Prepared by: Bob Waddell - Consultant
Reviewed by: Krys East (DCEO)

BASIS OF PREPARATION

REPORT PURPOSE

This report is prepared to meet the requirements of Local Government (Financial Management) Regulations 1996, Regulation 34 . Note: The Statements and accompanying notes are prepared based on all transactions recorded at the time of preparation and may vary due to transactions being processed for the reporting period after the date of preparation.

BASIS OF ACCOUNTING

This statement comprises a special purpose financial report which has been prepared in accordance with Australian Accounting Standards (as they apply to local governments and not-for-profit entities), Australian Accounting Interpretations, other authoritative pronouncements of the Australian Accounting Standards Board, the Local Government Act 1995 and accompanying regulations. Material accounting policies which have been adopted in the preparation of this statement are presented below and have been consistently applied unless stated otherwise. Except for cash flow and rate setting information, the report has also been prepared on the accrual basis and is based on historical costs, modified, where applicable, by the measurement at fair value of selected non-current assets, financial assets and liabilities.

THE LOCAL GOVERNMENT REPORTING ENTITY

All Funds through which the Council controls resources to carry on its functions have been included in this statement. In the process of reporting on the local government as a single unit, all transactions and balances between those funds (for example, loans and transfers between Funds) have been eliminated. All monies held in the Trust Fund are excluded from the statement, but a separate statement of those monies appears at Note 14.

SIGNIFICANT ACCOUNTING POLICES

GOODS AND SERVICES TAX

Revenues, expenses and assets are recognised net of the amount of GST, except where the amount of GST incurred is not recoverable from the Australian Taxation Office (ATO). Receivables and payables are stated inclusive of GST receivable or payable. The net amount of GST recoverable from, or payable to, the ATO is included with receivables or payables in the statement of financial position. Cash flows are presented on a gross basis. The GST components of cash flows arising from investing or financing activities which are recoverable from, or payable to, the ATO are presented as operating cash flows.

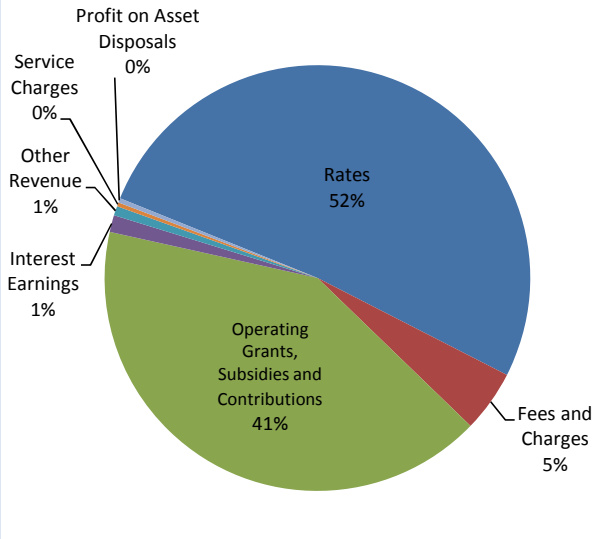
CRITICAL ACCOUNTING ESTIMATES

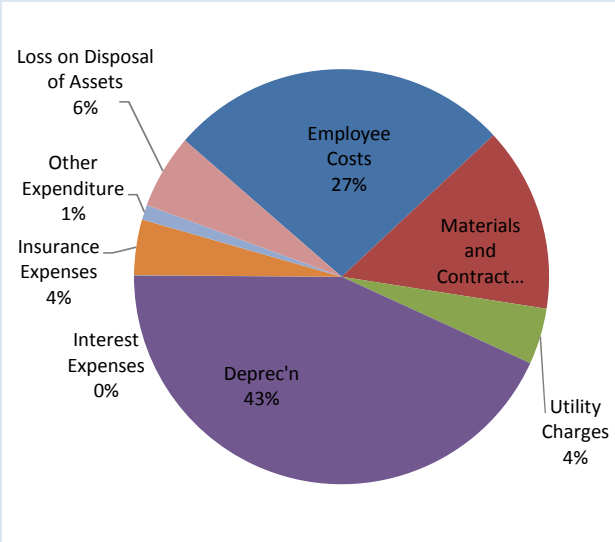
The preparation of a financial report in conformity with Australian Accounting Standards requires management to make judgements, estimates and assumptions that effect the application of policies and reported amounts of assets and liabilities, income and expenses. The estimates and associated assumptions are based on historical experience and various other factors that are believed to be reasonable under the circumstances; the results of which form the basis of making the judgements about carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates.

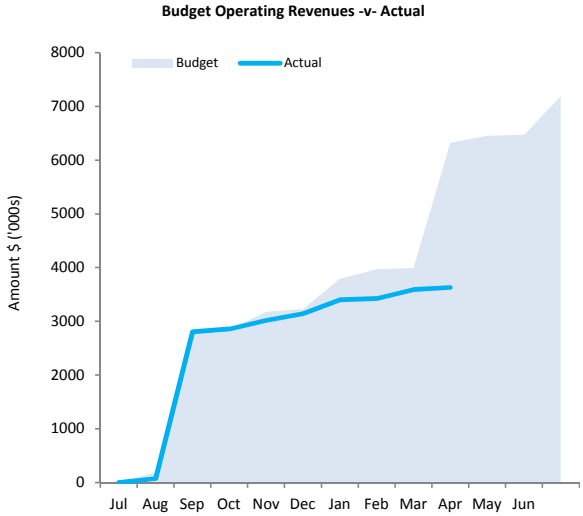
ROUNDING OFF FIGURES

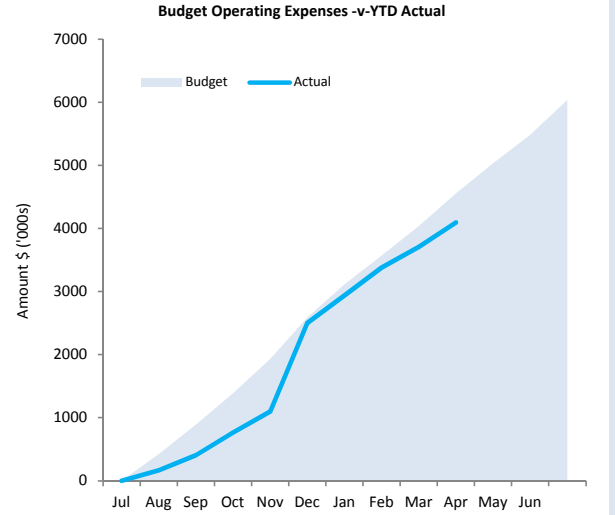
All figures shown in this statement are rounded to the nearest dollar.

SUMMARY GRAPHS

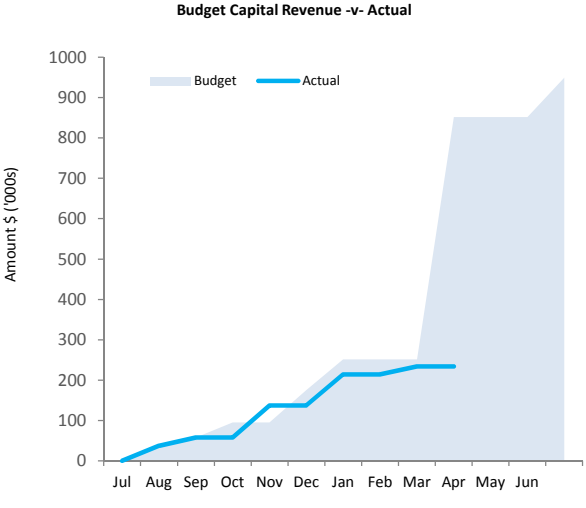




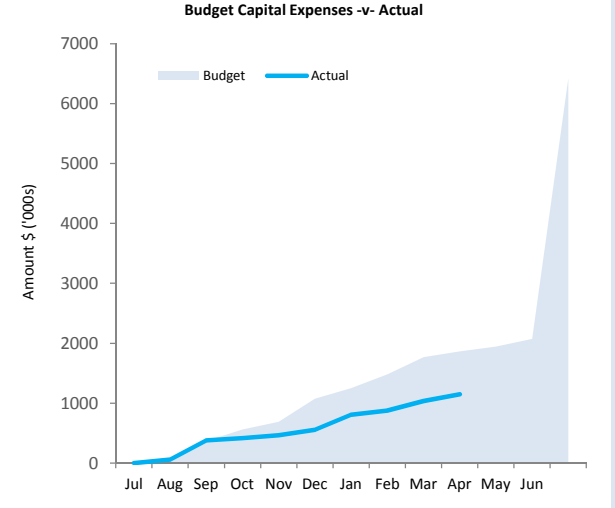




CAPITAL REVENUE



CAPITAL EXPENSES



This information is to be read in conjunction with the accompanying Financial Statements and Notes.

STATUTORY REPORTING PROGRAMS

Shire operations as disclosed in these financial statements encompass the following service orientated activities/programs.

GOVERNANCE	**ACTIVITIES**
To provide a decision making process for the efficient allocation of scarce resources.	Administration and operation of facilities to members of council: Other costs that relate to the tasks of assisting elected members and ratepayers on matters which do not concern specific council services.
GENERAL PURPOSEFUNDING	
To collect revenue to fund the provision of services.	Rates, general purpose government grants and interest revenue
LAW, ORDER, PUBLIC SAFETY	
To ensure a safer community in which to live.	Supervision of various local laws, fire prevention, emergency services and animal control.
HEALTH	
To provide an operational framework for good community health.	'Food quality and pest control, maintenance of child health centre, medical centre, dental clinic and administration of group health scheme.
EDUCATION AND WELFARE	
To support the needs of the community in education and welfare.	Assistance to Day Care Centre, Playgroup, Youth activities and other voluntary services.
HOUSING	
Provide adequate housing to attract and retain staff and non-staff.	Maintenace of council owned staff and non-staff housing.
COMMUNITY AMENITIES	
Provide services required by the community.	Rubbish collection services, tip operation, noise control, town planning administration, cemetery maintenance, rest centres, storm water drainage and FM radio retransmitter.
RECREATION AND CULTURE	
To establish and effectively manage infrastructure and resources that help the social wellbeing of the community.	Maintenance of the swimming pool, recreation centre, library, parks, gardens and reserves.
TRANSPORT	
To provide effective and efficient transport services to the community.	Construction and maintenance of streets, roads, bridges, cleaning and lighting of streets, traffic lights, cycleways, depot maintenance and airstrip maintenance.
ECONOMIC SERVICES	
To help promote the Shire and improve its economic wellbeing.	The regulation and provision of tourism, area promotion, building control, noxious weeds, vermin control, plant nursery and standpipes.
OTHER PROPERTY AND SERVICES	
To monitor and control overheads and operating accounts.	Private works operations, plant repairs and operations and engineering costs.

SHIRE OF THREE SPRINGS
STATEMENT OF FINANCIAL ACTIVITY
FOR THE PERIOD ENDED 31 MARCH 2023

STATUTORY REPORTING PROGRAMS

	Note	Adopted Annual Budget	Amended Annual Budget (d)	Amended YTD Budget (a)	YTD Actual (b)	Var. $ (b)-(a)	Var. % (b)-(a)/(a)	Var. ▲▼	Significant Var. S
		$	$	$	$	$	%		
Opening Funding Surplus(Deficit)	1	1,872,018	1,864,553	1,864,553	**1,864,553**	0	0%		
Revenue from operating activities									
Governance		25,600	25,600	13,732	**0**	(13,732)	(100%)	▼	S
General Purpose Funding - Rates	6	2,322,613	2,324,339	2,324,338	**2,323,020**	(1,318)	(0%)	▼	
General Purpose Funding - Other		621,581	550,733	396,801	**391,480**	(5,321)	(1%)	▼	
Law, Order and Public Safety		43,690	44,570	33,538	**39,216**	5,678	17%	▲	
Health		77,900	79,573	75,039	**74,605**	(434)	(1%)	▼	
Education and Welfare		2,000	500	500	**500**	0	0%		
Housing		104,100	99,482	74,601	**72,314**	(2,287)	(3%)	▼	
Community Amenities		131,241	133,898	131,235	**128,074**	(3,161)	(2%)	▼	
Recreation and Culture		50,420	37,029	33,948	**29,638**	(4,310)	(13%)	▼	
Transport		180,338	192,177	157,671	**154,433**	(3,238)	(2%)	▼	
Economic Services		31,700	13,504	10,119	**3,955**	(6,164)	(61%)	▼	
Other Property and Services		35,700	35,653	25,297	**29,578**	4,281	17%	▲	
		3,626,883	**3,537,057**	**3,276,819**	**3,246,813**				
Expenditure from operating activities									
Governance		(595,702)	(537,869)	(416,457)	**(283,685)**	132,772	32%	▲	S
General Purpose Funding		(121,483)	(108,915)	(81,651)	**(71,747)**	9,904	12%	▲	
Law, Order and Public Safety		(261,116)	(217,585)	(164,952)	**(144,838)**	20,114	12%	▲	S
Health		(261,067)	(236,311)	(198,534)	**(145,966)**	52,568	26%	▲	S
Education and Welfare		(103,854)	(90,151)	(67,509)	**(69,613)**	(2,104)	(3%)	▼	
Housing		(504,310)	(465,874)	(402,512)	**(400,714)**	1,798	0%	▲	
Community Amenities		(505,949)	(503,951)	(350,245)	**(191,605)**	158,640	45%	▲	S
Recreation and Culture		(1,338,460)	(1,172,092)	(868,303)	**(825,984)**	42,319	5%	▲	
Transport		(2,259,918)	(2,384,281)	(1,768,633)	**(1,791,315)**	(22,682)	(1%)	▼	
Economic Services		(333,837)	(297,105)	(223,528)	**(182,364)**	41,164	18%	▲	S
Other Property and Services		(23,512)	(25,403)	(16,668)	**11,396**	28,064	168%	▲	S
		(6,309,208)	**(6,039,536)**	**(4,558,991)**	**(4,096,435)**				
Operating activities excluded from budget									
Add back Depreciation		2,503,916	2,531,007	1,886,643	**1,887,922**	1,279	0%	▲	
Adjust (Profit)/Loss on Asset Disposal	7	236,632	205,536	213,279	**209,522**	(3,757)	(2%)	▼	
Movement in Leave Reserve (Added Back)		4,397	2,174	0	**2,174**	2,174		▲	
Movement in Deferred Pensioner Rates/ESL		0	0	0	**0**	0			
Movement in Employee Benefit Provisions		0	0	0	**0**	0			
Rounding Adjustments		0	0	0	**0**	0			
Movement Due to Changes in Accounting Standards		0	0	0	**0**	0			
Fair value adjustments to financial assets at fair value through profit and loss		0	0	0	**0**	0			
Loss on Asset Revaluation		0	0	0	**0**	0			
Adjustment in Fixed Assets		0	0	0	**0**	0			
Amount attributable to operating activities		**62,620**	**236,238**	**817,750**	**1,249,996**				
Investing Activities									
Non-operating Grants, Subsidies and Contributions	13	3,698,406	3,658,061	3,046,853	**383,678**	(2,663,175)	(87%)	▼	S
Proceeds from Disposal of Assets	7	223,000	254,313	156,313	**156,313**	0	0%		
Land Held for Resale	8	0	0	0	**0**	0			
Land and Buildings	8	(3,453,566)	(3,701,005)	(147,762)	**(102,243)**	45,519	31%	▲	S
Plant and Equipment	8	(1,038,100)	(1,014,950)	(654,950)	**(487,218)**	167,732	26%	▲	S
Furniture and Equipment	8	0	0	0	**0**	0			
Infrastructure Assets - Roads	8	(1,189,999)	(1,192,904)	(898,089)	**(438,196)**	459,893	51%	▲	S
Infrastructure Assets - Drainage	8	0	0	0	**0**	0			
Infrastructure Assets - Footpaths	8	0	0	0	**0**	0			
Infrastructure Assets - Parks and Ovals	8	(272,325)	(49,870)	(45,866)	**(2,270)**	43,596	95%	▲	S
Infrastructure Assets - Airfield	8	0	0	0	**0**	0			
Amount attributable to investing activities		**(2,032,584)**	**(2,046,356)**	**1,456,499**	**(489,937)**				
Financing Activities									
Proceeds from New Debentures	9	600,000	600,000	600,000	**0**	(600,000)	(100%)	▼	S
Repayment of Debentures	9	(42,745)	(42,745)	(31,363)	**(51,271)**	(19,908)	(63%)	▼	S
Repayment of Lease Financing	9	0	0	0	**0**	0			
Advances to Community Groups		0	0	0	**0**	0			
Proceeds from Advances		0	0	0	**0**	0			
Self-Supporting Loan Principal		19,983	19,983	19,983	**40,000**	20,017	100%	▲	S
Transfer to Restricted Cash - Other		0	0	0	**0**	0			
Transfer from Restricted Cash - Other		0	0	0	**0**	0			
Transfer from Reserves	10	75,068	75,068	75,068	**37,534**	(37,534)	(50%)	▼	S
Transfer to Reserves	10	(554,359)	(422,801)	(84,170)	**(65,118)**	19,052	23%	▲	S
Amount attributable to financing activities		**97,947**	**229,505**	**579,518**	**(38,855)**				
Closing Funding Surplus(Deficit)	1	**1**	**283,940**	**4,718,320**	**2,585,757**				

KEY INFORMATION
▲▼ Indicates a variance between Year to Date (YTD) Budget and YTD Actual data as per the adopted materiality threshold
Refer to Note 15 for an explanation of the reasons for the variance.
The material variance adopted by Council for the 2022/23 year is $10,000 and 10%.

This statement is to be read in conjunction with the accompanying Financial Statements and notes.

NATURE OR TYPE DESCRIPTIONS

REVENUE

RATES
All rates levied under the Local Government Act 1995. Includes general, differential, specific area rates, minimum rates, interim rates, back rates, ex-gratia rates, less discounts offered. Exclude administration fees, interest on instalments, interest on arrears and service charges.

OPERATING GRANTS, SUBSIDIES AND CONTRIBUTIONS
Refer to all amounts received as grants, subsidies and contributions that are not non-operating grants.

NON-OPERATING GRANTS, SUBSIDIES AND CONTRIBUTIONS
Amounts received specifically for the acquisition, construction of new or the upgrading of non-current assets paid to a local government, irrespective of whether these amounts are received as capital grants, subsidies, contributions or donations.

PROFIT ON ASSET DISPOSAL
Profit on the disposal of assets including gains on the disposal of long term investments. Losses are disclosed under the expenditure classifications.

FEES AND CHARGEES
Revenues (other than service charges) from the use of facilities and charges made for local government services, sewerage rates, rentals, hire charges, fee for service, photocopying charges, licences, sale of goods or information, fines, penalties and administration fees. Local governments may wish to disclose more detail such as rubbish collection fees, rental of property, fines and penalties, other fees and charges.

SERVICE CHARGES
Service charges imposed under Division 6 of Part 6 of the Local Government Act 1995. Regulation 54 of the Local Government (Financial Management) Regulations 1996 identifies these as television and radio broadcasting, underground electricity and neighbourhood surveillance services. Exclude rubbish removal charges. Interest and other items of a similar nature received from bank and investment accounts, interest on rate instalments, interest on rate arrears and interest on debtors.

INTEREST EARNINGS
Interest and other items of a similar nature received from bank and investment accounts, interest on rate instalments, interest on rate arrears and interest on debtors.

OTHER REVENUE / INCOME
Other revenue, which can not be classified under the above headings, includes dividends, discounts, rebates etc.

EXPENSES

EMPLOYEE COSTS
All costs associate with the employment of person such as salaries, wages, allowances, benefits such as vehicle and housing, superannuation, employment expenses, removal expenses, relocation expenses, worker's compensation insurance, training costs, conferences, safety expenses, medical examinations, fringe benefit tax, etc.

MATERIALS AND CONTRACTS
All expenditures on materials, supplies and contracts not classified under other headings. These include supply of goods and materials, legal expenses, consultancy, maintenance agreements, communication expenses, advertising expenses, membership, periodicals, publications, hire expenses, rental, leases, postage and freight etc. Local governments may wish to disclose more detail such as contract services, consultancy, information technology, rental or lease expenditures.

UTILITIES (GAS, ELECTRICITY, WATER, ETC.)
Expenditures made to the respective agencies for the provision of power, gas or water. Exclude expenditures incurred for the reinstatement of roadwork on behalf of these agencies.

INSURANCE
All insurance other than worker's compensation and health benefit insurance included as a cost of employment.

LOSS ON ASSET DISPOSAL
Loss on the disposal of fixed assets.

DEPRECIATION ON NON-CURRENT ASSETS
Depreciation expense raised on all classes of assets.

INTEREST EXPENSES
Interest and other costs of finance paid, including costs of finance for loan debentures, overdraft accommodation and refinancing expenses.

OTHER EXPENDITURE
Statutory fees, taxes, provision for bad debts, member's fees or State taxes. Donations and subsidies made to community groups.

SHIRE OF THREE SPRINGS
STATEMENT OF FINANCIAL ACTIVITY
FOR THE PERIOD ENDED 31 MARCH 2023

BY NATURE OR TYPE

	Note	Adopted Annual Budget	Amended Annual Budget	Amended YTD Budget (a)	YTD Actual (b)	Var. $ (b)-(a)	Var. % (b)-(a)/(a)	Var. ▲▼	Significant Var. S
Opening Funding Surplus (Deficit)	1	1,872,018	1,864,553	1,864,553	**1,864,553**	0	0%		
Revenue from operating activities									
Rates	6	2,322,613	2,324,339	2,324,338	**2,323,020**	(1,318)	(0%)	▼	
Operating Grants, Subsidies and Contributions	12	842,191	729,667	606,081	**606,451**	370	0%	▲	
Fees and Charges		283,268	267,147	225,960	**212,797**	(13,163)	(6%)	▼	
Service Charges		0	0	0	**0**	0			
Interest Earnings		72,078	104,100	61,839	**58,135**	(3,704)	(6%)	▼	
Other Revenue		70,400	66,424	44,220	**32,015**	(12,205)	(28%)	▼	S
Profit on Disposal of Assets	7	36,333	45,381	14,381	**14,395**	14	0%	▲	
		3,626,883	**3,537,057**	**3,276,819**	**3,246,813**				
Expenditure from operating activities									
Employee Costs		(1,598,401)	(1,365,344)	(1,014,207)	**(1,034,115)**	(19,908)	(2%)	▼	
Materials and Contracts		(1,351,587)	(1,342,949)	(1,008,396)	**(567,418)**	440,978	44%	▲	S
Utility Charges		(309,203)	(223,579)	(164,010)	**(169,246)**	(5,236)	(3%)	▼	
Depreciation on Non-Current Assets		(2,503,916)	(2,531,007)	(1,886,643)	**(1,887,922)**	(1,279)	(0%)	▼	
Interest Expenses		(1,696)	(1,696)	(847)	**(515)**	332	39%	▲	
Insurance Expenses		(158,615)	(230,124)	(196,807)	**(168,123)**	28,684	15%	▲	S
Other Expenditure		(112,825)	(93,920)	(60,422)	**(45,180)**	15,242	25%	▲	S
Loss on Disposal of Assets	7	(272,965)	(250,916)	(227,660)	**(223,916)**	3,744	2%	▲	
		(6,309,208)	**(6,039,536)**	**(4,558,991)**	**(4,096,435)**				
Operating activities excluded from budget									
Add back Depreciation		2,503,916	2,531,007	1,886,643	**1,887,922**	1,279	0%	▲	
Adjust (Profit)/Loss on Asset Disposal	7	236,632	205,536	213,279	**209,522**	(3,757)	(2%)	▼	
Movement in Leave Reserve (Added Back)		4,397	2,174	0	**2,174**	2,174		▲	
Amount attributable to operating activities		**62,620**	**236,237**	**817,750**	**1,249,996**				
Investing activities									
Non-Operating Grants, Subsidies and Contributions	13	3,698,406	3,658,061	3,046,853	**383,678**	(2,663,175)	(87%)	▼	S
Proceeds from Disposal of Assets	7	223,000	254,313	156,313	**156,313**	0	0%		
Land and Buildings	8	(3,453,566)	(3,701,005)	(147,762)	**(102,243)**	45,519	31%	▲	S
Plant and Equipment	8	(1,038,100)	(1,014,950)	(654,950)	**(487,218)**	167,732	26%	▲	S
Infrastructure Assets - Roads	8	(1,189,999)	(1,192,904)	(898,089)	**(438,196)**	459,893	51%	▲	S
Infrastructure Assets - Parks and Ovals	8	(272,325)	(49,870)	(45,866)	**(2,270)**	43,596	95%	▲	S
Amount attributable to investing activities		**(2,032,584)**	**(2,046,356)**	**1,456,499**	**(489,937)**				
Financing Activities									
Proceeds from New Debentures		600,000	600,000	600,000	**0**	(600,000)	(100%)	▼	S
Repayment of Debentures	9	(42,745)	(42,745)	(31,363)	**(51,271)**	(19,908)	(63%)	▼	S
Self-Supporting Loan Principal	9	19,983	19,983	19,983	**40,000**	20,017	100%	▲	S
Transfer from Reserves	10	75,068	75,068	75,068	**37,534**	(37,534)	(50%)	▼	S
Transfer to Reserves	10	(554,359)	(422,801)	(84,170)	**(65,118)**	19,052	23%	▲	S
Amount attributable to financing activities		**97,947**	**229,505**	**579,518**	**(38,855)**				
Closing Funding Surplus (Deficit)	1	**1**	**283,940**	**4,718,320**	**2,585,757**				

▲▼ Indicates a variance between Year to Date (YTD) Budget and YTD Actual data as per the adopted materiality threshold.
Refer to Note 15 for an explanation of the reasons for the variance.
The material variance adopted by Council for the 2022/23 year is $10,000 and 10%.

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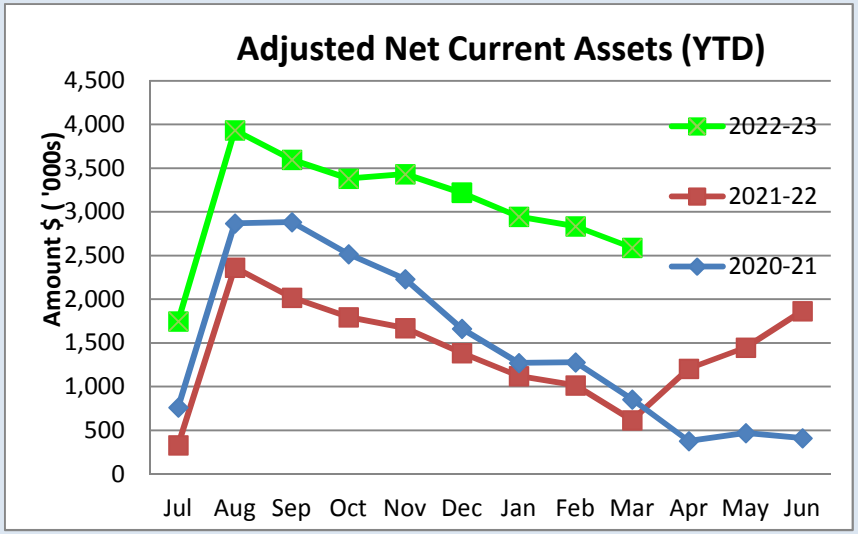
OPERATING ACTIVITIES
NOTE 1
ADJUSTED NET CURRENT ASSETS

Adjusted Net Current Assets	Note	Last Years Closing 30/06/2022	This Time Last Year 31/03/2022	Year to Date Actual 31/03/2023
		$	$	$
Current Assets				
Cash Unrestricted	2	2,685,530	617,364	3,088,522
Cash Restricted - Reserves	2	1,788,589	2,118,064	1,816,173
Cash Restricted - Bonds & Deposits	2	2,850	12,089	2,268
Receivables - Rates	3	33,857	139,402	153,108
Receivables - Other	3	54,222	49,843	58,405
Other Assets Other Than Inventories	4	77,109	0	0
Inventories	4	20,322	14,666	7,866
		4,662,480	2,951,428	5,126,341
Less: Current Liabilities				
Payables	5	(154,166)	(42,815)	(48,206)
Contract Liabilities	11	(693,322)	(4,964)	(588,142)
Bonds & Deposits	14	(65,052)	(112,185)	(33,441)
Loan and Lease Liability	9	(62,761)	(11,054)	(11,491)
Provisions	11	(194,819)	(193,700)	(194,819)
		(1,170,121)	(364,718)	(876,099)
Less: Cash Reserves	10	(1,788,589)	(2,118,064)	(1,816,173)
Add Back: Component of Leave Liability not Required to be funded		138,023	137,859	140,197
Add Back: Loan and Lease Liability		62,761	11,054	11,491
Less : Loan Receivable - clubs/institutions		(40,000)	0	0
Net Current Funding Position		**1,864,553**	**617,560**	**2,585,757**

SIGNIFICANT ACCOUNTING POLICIES **KEY INFORMATION**

Please see Note 1(a) for information on significant accounting polices relating to Net Current Assets.

The amount of the adjusted net current assets at the end of the period represents the actual surplus (or deficit if the figure is a negative) as presented on the Rate Setting Statement.



This Year YTD
Surplus(Deficit)
$2.59 M

Last Year YTD
Surplus(Deficit)
$.62 M

OPERATING ACTIVITIES
NOTE 2
CASH AND FINANCIAL ASSETS

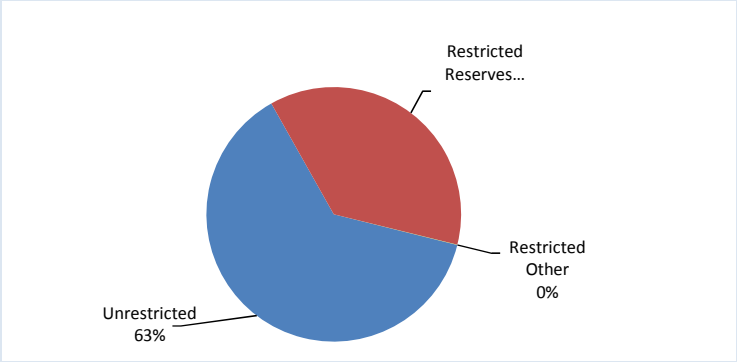
	Unrestricted	Restricted Reserves	Restricted Muni	Total Amount	Institution	Interest Rate	Maturity Date
	$	$	$	$			
Cash on Hand							
Cash On Hand - Admin	27			27	Cash on Hand	Nil	On Hand
At Call Deposits							
Municipal Bank Account - CBA	134,899			134,899	CBA	0.10%	Ongoing
Police Licensing Account - CBA			2,268	2,268	CBA	Variable	Ongoing
Term Deposits							
Business Maximiser Account - CBA	2,953,496			2,953,496	CBA	0.10%	Ongoing
Cash Deposit Account CDA Investment - CBA		1,816,173		1,816,173	CBA	4.31%	30/06/2023
Investments							
Total	**3,088,522**	**1,816,173**	**2,268**	**4,906,963**			

SIGNIFICANT ACCOUNTING POLICIES

Cash and cash equivalents include cash on hand, cash at bank, deposits available on demand with banks and other short term highly liquid investments that are readily convertible to known amounts of cash and which are subject to an insignificant risk of changes in value and bank overdrafts. Bank overdrafts are reported as short term borrowings in current liabilities in the statement of financial position.

KEY INFORMATION

Cash and cash equivalents include cash on hand, cash at bank, deposits available on demand with banks and other short term highly liquid investments that are readily convertible to known amounts of cash and which are subject to an insignificant risk of changes in value and bank overdrafts. Bank overdrafts are reported as short term borrowings in current liabilities in the statement of financial position.



Total Cash	Unrestricted
$4.91 M	$1.82 M

OPERATING ACTIVITIES
NOTE 3
RECEIVABLES

Receivables - Rates & Rubbish	30 June 2022	31 Mar 23
	$	$
Opening Arrears Previous Years	76,633	62,294
Levied this year	2,314,878	2,404,933
Less Collections to date	(2,329,217)	(2,285,682)
Equals Current Outstanding	62,294	181,545
Net Rates Collectable	**62,294**	**181,545**
% Collected	97.40%	92.64%

Receivables - General	Current	30 Days	60 Days	90+ Days	Total
	$	$	$	$	$
Receivables - General	2,752	411	200	753	4,116
Percentage	67%	10%	5%	18%	
Balance per Trial Balance					
Sundry Debtors					4,116
Receivables - Other					54,289
Total Receivables General Outstanding					**58,405**

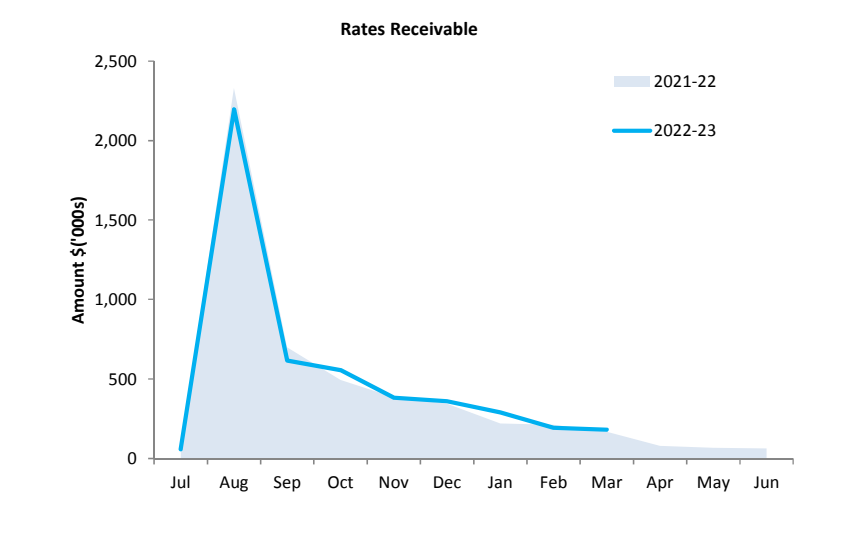
Amounts shown above include GST (where applicable)

KEY INFORMATION

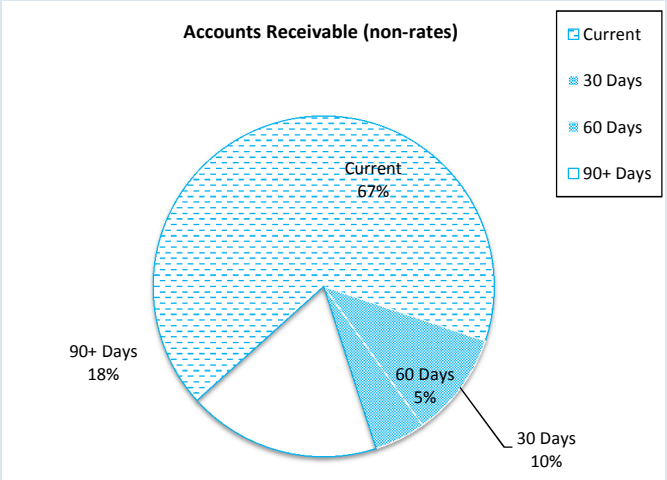
Trade and other receivables include amounts due from ratepayers for unpaid rates and service charges and other amounts due from third parties for goods sold and services performed in the ordinary course of business.

SIGNIFICANT ACCOUNTING POLICIES

Trade and other receivables include amounts due from ratepayers for unpaid rates and service charges and other amounts due from third parties for goods sold and services performed in the ordinary course of business. Receivables expected to be collected within 12 months of the end of the reporting period are classified as current assets. All other receivables are classified as non-current assets. Collectability of trade and other receivables is reviewed on an ongoing basis. Debts that are known to be uncollectible are written off when identified. An allowance for doubtful debts is raised when there is objective evidence that they will not be collectible.



Collected	Rates Due
93%	$181,545



Debtors Due
$58,405

Over 30 Days
33%

Over 90 Days
18%

OPERATING ACTIVITIES
NOTE 4
OTHER CURRENT ASSETS

Other Current Assets	Opening Balance 1 Jul 2022	Asset Increase	Asset Reduction	Closing Balance 31 Mar 2023
	$	$	$	$
Other Financial Assets at Amortised Cost				
Financial assets at amortised cost - self supporting loans	40,000	0	(40,000)	0
Inventory				
Fuel, Visitor and Rec Centres stock on hand	20,322	0	(12,456)	7,866
Total Other Current assets				**7,866**

Amounts shown above include GST (where applicable)

KEY INFORMATION

Other financial assets at amortised cost

The Shire classifies financial assets at amortised cost if both of the following criteria are met:
- the asset is held within a business model whose objective is to collect the contractual cashflows, and
- the contractual terms give rise to cash flows that are solely payments of principal and interest.

Inventory

Inventories are measured at the lower of cost and net realisable value.
Net realisable value is the estimated selling price in the ordinary course of business less the estimated costs of completion and the estimated costs necessary to make the sale.

Land held for resale

Land held for development and resale is valued at the lower of cost and net realisable value. Cost includes the cost of acquisition, development, borrowing costs and holding costs until completion of development. Borrowing costs and holding charges incurred after development is completed are expensed.

Gains and losses are recognised in profit or loss at the time of signing an unconditional contract of sale if significant risks and rewards, and effective control over the land, are passed onto the buyer at this point.

Land held for resale is classified as current except where it is held as non-current based on the Council's intentions to release for sale.

CONTRACT ASSETS

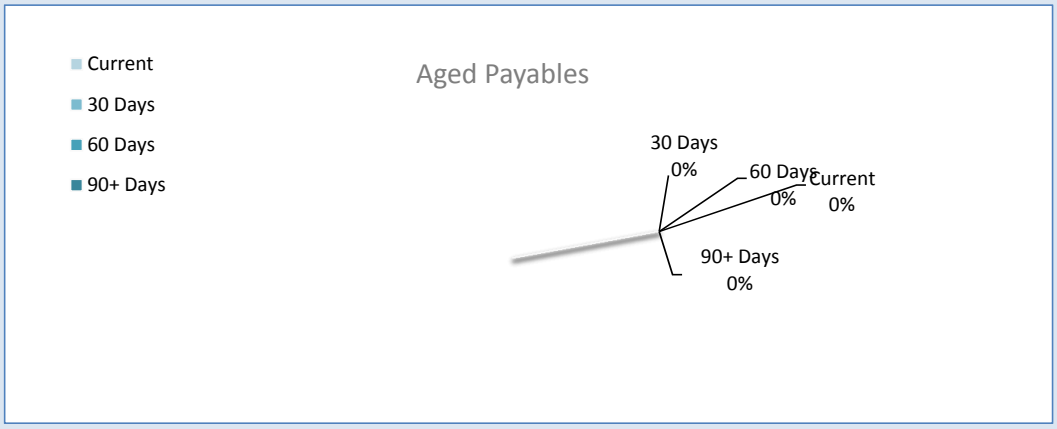
A contract asset is the right to consideration in exchange for goods or services the entity has transferred to a customer when that right is conditioned on something other than the passage of time.

OPERATING ACTIVITIES
NOTE 5
Payables

Payables - General	Current	30 Days	60 Days	90+ Days	Total
	$	$	$	$	$
Payables (Sundry Creditors) - General	0	0	0	0	0
Percentage	0%	0%	0%	0%	
Balance per Trial Balance					
Sundry creditors - General					0
Other creditors					4,288
Accruals/Income in Advance					20,586
ATO liabilities					23,332
Total Payables General Outstanding					**48,206**
Amounts shown above include GST (where applicable)					

KEY INFORMATION

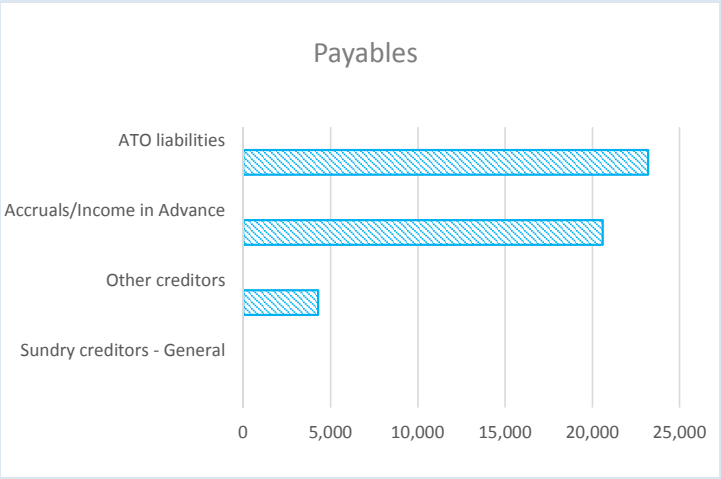
Trade and other payables represent liabilities for goods and services provided to the Shire that are unpaid and arise when the Shire becomes obliged to make future payments in respect of the purchase of these goods and services. The amounts are unsecured, are recognised as a current liability and are normally paid within 30 days of recognition.

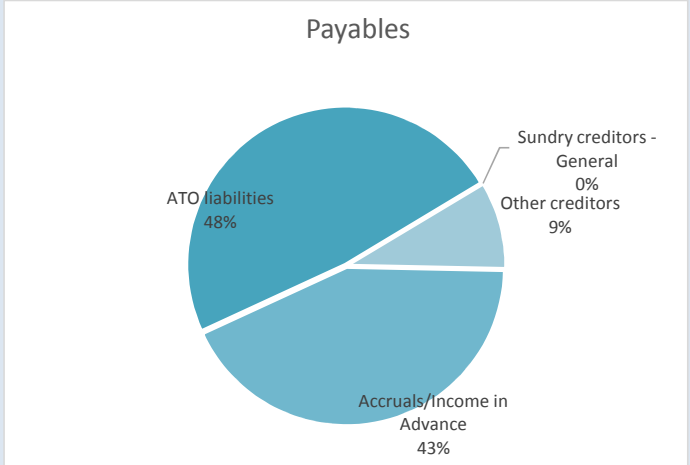


Creditors Due
$48,206

Over 30 Days
0%

Over 90 Days
0%





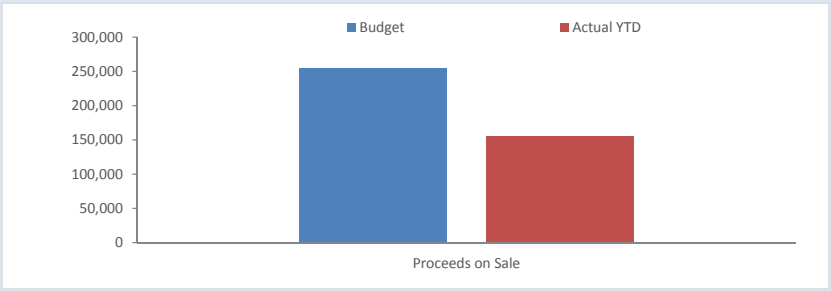
OPERATING ACTIVITIES
NOTE 6
RATE REVENUE

				Budget				YTD Actual			
RATE TYPE	Rate in	Number of Properties	Rateable Value	Rate Revenue	Interim Rate	Back Rate	Total Revenue	Rate Revenue	Interim Rates	Back Rates	Total Revenue
	$			$	$	$	$	$	$	$	$
General Rate											
Gross rental valuations											
GRV Residential	0.127549	205	2,017,236	257,296	0	0	257,296	257,296	57	0	257,354
GRV Mining	0.127549	1	252,500	32,206	0	0	32,206	32,206	0	0	32,206
Unimproved valuations											
UV Rural and Arrino Town	0.012917	183	153,361,000	1,980,964	0	0	1,980,964	1,980,964	(491)	0	1,980,473
UV Mining	0.012917	4	241,456	2,379	0	0	2,379	3,119	0	1,919	5,038
Sub-Totals		**393**	**155,872,192**	**2,272,845**	**0**	**0**	**2,272,845**	**2,273,586**	**(433)**	**1,919**	**2,275,071**
	Minimum										
Minimum Payment	**$**										
Gross rental valuations											
GRV Residential	500	26	43,247	11,000	0	0	11,000	13,000	0	0	13,000
GRV Mining	500	0	0	0	0	0	0	0	0	0	0
Unimproved valuations											
UV Rural and Arrino Town	500	22	445,500	13,000	0	0	13,000	11,000	0	0	11,000
UV Mining	500	31	343,934	16,000	0	0	16,000	15,500	0	0	15,500
Sub-Totals		**79**	**832,681**	**40,000**	**0**	**0**	**40,000**	**39,500**	**0**	**0**	**39,500**
		472	**156,704,873**	**2,312,845**	**0**	**0**	**2,312,845**	**2,313,086**	**(433)**	**1,919**	**2,314,571**
Amount from General Rates							**2,312,845**				**2,314,571**
Ex-Gratia Rates		3	76,585	9,768			9,768				8,449
Total Rates							**2,322,613**				**2,323,020**

OPERATING ACTIVITIES
NOTE 7
DISPOSAL OF ASSETS

Asset Number	Asset Description	Amended Budget Net Book Value	Amended Budget Proceeds	Amended Budget Profit	Amended Budget (Loss)	YTD Actual Net Book Value	YTD Actual Proceeds	YTD Actual Profit	YTD Actual (Loss)	Forecast Actual Net Book Value	Forecast Actual Proceeds	Forecast Actual Profit	Forecast Actual (Loss)
		$	$	$	$	$	$	$	$	$	$	$	$
	Building - Specialsed												
B2013	30 (Lot 16) Touche St (Old Dental Surgery) Assessment # 291	287,916	80,000	0	(207,916)	287,916	80,000	0	(207,916)	287,916	80,000	0	(207,916)
	Land - Freehold land												
L2021	30, Lot 16 Touche St (Assess 291) Vol 280 Fol 15A Diagram 32533	16,000	0	0	(16,000)	16,000	0		(16,000)	16,000	0	0	(16,000)
			0										
	Plant and Equipment												
P500802	Caterpillar 2011 Loader 928Zq 2011(Ts5008)	61,918	76,313	14,395	0	61,918	76,313	14,395	0	61,918	76,313	14,395	
P5012	Multi Tyred Roller	42,000	20,000	0	(22,000)	0	0	0	0	42,000	20,000	0	(22,000)
P7001	Tri-Axle Semi Side Tipper Trailer (Ts7001)	27,014	50,000	22,986	0	0	0	0	0	27,014	50,000	22,986	
P1245A	Hydraulic Slasher To Suit Skidsteer	0	5,000	5,000	0	0	0	0	0	0	5,000	5,000	
P1421	Skid Mounted Retraspray 500Lt Sprayer With Boom & Spot Gun	0	3,000	3,000	0	0	0	0	0	0	3,000	3,000	
PM002A	Ford Ranger 2019.75My Pu Wildtrack (001Ts) Dceo	25,000	20,000	0	(5,000)	0	0	0	0	25,000	20,000	0	(5,000)
		459,848	**254,313**	**45,381**	**(250,916)**	**365,835**	**156,313**	**14,395**	**(223,916)**	**459,848**	**254,313**	**45,381**	**(250,916)**

KEY INFORMATION



Proceeds on Sale		
Budget	**YTD Actual**	**%**
$254,313	**$156,313**	**61%**

98,000

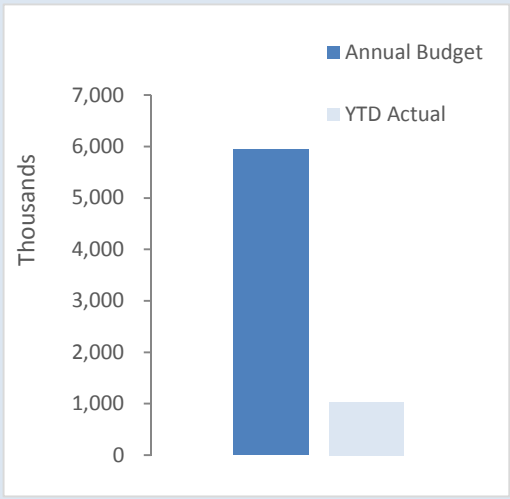
INVESTING ACTIVITIES
NOTE 8
CAPITAL ACQUISITIONS

Capital Acquisitions	Adopted Annual Budget	Amended YTD Budget	Amended Annual Budget	YTD Actual Total	YTD Budget Variance
	$	$	$	$	$
Land and Buildings	3,453,566	147,762	3,701,005	**102,243**	(45,519)
Plant and Equipment	1,038,100	654,950	1,014,950	**487,218**	(167,732)
Infrastructure Assets - Roads	1,189,999	898,089	1,192,904	**438,196**	(459,893)
Infrastructure Assets - Parks and Ovals	272,325	45,866	49,870	**2,270**	(43,596)
Capital Expenditure Totals	5,953,990	1,746,667	5,958,730	**1,029,928**	(716,739)
Capital acquisitions funded by:					
	$	$	$	$	$
Capital Grants and Contributions	3,698,406	3,046,853	3,658,061	**383,678**	(2,663,175)
Borrowings	600,000	600,000	600,000	**0**	(600,000)
Other (Disposals & C/Fwd)	223,000	156,313	254,313	**156,313**	0
Council contribution - Cash Backed Reserves					
Various Reserves	75,068	75,068	75,068	**37,534**	(37,534)
Council contribution - operations	**1,357,516**	**-2,131,567**	**1,371,288**	**452,403**	2,583,970
Capital Funding Total	**5,953,990**	**1,746,667**	**5,958,730**	**1,029,928**	**(716,739)**

SIGNIFICANT ACCOUNTING POLICIES

All assets are initially recognised at cost. Cost is determined as the fair value of the assets given as consideration plus costs incidental to the acquisition. For assets acquired at no cost or for nominal consideration, cost is determined as fair value at the date of acquisition. The cost of non-current assets constructed by the local government includes the cost of all materials used in the construction, direct labour on the project and an appropriate proportion of variable and fixed overhead. Certain asset classes may be revalued on a regular basis such that the carrying values are not materially different from fair value. Assets carried at fair value are to be revalued with sufficient regularity to ensure the carrying amount does not differ materially from that determined using fair value at reporting date.

KEY INFORMATION

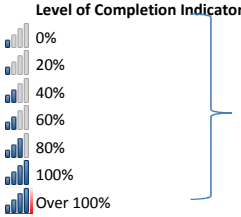


Acquisitions	Annual Budget	YTD Actual	% Spent
	$5.96 M	$1.03 M	17%

Capital Grant	Annual Budget	YTD Actual	% Received
	$3.66 M	$.38 M	10%

INVESTING ACTIVITIES
NOTE 8
CAPITAL ACQUISITIONS

Capital Expenditure Total
Level of Completion Indicators



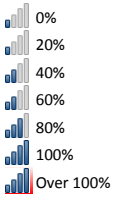
Percentage YTD Actual to Annual Budget
Expenditure over budget highlighted in red.

Level of completion indicator, please see table at the top of this note for further detail.

Assets	Account Number	Balance Sheet Category	Job Number	Adopted Annual Budget	Amended Annual Budget	YTD Budget	Total YTD	Total Forecast		Variance (Under)/Over
				$	$	$	$	$		$
Buildings										
Governance										
Council Chambers - Building (Capital)	4040110	510	BC4001	(5,000)	(5,000)	(5,000)	0	(5,000)		0
Total - Governance				**(5,000)**	**(5,000)**	**(5,000)**	**0**	**(5,000)**	**0**	**0**
Health										
Medical Centre - Thomas Street - Building (Capital)	4070710	510	BC1584	(5,000)	(5,000)	0	0	(5,000)		0
Dental Surgery - Old - Building (Capital)	4070710	510	BC7003	0	0	0	0	0		0
Dental Surgery - New - Building (Capital)	4070710	510	BC7016	0	(12,596)	(12,596)	(12,596)	(12,596)		(0)
				0	0	0	0	0		0
Total - Health				**(5,000)**	**(17,596)**	**(12,596)**	**(12,596)**	**(17,596)**	**0**	**(0)**
Housing										
House - (Lot 10) 41 Slaughter St - Building (Capital)	4090110	510	BC9000	(5,000)	(5,000)	(5,000)	0	(5,000)		0
House - (Lot 182) 58 Carter St - Building (Capital)	4090110	510	BC9001	(50,000)	0	0	0	0		(50,000)
House - (Lot 74) 5 Gooch St - Building (Capital)	4090110	510	BC9002	(18,400)	(18,400)	0	0	(18,400)		0
House - (Lot 29) 5 Howard St - Building (Capital)	4090110	510	BC9007	(5,000)	(5,000)	(4,998)	0	(5,000)		0
House - (Lot 35) 47 Williamson St - Building (Capital)	4090110	510	BC9009	(15,000)	(15,000)	0	0	0		(15,000)
House - (Lot 157) 65 Carter St - Building (Capital)	4090110	510	BC9011	(37,500)	(22,500)	0	0	(22,500)		(15,000)
House - (Lot 67) 19 Gooch St - Building (Capital)	4090110	510	BC9061	(30,400)	(30,400)	0	0	(30,400)		0
House - (Lot 173) 50 Carter St - Building (Capital)	4090110	510	BC9079	(9,400)	(9,400)	(9,400)	(498)	(9,400)		0
House - (Lot 214) 21 Franklin St - Building (Capital)	4090210	510	BC9003	(15,744)	(15,744)	0	0	(15,744)		0
House - (Lot 54) 17 Glyde St (LGCHP) - JV - Building (Capital)	4090210	510	BC9054	(18,914)	(18,914)	0	0	(18,914)		0
House - 3 (Lot 30) Howard Place - Dentist Rental - Building (Capital	4090210	510	BC9081	(16,000)	(4,895)	(4,895)	(4,895)	(4,895)		(11,105)
Kadathinni Unit 6 - (Lot 235) Carter St - Building (Capital)	4090310	510	BC90496	(7,500)	0	0	0	0		(7,500)
Total - Housing				**(228,858)**	**(145,253)**	**(24,293)**	**(5,393)**	**(130,253)**	**0**	**(98,605)**
Recreation And Culture										
Community Hall - Carter Street - Building (Capital)	4110310	510	BC1101	(508,208)	(839,656)	(47,000)	(45,605)	(839,656)		331,448
Pavillion - Oval - Building (Capital) (incl NEW GYM postings - use BC	4110310	510	BC1103	(5,000)	0	0	0	0		(5,000)
Squash Courts/Gymnasium - Slaughter Street - Building (Capital)	4110310	510	BC1105	(7,000)	(7,000)	0	0	(7,000)		0
Sporting Club - Slaughter Street - Building (Capital)	4110310	510	BC1106	(20,000)	(20,000)	(19,998)	0	(20,000)		0

INVESTING ACTIVITIES
NOTE 8
CAPITAL ACQUISITIONS

Capital Expenditure Total
Level of Completion Indicators



Percentage YTD Actual to Annual Budget

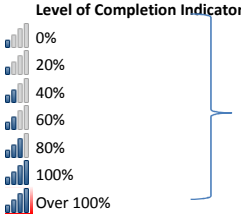
Expenditure over budget highlighted in red.

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Assets	Account Number	Balance Sheet Category	Job Number	Adopted Annual Budget	Amended Annual Budget	YTD Budget	Total YTD	Total Forecast		Variance (Under)/Over
				$	$	$	$	$		$
Total - Recreation And Culture				**(540,208)**	**(866,656)**	**(66,998)**	**(45,605)**	**(866,656)**	**0**	**326,448**
Economic Services										
Duffy's Store Redevelopment Intial Planning Costs	4130810	510	BC1021	(20,000)	(10,000)	0	0	(10,000)		(10,000)
Westrail Building - Railway Road - Building (Capital)	4130810	510	BC013	(19,500)	(19,500)	0	0	(19,500)		0
Duffy Store Redevelopment Capex	4130810	510	BC1021A	(2,600,000)	(2,600,000)	0	0	(2,600,000)		0
Total - Economic Services				**(2,639,500)**	**(2,629,500)**	**0**	**0**	**(2,629,500)**	**0**	**(10,000)**
Admin Office - 132 Railway Rd - Building (Capital)	4140210	510	**BC4002**	0	0	0	0	0		0
Admin - Transportable building for Archive purposes (Capital)	4140210	510	**BC4002A**	(35,000)	(37,000)	(37,000)	(38,649)	(37,000)		2,000
				0	0	0	0	0		0
				0	0	0	0	0		0
Total - Other Property & Services				**(35,000)**	**(37,000)**	**(37,000)**	**(38,649)**	**(37,000)**	**0**	**2,000**
Total - Buildings				**(3,453,566)**	**(3,701,005)**	**(145,887)**	**(102,243)**	**(3,686,005)**	**0**	**219,843**
Plant & Equipment										
Other Law, Order & Public Safety										
CCTV equipment	4050330	530	PE0501	(21,000)	(21,000)	(21,000)	0	(21,000)		0
Total - Other Law, Order & Public Safety				**(21,000)**	**(21,000)**	**(21,000)**	**0**	**(21,000)**	**0**	**0**
Recreation & Culture										
Gym Equipment	4110330	530	PE1103	(10,000)	(10,000)	0	0	(10,000)		0
Total - Recreation & Culture				**(10,000)**	**(10,000)**	**0**	**0**	**(10,000)**	**0**	**0**
Transport										
Purchase of Caterpillar Loader	4120330	530	PA5008	(305,600)	(292,450)	(292,450)	(292,450)	(292,450)		(13,150)
New Elevated Work Platform	4120330	530	PA001	(20,000)	(20,000)	0	0	(20,000)		0
Mulitpac Roller	4120330	530	PA5012	(195,000)	(195,000)	0	0	(195,000)		0
Tri-Axle Semi Side Tipper Trailer (TS7001)	4120330	530	PA7001	(110,000)	(110,000)	0	0	(110,000)		0
Hydraulic slasher to suit Skidsteer	4120330	530	PA1245	(10,000)	(10,000)	(10,000)	0	(10,000)		0
Skid/Tractor mounted Spray Unit	4120330	530	PA1421	(15,000)	(15,000)	0	0	(15,000)		0
Total - Transport				**(655,600)**	**(642,450)**	**(302,450)**	**(292,450)**	**(642,450)**	**0**	**(13,150)**

INVESTING ACTIVITIES
NOTE 8
CAPITAL ACQUISITIONS

Capital Expenditure Total
Level of Completion Indicators



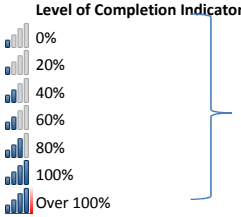
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				$	$	$	$	$		$
Economic Services										
Silo Projection Project	4130230	530	PE1104	(230,000)	(230,000)	(230,000)	(188,179)	(230,000)		0
Regional Arts Grant Video/Audio Recording	4130230	530	PE1105	(6,500)	(6,500)	(6,500)	(6,590)	(6,500)		0
Total - Economic Services				**(236,500)**	**(236,500)**	**(236,500)**	**(194,768)**	**(236,500)**	**0**	**0**
Other Property & Services										
Admin - Server	4140230	530	PE1401	(35,000)	(35,000)	(35,000)	0	(35,000)		0
Admin - Phone System	4140230	530	PE1402	(10,000)	(10,000)	0	0	(10,000)		0
Admin - Photocopier	4140230	530	PE1403	(10,000)	0	0	0	0		(10,000)
001TS New DCEO Vehicle	4140230	530	PA002	(60,000)	(60,000)	(60,000)	0	(60,000)		0
Total - Other Property & Services				**(115,000)**	**(105,000)**	**(95,000)**	**0**	**(105,000)**	**0**	**(10,000)**
Total - Plant & Equipment				**(1,038,100)**	**(1,014,950)**	**(654,950)**	**(487,218)**	**(1,014,950)**	**0**	**(23,150)**
Furniture & Equipment										
Total - Furniture & Equipment				**0**	**0**	**0**	**0**	**0**	**0**	**0**
Infrastructure - Roads										
Transport										
Roads - Bitumen Sealing Towns Streets - General (Budgeting Only)	4120140	540	RC000A	(50,000)	(50,000)	(50,000)	0	(50,000)		0
Roads - Crack Sealing Towns Streets - General (Budgeting Only)	4120140	540	RC000B	(30,000)	(26,050)	0	0	(26,050)		(3,950)
McKenzie Road 2021-22 Gravel resheet SLK 0-3800 (R2R)	4120146	540	R2R056	(44,578)	(51,433)	(51,432)	(51,433)	(51,433)		6,855
Bunney Road (R2R)	4120146	540	R2R050	(180,000)	(180,000)	0	0	(180,000)		0
Second North Road (R2R)	4120146	540	R2R009	(23,548)	(23,548)	0	0	(23,548)		0
Strutton Road (R2R)	4120146	540	R2R095	(11,290)	(11,290)	0	0	(11,290)		0
Broad Road (R2R)	4120146	540	R2R013	(23,548)	(23,548)	(23,548)	(23,548)	(23,548)		0
Lynch Road 2021-22 Gravel resheet SLK 3520-11210 (R2R)	4120146	540	R2R014	0	0	0	0	0		0
Hydraulic Road (R2R)	4120146	540	R2R028	(53,901)	(53,901)	0	0	(53,901)		0
Arrino South Road Sealed 2021-22 SLK 9.75-13.96 (RRG)	4120149	540	RRG006	(29,581)	(29,581)	(29,581)	(12,653)	(29,581)		0
Dudawa Road Sealed 2021-22 SLK 3.53 - 8.39 (RRG)	4120149	540	RRG002	(96,064)	(96,064)	(96,054)	(949)	(96,064)		0
Dudawa Road Sealed 2022-23 SLK 0-5 Table drain reinstatement (F	4120149	540	RRG002A	(323,745)	(323,745)	(323,737)	(349,613)	(323,745)		0
Dudawa Road Sealed 2022-23 - SLK 0-0.63 Rd reconstruction & roa	4120149	540	RRG002B	(323,745)	(323,745)	(323,737)	0	(323,745)		0

INVESTING ACTIVITIES
NOTE 8
CAPITAL ACQUISITIONS

Capital Expenditure Total
Level of Completion Indicators



Percentage YTD Actual to Annual Budget

Expenditure over budget highlighted in red.

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				$	$	$	$	$		$
Total - Transport				**(1,189,999)**	**(1,192,904)**	**(898,089)**	**(438,196)**	**(1,192,904)**	**0**	**2,905**
Total - Infrastructure - Roads				**(1,189,999)**	**(1,192,904)**	**(898,089)**	**(438,196)**	**(1,192,904)**	**0**	**2,905**
Infrastructure - Parks & Ovals										
Recreation And Culture										
Lovelock Soak Plumbings	4110370	570	PC006	(40,000)	(40,000)	(39,996)	(400)	(40,000)		0
Dominican Park	4110370	570	PC007	(4,000)	(4,000)	0	0	(4,000)		0
Jack Thorpe Gardens Capital Works	4110370	570	PC210	(4,000)	(4,000)	(4,000)	0	(4,000)		0
Netball Courts & Lighting Capital Works	4110370	570	PC1133	(224,325)	(1,870)	(1,870)	(1,870)	(1,870)		(222,455)
Total - Recreation And Culture				**(272,325)**	**(49,870)**	**(45,866)**	**(2,270)**	**(49,870)**	**0**	**(222,455)**
Total - Infrastructure - Parks & Ovals				**(272,325)**	**(49,870)**	**(45,866)**	**(2,270)**	**(49,870)**	**0**	**(222,455)**
Grand Total				**(5,953,990)**	**(5,958,730)**	**(1,744,792)**	**(1,029,928)**	**(5,943,729)**	**0**	**(22,857)**

FINANCING ACTIVITIES
NOTE 9
LOAN DEBENTURE BORROWINGS AND FINANCING

(a) Information on Loan Debenture Borrowings

		New Loans				Principal Repayments				Principal Outstanding				Interest & Guarantee Fee Repayments			
Particulars/Purpose	01 Jul 2022	Actual	Amended Budget	Adopted Budget	Forecast Actual	Actual	Amended Budget	Adopted Budget	Forecast Actual	Actual	Amended Budget	Adopted Budget	Forecast Actual	Actual	Amended Budget	Adopted Budget	Forecast Actual
		$	$	$	$	$	$	$	$	$	$	$	$	$	$	$	$
Recreation and Culture																	
Loan 160 - Swimming Pool	46,422	0	0	0	0	11,271	22,762	22,762	22,762	35,152	23,661	23,661	23,661	643	1,595	1,595	1,595
	46,422	0	0	0	0	11,271	22,762	22,762	22,762	35,152	23,661	23,661	23,661	643	1,595	1,595	1,595
Economic Services																	
Loan 162 - Duffy Store Development	0	0	600,000	600,000	600,000	0	0	0	0	0	600,000	600,000	600,000	0	0	0	0
	0	0	600,000	600,000	600,000	0	0	0	22,762	0	600,000	600,000	623,661	0	0	0	1,595
Self supporting loans																	
Recreation and Culture																	
Loan 161 - Bowling Green Resurface	60,051	0	0	0	0	40,000	19,983	19,983	19,983	20,051	40,067	40,067	40,067	-128	101	101	101
	60,051	0	0	0	0	40,000	19,983	19,983	19,983	20,051	40,067	40,067	40,067	(128)	101	101	101
Total	106,473	0	600,000	600,000	600,000	51,271	42,745	42,745	42,745	55,202	663,728	663,728	63,728	515	1,696	1,696	1,696
Current loan borrowings	62,761									11,491							
Non-current loan borrowings	43,711									43,711							
	106,473									55,202							

All debenture repayments were financed by general purpose revenue.

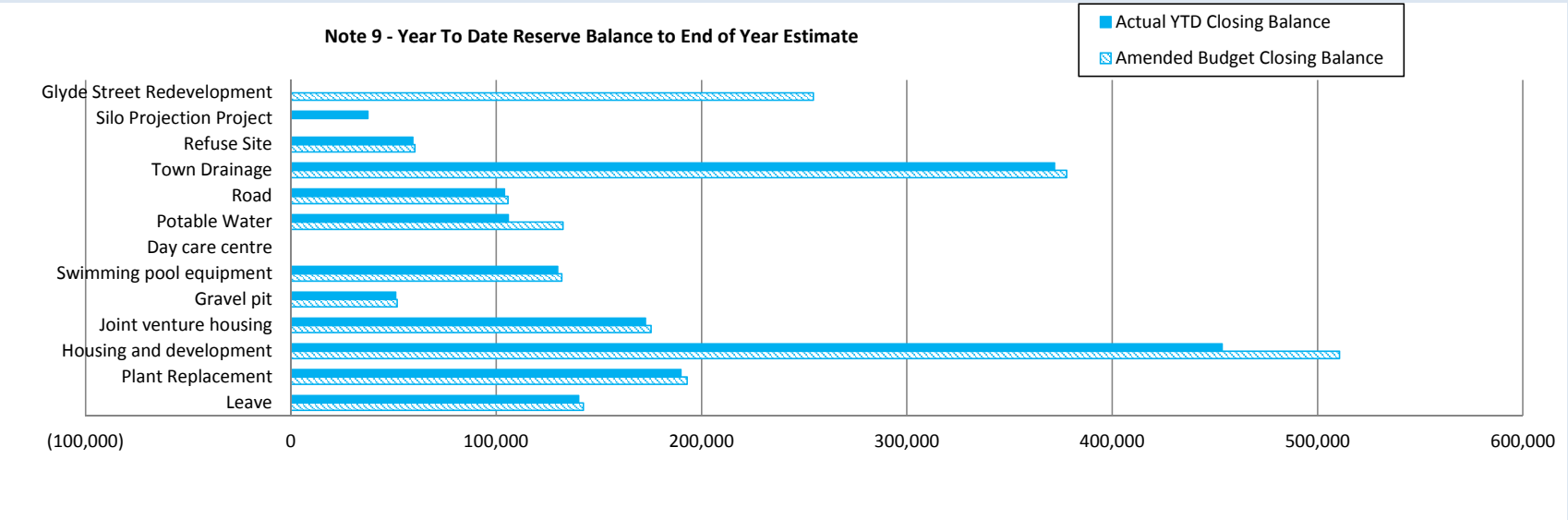
(b) Information on Financing

The Shire of Three Springs do not have any operating or finance leases to be reported.

Cash Backed Reserve

Reserve Name	Opening Balance	Amended Budget Interest Earned	Actual Interest Earned	Amended Budget Transfers In (+)	Actual Transfers In (+)	Amended Budget Transfers Out (-)	Actual Transfers Out (-)	Amended Budget Closing Balance	Actual YTD Closing Balance
	$	$	$	$	$	$	$	$	$
Leave	138,023	4,397	2,174	0	0	0	0	142,420	140,197
Plant Replacement	187,067	5,959	2,947	0	0	0	0	193,026	190,013
Housing and development	446,452	14,221	7,033	50,000	0	0	0	510,673	453,485
Joint venture housing	170,022	5,416	2,678	0	0	0	0	175,438	172,700
Gravel pit	50,205	1,599	791	0	0	0	0	51,804	50,996
Swimming pool equipment	127,915	4,075	2,015	0	0	0	0	131,990	129,930
Day care centre	37,534	0	0	0	0	(37,534)	(37,534)	0	(0)
Potable Water	104,198	3,319	1,641	25,000	0	0	0	132,517	105,840
Road	102,462	3,264	1,614	0	0	0	0	105,726	104,076
Town Drainage	366,196	11,665	5,769	0	0	0	0	377,861	371,965
Refuse Site	58,514	1,864	922	0	0	0	0	60,378	59,436
Silo Projection Project	0	37,534	0	0	37,534	(37,534)	0	0	37,534
Glyde Street Redevelopment	0	0	0	254,488	0	0	0	254,488	0
	1,788,589	**93,313**	**27,584**	**329,488**	**37,534**	**(75,068)**	**(37,534)**	**2,136,322**	**1,816,173**

KEY INFORMATION



OPERATING ACTIVITIES
NOTE 11
OTHER CURRENT LIABILITIES

Other Current Liabilities	Note	Opening Balance 1 Jul 2022	Liability Increase	Liability Reduction	Closing Balance 31 Mar 2023
		$	$	$	$
Contract Liabilities					
Unspent grants, contributions and reimbursements					
- operating	**12**	14,630	31,265	(41,305)	4,590
- non-operating	**13**	737,191	288,539	(383,678)	642,052
Total unspent grants, contributions and reimbursements		751,822	319,804	(424,983)	**646,642**
Less non-current unspent grants, contributions and reimbursements		(58,500)	0	0	**(58,500)**
Total current unspent grants, contributions and reimbursements		693,322	319,804	(424,983)	**588,142**
Provisions					
Annual leave		102,376	0	0	102,376
Long service leave		92,443	0	0	92,443
Total Provisions		194,819	0	0	**194,819**
Total Other Current Liabilities					**841,461**

Amounts shown above include GST (where applicable)

KEY INFORMATION

PROVISIONS

Provisions are recognised when the Shire has a present legal or constructive obligation, as a result of past events, for which it is probable that an outflow of economic benefits will result and that outflow can be reliably measured.

Provisions are measured using the best estimate of the amounts required to settle the obligation at the end of the reporting period.

EMPLOYEE BENEFITS

Short-term employee benefits

Provision is made for the Shire's obligations for short-term employee benefits. Short-term employee benefits are benefits (other than termination benefits) that are expected to be settled wholly before 12 months after the end of the annual reporting period in which the employees render the related service, including wages, salaries and sick leave. Short-term employee benefits are measured at the (undiscounted) amounts expected to be paid when the obligation is settled.

The Shire's obligations for short-term employee benefits such as wages, salaries and sick leave are recognised as a part of current trade and other payables in the calculation of net current assets.

Other long-term employee benefits

The Shire's obligations for employees' annual leave and long service leave entitlements are recognised as provisions in the statement of financial position.

Long-term employee benefits are measured at the present value of the expected future payments to be made to employees. Expected future payments incorporate anticipated future wage and salary levels, durations of service and employee departures and are discounted at rates determined by reference to market yields at the end of the reporting period on government bonds that have maturity dates that approximate the terms of the obligations. Any remeasurements for changes in assumptions of obligations for other long-term employee benefits are recognised in profit or loss in the periods in which the changes occur. The Shire's obligations for long-term employee benefits are presented as non-current provisions in its statement of financial position, except where the Shire does not have an unconditional right to defer settlement for at least 12 months after the end of the reporting period, in which case the obligations are presented as current provisions.

CONTRACT LIABILITIES

An entity's obligation to transfer goods or services to a customer for which the entity has received consideration (or the amount is due) from the customer. Grants to acquire or construct recognisable non-financial assets to identified specifications be constructed to be controlled by the Shire are recognised as a liability until such time as the Shire satisfies its obligations under the agreement.

SHIRE OF THREE SPRINGS
NOTES TO THE STATEMENT OF FINANCIAL ACTIVITY
FOR THE PERIOD ENDED 31 MARCH 2023

NOTE 12
OPERATING GRANTS AND CONTRIBUTIONS

	Provider	Unspent Operating Grant, Subsidies and Contributions Liability					Operating Grants, Subsidies and Contributions Revenue			
		Liability 1 Jul 2022	Increase in Liability	Liability Reduction (As revenue)	Liability 31 Mar 2023	Current Liability 31 Mar 2023	Adopted Budget Revenue	Amended Annual Budget	Amended YTD Budget	YTD Actual Revenue
		$	$	$	$	$	$	$	$	$
Operating Grants and Subsidies										
General purpose funding										
	Grants Commission - General (WALGGC)	0	0	0	0	0	344,064	304,294	228,219	228,221
	Grants Commission - Roads (WALGGC)	0	0	0	0	0	194,490	132,480	99,360	99,360
Law, order, public safety										
	DFES Grant - Operating Bush Fire Brigade	7,094	29,765	(32,368)	4,490	4,490	37,090	37,090	27,816	32,368
Education and welfare										
	Seniors Week Grant (Council on the Ageing)	0	500	(500)	0	0	1,000	500	500	500
	Keep Australia Beautiful Grant	0	1,000	(903)	97	97	0	1,000	999	903
Recreation and culture										
	NADC National Australia Day Grant	4,823	0	(4,823)	0	0	18,342	4,823	4,823	4,823
	Volunteer Week Grant	389	0	(386)	3	3	0	386	386	386
	Active Regional Communities Initiative Grants - Fitness Classes	2,324	0	(2,324)	0	0	5,000	2,324	2,324	2,324
Transport										0
	Direct Grant (MRWA)	0	0	0	0	0	129,755	132,546	132,546	132,546
	Street Lighting Subsidy (MRWA)	0	0	0	0	0	250	250	250	0
Economic services										
		14,630.25	**31,265**	**(41,305)**	**4,590**	**4,590**	**729,991**	**615,694**	**497,223**	**501,432**
Operating Contributions										
Health										
	Medical Centre Contribution	0	0	0	0	0	60,000	61,773	61,773	61,773
	Landcare Group - Transfer from Bonds	0	0	0	0	0	32,000	32,000	32,000	32,000
Recreation and culture										
	Recreation miscellaneous contribution	0	0	0	0	0	4,700	4,700	4,698	523
	Library miscellaneous contributions	0	0	0	0	0	300	300	225	223
	OTH CUL - Contributions & Donations - Other Culture	0	0	0	0	0	200	200	162	500
Other property and services										
	Administration miscellaneous contributions	0	0	0	0	0	15,000	15,000	10,000	10,000
		0	**0**	**0**	**0**	**0**	**112,200**	**113,973**	**108,858**	**105,020**
TOTALS		**14,630**	**31,265**	**(41,305)**	**4,590**	**4,590**	**842,191**	**729,667**	**606,081**	**606,451**

SHIRE OF THREE SPRINGS
NOTES TO THE STATEMENT OF FINANCIAL ACTIVITY
FOR THE PERIOD ENDED 31 MARCH 2023

NOTE 13
NON-OPERATING GRANTS AND CONTRIBUTIONS

	Unspent Non Operating Grants, Subsidies and Contributions Liability					Non Operating Grants, Subsidies and Contributions Revenue			
Provider	Liability 1 Jul 2022	Increase in Liability	Liability Reduction (As revenue)	Liability 31 Mar 2023	Current Liability 31 Mar 2023	Adopted Budget Revenue	Amended Annual Budget	Amended YTD Budget	YTD Actual Revenue
	$	$	$	$	$	$	$	$	$
Non-Operating Grants and Subsidies									
Recreation and culture									
LRCIP Mains Street Beautification	0	32,910	(32,910)	0	0	32,910	32,910	32,910	32,910
LRCIP Domincian Park	0	23,446	(23,446)	0	0	23,446	23,446	23,446	23,446
LRCIP Community Hall - Carter Street - Building	381,156	0	(45,605)	335,551	335,551	508,208	658,208	47,000	45,605
LRCIP Netball Courts & Lighting Capital works	112,500	0	(1,870)	110,630	110,630	150,000	1,870	1,870	1,870
DLGSC Club Night Lights Program - Netball Lights - Income	0	0	0	0	0	15,000	0	0	0
Community Sporting and Recreation Facilities Fund - Small Grants - Netball Courts - Income	0	0	0	0	0	27,215	0	0	0
Transport									
RTR Grant - McKenzie Road	44,129	0	(44,129)	0	0	44,129	44,129	44,129	44,129
RTR Grant - Bunney Road	0	0	0	0	0	180,000	180,000	180,000	0
RTR Grant - Second North Road	0	0	0	0	0	23,548	23,548	23,548	0
RTR Grant - Strutton Road	0	11,290	0	11,290	11,290	11,290	11,290	11,290	0
RTR Grant - Broad Road	0	15,893	(15,893)	0	0	23,548	23,548	23,548	15,893
RTR Grant - Hydraulic Road	0	45,000	0	45,000	45,000	53,901	53,901	53,901	0
RRG Grant - Arrino South Road	0	0	0	0	0	39,467	39,467	39,467	0
RRG Grant - Dudawa Road (1)	2,031	0	(949)	1,081	1,081	26,868	26,868	26,868	949
RRG Grant - Dudawa Road (2)	0	80,000	(80,000)	0	0	200,000	200,000	200,000	80,000
RRG Grant - Dudawa Road (3)	0	80,000	0	80,000	80,000	200,000	200,000	200,000	0
Economic services									
Lotterywest - Silo Projection Project	132,376	0	(132,376)	0	0	132,376	132,376	132,376	132,376
Regional Arts WA Grant - Radio/Audio Promotion	6,500	0	(6,500)	0	0	6,500	6,500	6,500	6,500
Duffy Store Redevelopment Capex	0	0	0	0	0	2,000,000	2,000,000	2,000,000	0
	678,691	**288,539**	**(383,678)**	**583,552**	**583,552**	**3,698,406**	**3,658,061**	**3,046,853**	**383,678**
Non-Operating Contributions									
Community amenities									
Karara Mining Refuse Site Contribution	58,500	0	0	58,500	58,500	0	0	0	0
	58,500	**0**	**0**	**58,500**	**58,500**	**0**	**0**	**0**	**0**
Total Non-operating grants, subsidies and contributions	**737,191**	**288,539**	**(383,678)**	**642,052**	**642,052**	**3,698,406**	**3,658,061**	**3,046,853**	**383,678**

SHIRE OF THREE SPRINGS
NOTES TO THE STATEMENT OF FINANCIAL ACTIVITY **NOTE 14**
FOR THE PERIOD ENDED 31 MARCH 2023 **BONDS & DEPOSITS AND TRUST FUNDS**

In previous years, bonds and deposits were held as trust monies. They are still reported in this Note but also included in Restricted Cash - Bonds and Deposits and as a current liability in the books of Council.

Trust funds held at balance date over which the Shire has no control and which are not included in this statement are as follows:

Description	Opening Balance 01 Jul 2022	Amount Received	Amount Paid	Closing Balance 31 Mar 2023
	$	$	$	$
Restricted Cash - Bonds and Deposits				
BCITF Levy	51.75	265.50	(317.25)	**0.00**
BSL Levy	327.50	296.47	(623.97)	**0.00**
Community Bus Bonds	100.00	300.00	(100.00)	**300.00**
Crossover/Footpath Bonds	0.00	0.00	0.00	**0.00**
Developer Bonds	0.00	0.00	0.00	**0.00**
Keys, Hall and Equipment Bonds	0.00	460.00	(460.00)	**0.00**
Landcare Groups	62,146.71	0.00	(32,000.00)	**30,146.71**
Other Bonds	0.00	0.00	0.00	**0.00**
Police Licensing	632.50	109,703.75	(110,336.25)	**0.00**
Rehabilitation Bonds	0.00	0.00	0.00	**0.00**
Roadworks Bonds	0.00	0.00	0.00	**0.00**
Public Standpipe System Access Card	0.00	250.00	0.00	**250.00**
Housing Bonds	0.00	0.00	0.00	**0.00**
Councillor Nomination Fees	0.00	0.00	0.00	**0.00**
Transportable Buildings Bonds	0.00	0.00	0.00	**0.00**
Visitor Centre	0.00	3,346.00	(3,346.00)	**0.00**
Community GYM Bond	1,440.00	2,439.98	(1,490.00)	**2,389.98**
Treasury Unpaid Monies	353.97	0.00	0.00	**353.97**
Sub-Total	65,052.43	117,061.70	(148,673.47)	**33,440.66**
Trust Funds				
Nil				
Sub-Total	0.00	0.00	0.00	**0.00**
	65,052.43	**117,061.70**	**(148,673.47)**	**33,440.66**

KEY INFORMATION

NOTE 15
EXPLANATION OF SIGNIFICANT VARIANCES

The material variance thresholds are adopted annually by Council as an indicator of whether the actual expenditure or revenue varies from the year to date budget materially.
The material variance adopted by Council for the 2022/23 year is $10,000 and 10%.

Reporting Program	Var. $	Var. %	Var. ▲▼	Significant Var. S	Timing/ Permanent	Explanation of Variance
Revenue from operating activities	$	%				
Governance	(13,732)	(100%)	▼	S	Timing	No Operating Revenue yet received for Governance.
Expenditure from operating activities						
Governance	132,772	32%	▲	S	Timing	Various expenditure accounts tracking lower than budget including Training & Development, Travel & Accommodation, Legal fees, Donations to Community Groups, Audit and Consultancy Fees. These variances are likely timing, as the costs are budgeted to be recovered evenly over 12 months.
Law, Order and Public Safety	20,114	12%	▲	S	Timing	Maintenance of BFB lower than budgeted to date, likely to be recovered over the next few months.
Health	52,568	26%	▲	S	Timing	Second payment for Doctors Service has not been made to date. This is timing.
Community Amenities	158,640	45%	▲	S	Timing	Refuse Site and Cemetery Maintenance tracking lower than budget. Mains Storm Water Maintenance works has not commenced. Waste collection expenses lower to date due to invoice processing issues. This will resolve during the remainder of the year.
Economic Services	41,164	18%	▲	S	Timing	Timing - Various expenditure accounts tracking lower than budget. Standpipe costs lower than anticipated. Various Tourism associated costs are lower. Building approval lower. This may even out over the remainder of the year when tourism returns to town.
Other Property and Services	28,064	168%	▲	S	Timing	Plant Operation costs are tracking lower than expected. This will likely even out over the remainder of the year.
Investing Activities						
Non-operating Grants, Subsidies and Contributions	(2,663,175)	(87%)	▼	S	Timing	Grant funding to date less than anticipated due to delays with Silo Projector purchase, Netball court works, Duffy Store and Hall renovations. These will even out over the remainder of the year.
Land and Buildings	45,519	31%	▲	S	Timing	Capital works - Refer to Note 8 Capital details
Plant and Equipment	167,732	26%	▲	S	Timing	Capital works - Refer to Note 8 Capital details
Infrastructure Assets - Roads	459,893	51%	▲	S	Timing	Capital works - Refer to Note 8 Capital details
Infrastructure Assets - Parks and Ovals	43,596	95%	▲	S	Timing	Capital works - Refer to Note 8 Capital details
Financing Activities						
Proceeds from New Debentures	(600,000)	(100%)	▼	S	Timing	The loan for Duffy's store project is conditional on a grant application being successful. To date no suitable grant is available.
Repayment of Debentures	(19,908)	(63%)	▼	S	Permanent	Only one principal repayment was budgetted this year.
Self-Supporting Loan Principal	20,017	1	▲	S	Permanent	Only one principal receivable on self supporting loans was budgeted to occur this year
Transfer from Reserves	(37,534)	(50%)	▼	S	Timing	Will be completed as part of Term Deposit renewal in June.
Transfer to Reserves	19,052	23%	▲	S		Transfer to Reserves is lower than expected to date. This will be corrected by EOFY.

NOTE 16
BUDGET AMENDMENTS

GL Code	Job #	Description	Council Resolution	Classification		Non Cash Adjustment	Increase in Available Cash	Decrease in Available Cash	Amended Budget Running Balance	Comments
						$	$	$	$	
		Budget Adoption	025/2023	Closing Surplus/(Deficit)				(7,465)	(7,465)	
2030116		RATES - Postage and Freight	025/2023	Operating Expenses	(235.50)		0.00	(235.50)	(7,700)	
2030199		RATES - Administration Allocated	025/2023	Operating Expenses	8,484.00		8,484.00	0.00	784	
3030120		RATES - Instalment Admin Fee Received	025/2023	Operating Revenue	8.00		8.00	0.00	792	
3030130		RATES - Rates Levied - Synergy	025/2023	Operating Revenue	1,725.70		1,725.70	0.00	2,518	
3030146		RATES - Instalment Interest Received	025/2023	Operating Revenue	1,300.00		1,300.00	0.00	3,818	
2030211		GEN PUR - Bank Fees & Charges	025/2023	Operating Expenses	674.18		674.18	0.00	4,492	
2030299		GEN PUR - Administration Allocated	025/2023	Operating Expenses	3,645.00		3,645.00	0.00	8,137	
3030210		GEN PUR - Financial Assistance Grant - General	025/2023	Operating Revenue	(39,770.00)		0.00	(39,770.00)		The Shire received less than expected FAG income. Will be addressed with a budget review
									(31,633)	
3030211		GEN PUR - Financial Assistance Grant - Roads	025/2023	Operating Revenue	(62,010.00)		0.00	(62,010.00)		The Shire received less than expected FAG income. Will be addressed with a budget review
									(93,643)	
3030220		GEN PUR - Charges - Photocopying / Faxing	025/2023	Operating Revenue	64.24		64.24	0.00	(93,579)	
3030224		GEN PUR - Contributions Yakabout	025/2023	Operating Revenue	(1,391.77)		0.00	(1,391.77)		Not as much advertising in the Yakabout as budgeted for
3030245		GEN PUR - Interest Earned - Reserve Funds	025/2023	Operating Revenue	9,160.96		9,160.96	0.00	(94,971)	Higher interest rates than anticipated or budgeted for
3030246		GEN PUR - Interest Earned - Municipal Funds	025/2023	Operating Revenue	21,790.02		21,790.02	0.00	(85,810)	Higher interest rates than anticipated or budgeted for
2040104		MEMBERS - Training & Development	025/2023	Operating Expenses	9,000.00		9,000.00	0.00	(64,020)	Non-attendance by councillors at WALGA conference
2040109		MEMBERS - Members Travel and Accommodation	025/2023	Operating Expenses	2,000.00		2,000.00	0.00	(55,020)	Non-attendance by councillors at WALGA conference
2040113		MEMBERS - Members Sitting Fees	025/2023	Operating Expenses	16,625.00		16,625.00	0.00	(53,020)	Attendance less than 100%
2040130		MEMBERS - Insurance Expenses	025/2023	Operating Expenses	(187.80)		0.00	(187.80)	(36,395)	
2040141		MEMBERS - Subscriptions & Publications	025/2023	Operating Expenses	986.34		986.34	0.00	(36,583)	
2040186		MEMBERS - Expensed Minor Asset Purchases	025/2023	Operating Expenses	900.00		900.00	0.00	(35,596)	
2040187		MEMBERS - Other Expenses	025/2023	Operating Expenses	1,845.45		1,845.45	0.00	(34,696)	
2040188	BO4001	Council Chambers - Building Operations	025/2023	Operating Expenses	1,286.43		1,286.43	0.00	(32,851)	Members unlikely to spend allocation prior to 30/06/23
2040199		MEMBERS - Administration Allocated	025/2023	Operating Expenses	24,052.00		24,052.00	0.00	(31,564)	Expenditure likely to be underbudget
2040299		OTH GOV - Administration Allocated	025/2023	Operating Expenses	1,078.00		1,078.00	0.00	(7,512)	
2050110		FIRE - Motor Vehicle Expenses	025/2023	Operating Expenses	(200.00)		0.00	(200.00)	(6,434)	
2050187		FIRE - Other Expenditure	025/2023	Operating Expenses	(309.26)		0.00	(309.26)	(6,634)	Auto recovery of fire pump trailer P7004
2050188		FIRE - Building Operations	025/2023	Operating Expenses	(1,450.00)		0.00	(1,450.00)	(6,944)	Fire permit books and catering for meetins
2050192		FIRE - Depreciation	025/2023	Operating Expenses	1,116.13	1,116.13	0.00	0.00	(8,394)	Power, water and sewerage costs
2050199		FIRE - Administration Allocated	025/2023	Operating Expenses	1,409.00		1,409.00	0.00	(8,394)	
2050286		ANIMAL - Expensed Minor Asset Purchases	025/2023	Operating Expenses	(744.00)		0.00	(744.00)	(6,985)	
2050299		ANIMAL - Administration Allocated	025/2023	Operating Expenses	3,572.00		3,572.00	0.00	(7,729)	Animal Registration tags
3050201		ANIMAL - Reimbursements	025/2023	Operating Revenue	80.00		80.00	0.00	(4,157)	
3050220		ANIMAL - Pound Fees	025/2023	Operating Revenue	200.00		200.00	0.00	(4,077)	
3050240		ANIMAL - Fines and Penalties	025/2023	Operating Revenue	600.00		600.00	0.00	(3,877)	Higher number of animals being impounded this year
2050311		OLOPS - CCTV Maintenance	025/2023	Operating Expenses	2,024.53		2,024.53	0.00	(3,277)	Generally wandering dogs and cats not being restrained in yards and unregistered
2050399		OLOPS - Administration Allocated	025/2023	Operating Expenses	860.00		860.00	0.00	(1,252)	expense lower due to CCTV renewal/upgrade
2050566		ESL BFB - Maintenance Vehicles/Trailers/Boats	025/2023	Operating Expenses	39,551.30		39,551.30	0.00	(392)	
2050589	BM5001	Fire Shed New - Lot 24 Franklin Street - Building Maintenance	025/2023	Operating Expenses	(164.93)		0.00	(164.93)	39,159	Maintenance of BFB lower than budgetted to date. Overall costs lower than anticipated.
2050590	BO5001	Fire Shed New - Lot 24 Franklin Street - Building Operations	025/2023	Operating Expenses	658.12		658.12	0.00	38,994	
2050592	W5001	Fire Control Expenses - Three Springs Maintenance	025/2023	Operating Expenses	(1,904.09)		0.00	(1,904.09)	39,652	
2050592	W5005	Fire Control Expenses - Fire Fighting Maintenance	025/2023	Operating Expenses	(887.56)		0.00	(887.56)	37,748	Costs associated with SMS services and gas costs
2070499		HEALTH - Administration Allocated	025/2023	Operating Expenses	1,064.00		1,064.00	0.00	36,861	
3070435		HEALTH - Other Income	025/2023	Operating Revenue	(100.00)		0.00	(100.00)	37,925	
2070715		OTH HEALTH - Printing and Stationery	025/2023	Operating Expenses	50.00		50.00	0.00	37,825	
2070716		OTH HEALTH - Postage and Freight	025/2023	Operating Expenses	50.00		50.00	0.00	37,875	Account not used as Dentist and doctor pay for all Printing and Stationery
									37,925	Account not used as Dentist and doctor pay for all Postage and freight

2070721		OTH HEALTH - Information Technology	025/2023	Operating Expenses	19,272.20		19,272.20	0.00	57,197	Service contract agreeement (previous year highe due to equipment for new system)- IT service not functioning as expected. Will address in 2023/24 budget.
2070786		OTH HEALTH - Expensed Minor Asset Purchases	025/2023	Operating Expenses	8,000.00		8,000.00	0.00	65,197	No expenditure to date.
2070787		OTH HEALTH - Other Expenses	025/2023	Operating Expenses	300.00		300.00	0.00	65,497	No expenditure to date.
2070788	BO1584	Medical Centre - Thomas Street - Building Operations	025/2023	Operating Expenses	(4,958.35)		0.00	(4,958.35)	60,539	Electricity, water, insurance
2070788	BO7016	Dental Surgery - New - Building Operations	025/2023	Operating Expenses	(406.39)		0.00	(406.39)	60,132	Electricity, water, insurance
2070799		OTH HEALTH - Administration Allocated	025/2023	Operating Expenses	1,385.00		1,385.00	0.00	61,517	
3070700		OTH HEALTH - Contributions & Donations	025/2023	Operating Revenue	1,773.00		1,773.00	0.00	63,290	Higher than budgeted as last years actuals were reduced for lower hours
4070710	BC7016	Dental Surgery - New - Building (Capital)	025/2023	Capital Expenses	(12,596.34)		0.00	(12,596.34)	50,694	New airconditioning system
2080388	BO028	Early Childhood Learning Centre - 19 Maryhofer Street - Building Operations	025/2023	Operating Expenses	(6,222.24)		0.00	(6,222.24)	44,472	Cleaning, Electricity and Water costs
2080388	BO1022	Playgroup - Lot 220 Maryhofer Street - Building Operations	025/2023	Operating Expenses	(80.04)		0.00	(80.04)	44,392	
2080389	BM028	Early Childhood Learning Centre - 19 Maryhofer Street - Building Maintenance	025/2023	Operating Expenses	(89.92)		0.00	(89.92)	44,302	
2080389	BM1022	Playgroup - Lot 220 Maryhofer Street - Building Maintenance	025/2023	Operating Expenses	4,727.01		4,727.01	0.00	49,029	Maintenance less than budget
2080392		FAMILIES - Depreciation	025/2023	Operating Expenses	6,363.00	6,363.00	0.00	0.00	49,029	
2080399		FAMILIES - Administration Allocated	025/2023	Operating Expenses	394.00		394.00	0.00	49,423	
2080753	EV0001	Senior Week Grant Expenditure	025/2023	Operating Expenses	500.00		500.00	0.00	49,923	Reduced expense due to reduced grant being received
2080752	EV0008	Welfare - Misc Small Events	025/2023	Operating Expenses	(259.09)		0.00	(259.09)	49,664	Carried over from previous year. Volunteer recognition event
2080753	EV0009	Mental Health Event	025/2023	Operating Expenses	2,500.00		2,500.00	0.00	52,164	Cancellled due to lack of grant
2080753	EV0014	Seniors Xmas Dinner	025/2023	Operating Expenses	4,675.67		4,675.67	0.00	56,839	Less than budgeted for
2080799		WELFARE - Administration Allocated	025/2023	Operating Expenses	1,195.00		1,195.00	0.00	58,034	
3080710	EVI0001	Senior Week Grant Income	025/2023	Operating Revenue	(500.00)		0.00	(500.00)	57,534	Grant received lower than expected
3080720		WELFARE - Fees & Charges	025/2023	Operating Revenue	(1,000.00)		0.00	(1,000.00)	56,534	Relationship previously paid for Hall hire - fees now waived
2090188	BO9000	Staff House - (Lot 10) 41 Slaughter St - Building Operations	025/2023	Operating Expenses	606.00		606.00	0.00	57,140	
2090188	BO9002	Staff House - (Lot 74) 5 Gooch St - Building Operations	025/2023	Operating Expenses	745.00		745.00	0.00	57,885	
2090188	BO9004	(Do Not Use) Staff House - (Lot 30) 3 Howard St - Building Operations	025/2023	Operating Expenses	1,457.00		1,457.00	0.00	59,342	
2090188	BO9006	Staff House - (Lot 58) 44 Williamson St - Building Operations	025/2023	Operating Expenses	1,067.00		1,067.00	0.00	60,409	
2090188	BO9009	Staff House - (Lot 35) 47 Williamson St - Building Operations	025/2023	Operating Expenses	5,063.00		5,063.00	0.00	65,472	
2090188	BO9011	Staff House - (Lot 157) 65 Carter St - Building Operations	025/2023	Operating Expenses	3,847.00		3,847.00	0.00	69,319	
2090188	BO9012	(Do Not Use) Staff House - (Lot 222) 46 Carter St - Building Operations	025/2023	Operating Expenses	3,627.00		3,627.00	0.00	72,946	
2090188	BO9015	Staff - Unit 1 - 66A Williamson St - Building Operations	025/2023	Operating Expenses	1,208.00		1,208.00	0.00	74,154	
2090188	BO9016	Staff - Unit 2 - 66B Williamson St - Building Operations	025/2023	Operating Expenses	1,421.00		1,421.00	0.00	75,575	
2090188	BO9056	(Do Not Use) Staff House - (Lot 217) 89 Williamson St - Building Operations	025/2023	Operating Expenses	2,012.00		2,012.00	0.00	77,587	
2090188	BO9061	Staff House - (Lot 67) 19 Gooch St - Building Operations	025/2023	Operating Expenses	2,878.00		2,878.00	0.00	80,465	
2090189	BM9000	Staff House - (Lot 10) 41 Slaughter St - Building Maintenance	025/2023	Operating Expenses	575.00		575.00	0.00	81,040	
2090189	BM9002	Staff House - (Lot 74) 5 Gooch St - Building Maintenance	025/2023	Operating Expenses	2,762.73		2,762.73	0.00	83,803	
2090189	BM9004	(Do Not Use) Staff House - (Lot 30) 3 Howard St - Building Maintenance	025/2023	Operating Expenses	2,775.00		2,775.00	0.00	86,578	
2090189	BM9006	Staff House - (Lot 58) 44 Williamson St - Building Maintenance (Vacant Land From 2021)	025/2023	Operating Expenses	647.50		647.50	0.00	87,226	
2090189	BM9009	Staff House - (Lot 35) 47 Williamson St - Building Maintenance	025/2023	Operating Expenses	1,235.78		1,235.78	0.00	88,461	
2090189	BM9011	Staff House - (Lot 157) 65 Carter St - Building Maintenance	025/2023	Operating Expenses	1,379.84		1,379.84	0.00	89,841	
2090189	BM9012	(Do Not Use) Staff House - (Lot 222) 46 Carter St - Building Maintenance	025/2023	Operating Expenses	2,381.00		2,381.00	0.00	92,222	
2090189	BM9015	Staff House - Unit 1 - 66A Williamson St - Building Maintenance	025/2023	Operating Expenses	1,505.68		1,505.68	0.00	93,728	
2090189	BM9056	Non Staff House - (Lot 217) 89 Williamson St - Building Maintenance	025/2023	Operating Expenses	3,404.00		3,404.00	0.00	97,132	
2090189	BM9061	Staff House - (Lot 67) 19 Gooch St - Building Maintenance	025/2023	Operating Expenses	(3,501.49)		0.00	(3,501.49)	93,630	
2090189	BM9079	Staff House - (Lot 173) 50 Carter St - Building Maintenance	025/2023	Operating Expenses	658.72		658.72	0.00	94,289	
2090199		STF HOUSE - Administration Allocated	025/2023	Operating Expenses	2,749.00		2,749.00	0.00	97,038	
2090198		STF HOUSE - Staff Housing Costs Recovered	025/2023	Operating Expenses	(25,362.00)		0.00	(25,362.00)	71,676	
3090101		STF HOUSE - Staff Rental Reimbursements	025/2023	Operating Revenue	(3,500.00)		0.00	(3,500.00)	68,176	Tenants using lower water than in previous years
3090120		STF HOUSE - Fees & Charges	025/2023	Operating Revenue	(4,347.15)		0.00	(4,347.15)	63,829	Housing rental
3090135		STF HOUSE - Other Income	025/2023	Operating Revenue	(400.00)		0.00	(400.00)	63,429	
4090110	BC9001	House - (Lot 182) 58 Carter St - Building (Capital)	025/2023	Capital Expenses	50,000.00		50,000.00	0.00	113,429	Works cancelled Transfer to building reserve
4090110	BC9011	House - (Lot 157) 65 Carter St - Building (Capital)	025/2023	Capital Expenses	15,000.00		15,000.00	0.00	128,429	Cancelled sea container - Kitchen still to be renovated
4090181		STF HOUSE - Transfers to Reserve	025/2023	Capital Expenses	(50,000.00)		0.00	(50,000.00)	78,429	$50k transfer to reserve due to capital works not being carried out on 58 Carter Street this year. Staff preparing a property asset report for Council consideration.
2090288	BO9052	(Do Not Use) House - (Lot 16) 30 Touche St (Child Care) - Building Operations (Property Sold In 2022	025/2023	Operating Expenses	148.04		148.04	0.00	78,577	Property sold
2090288	BO9055	House - (Lot 60) 5 Glyde St (Lgchp) - Jv - Building Operations	025/2023	Operating Expenses	(1,052.24)		0.00	(1,052.24)	77,525	
2090288	BO9081	Non-Staff House - 3 (Lot 30) Howard Place - Dentist Rental - Building Operations	025/2023	Operating Expenses	288.43		288.43	0.00	77,813	
2090288	BO9099	Non-Staff House - Other Housing - Building Operations	025/2023	Operating Expenses	947.84		947.84	0.00	78,761	
2090289	BM9003	Non Staff House - (Lot 214) 21 Franklin St - Building Maintenance	025/2023	Operating Expenses	(3,507.63)		0.00	(3,507.63)	75,253	

2090289	BM9052	(Do Not Use) House - (Lot 16) 30 Touche St (Child Care) - Building Maintenance (House Sold In 2022)	025/2023	Operating Expenses	2,202.66		2,202.66	0.00	77,456	Property sold
2090289	BM9054	House - (Lot 54) 17 Glyde St (Lgchp) - Jv - Building Maintenance	025/2023	Operating Expenses	(2,383.00)		0.00	(2,383.00)	75,073	Shire employee - Raylene
2090289	BM9055	House - (Lot 60) 5 Glyde St (Lgchp) - Jv - Building Maintenance	025/2023	Operating Expenses	(1,118.42)		0.00	(1,118.42)	73,955	
2090289	BM9081	Non Staff House - 3 (Lot 30) Howard Place - Dentist Rental - Building Maintenance	025/2023	Operating Expenses	1,054.37		1,054.37	0.00	75,009	
2090289	BM9099	Non Staff House - Other Housing - Building Maintenance	025/2023	Operating Expenses	1,000.00		1,000.00	0.00	76,009	
2090291		OTH HOUSE - Loss on Disposal of Assets	025/2023	Operating Expenses	22,048.01	22,048.01	0.00	0.00	76,009	
2090299		OTH HOUSE - Administration Allocated	025/2023	Operating Expenses	2,580.00		2,580.00	0.00	78,589	
3090201		OTH HOUSE - Rental Reimbursements	025/2023	Operating Revenue	(1,900.00)		0.00	(1,900.00)	76,689	Tenants pay utilities
3090220		OTH HOUSE - Fees & Charges	025/2023	Operating Revenue	5,528.64		5,528.64	0.00	82,218	Rental
4090210	BC9081	House - 3 (Lot 30) Howard Place - Dentist Rental - Building (Capital)	025/2023	Capital Expenses	11,105.00		11,105.00	0.00	93,323	Completed well below budget
5090250		OTH HOUSE - Proceeds on Disposal of Assets	025/2023	Capital Revenue	25,000.00		25,000.00	0.00	118,323	Sale price higher than anticipated.
5090251		OTH HOUSE - Realisation on Disposal of Assets	025/2023	Capital Revenue	(25,000.00)	(25,000.00)	0.00	0.00	118,323	Sale price higher than anticipated.
2090388	BO90492	Kadathinni Unit 2 - (Lot 235) Carter St - Building Operations	025/2023	Operating Expenses	1,284.94		1,284.94	0.00	119,608	Tenant pays electricity and water usage
2090388	BO90493	Kadathinni Unit 3 - (Lot 235) Carter St - Building Operations	025/2023	Operating Expenses	1,209.96		1,209.96	0.00	120,818	Shire employee - Raylene
2090388	BO90494	Kadathinni Unit 4 - (Lot 235) Carter St - Building Operations	025/2023	Operating Expenses	1,032.21		1,032.21	0.00	121,850	
2090388	BO90495	Kadathinni Unit 5 - (Lot 235) Carter St - Building Operations	025/2023	Operating Expenses	(0.73)		0.00	(0.73)	121,849	
2090388	BO90496	Kadathinni Unit 6 - (Lot 235) Carter St - Building Operations	025/2023	Operating Expenses	970.01		970.01	0.00	122,819	
2090389	BM9049	Kadathinni Units - Building Maintenance	025/2023	Operating Expenses	(2,896.77)		0.00	(2,896.77)	119,922	
2090389	BM90491	Kadathinni Unit 1 - (Lot 235) Carter St - Building Maintenance	025/2023	Operating Expenses	439.84		439.84	0.00	120,362	
2090389	BM90492	Kadathinni Unit 2 - (Lot 235) Carter St - Building Maintenance	025/2023	Operating Expenses	(471.93)		0.00	(471.93)	119,890	
2090389	BM90493	Kadathinni Unit 3 - (Lot 235) Carter St - Building Maintenance	025/2023	Operating Expenses	907.94		907.94	0.00	120,798	Property sold
2090389	BM90494	Kadathinni Unit 4 - (Lot 235) Carter St - Building Maintenance	025/2023	Operating Expenses	594.49		594.49	0.00	121,393	
2090389	BM90495	Kadathinni Unit 5 - (Lot 235) Carter St - Building Maintenance	025/2023	Operating Expenses	(2,852.23)		0.00	(2,852.23)	118,540	Shire employee - Raylene
2090389	BM90496	Kadathinni Unit 6 - (Lot 235) Carter St - Building Maintenance	025/2023	Operating Expenses	(546.96)		0.00	(546.96)	117,993	
2090399		COM HOUSE - Administration Allocated	025/2023	Operating Expenses	394.00		394.00	0.00	118,387	
4090310	BC90496	Kadathinni Unit 6 - (Lot 235) Carter St - Building (Capital)	025/2023	Capital Expenses	7,500.00		7,500.00	0.00	125,887	
2100165	W1024	Waste Oil Facility Maintenance	025/2023	Operating Expenses	558.00		558.00	0.00	126,445	No expenditure this year at the Waste Oil Facility
2100165	W1025	Rubbish Bins Maintenance	025/2023	Operating Expenses	(394.70)		0.00	(394.70)	126,051	
2100199		SAN - Administration Allocated	025/2023	Operating Expenses	991.00		991.00	0.00	127,042	
3100120		SAN - Domestic Refuse Collection Charges	025/2023	Operating Revenue	523.21		523.21	0.00	127,565	
3100121		SAN - Domestic Services (Additional)	025/2023	Operating Revenue	348.26		348.26	0.00	127,913	
2100287	EV0015	Keep Australia Beautiful Grant Expenditure	025/2023	Operating Expenses	(1,000.00)		0.00	(1,000.00)	126,913	Unbudgeted grant expenditure
2100299		SAN OTH - Administration Allocated	025/2023	Operating Expenses	729.00		729.00	0.00	127,642	
3100210	EVI0015	Keep Australia Beautiful Grant Income	025/2023	Operating Revenue	1,000.00		1,000.00	0.00	128,642	Unbudgetted grant of $1k received. Raman to spend the balance
2100311	W1002	Sewerage Scheme Maintenance	025/2023	Operating Expenses	76.12		76.12	0.00	128,718	
2100399		SEW - Administration Allocated	025/2023	Operating Expenses	204.00		204.00	0.00	128,922	
3100321		SEW - Septic Tank Inspection Fees	025/2023	Operating Revenue	(264.00)		0.00	(264.00)	128,658	No inspections have occurred to date - budget reduced
2100653		PLAN - Scheme Amendments	077/2022	Operating Expenses	(7,000.00)		0.00	(7,000.00)	121,658	Budget amendment OCM Sept 2022 - Item 10.2
2100699		PLAN - Administration Allocated	025/2023	Operating Expenses	1,851.00		1,851.00	0.00	123,509	
4100681		PLAN - Transfers to Reserve	025/2023	Capital Expenses	181,558.00		181,558.00	0.00	305,067	Reduced transfer to Reserve to fund increase to Hall Renovations
2100710		COM AMEN - Motor Vehicle Expenses	025/2023	Operating Expenses	4,587.39		4,587.39	0.00	309,655	Community bus expenses
2100788	BO1115	Public Conveniences Operations - Community Hall Grounds Public Toilet	025/2023	Operating Expenses	(485.87)		0.00	(485.87)	309,169	
2100788	BO1137	Public Conveniences - Dominican Park - Building Operations	025/2023	Operating Expenses	(2,724.96)		0.00	(2,724.96)	306,444	Original budget was based on previous figures which did not cover a full year
2100799		COM AMEN - Administration Allocated	025/2023	Operating Expenses	4,607.00		4,607.00	0.00	311,051	
3100721		COM AMEN - Cemetery Fees (Niche Wall & Rose Garden)	025/2023	Operating Revenue	600.00		600.00	0.00	311,651	
3100722		COM AMEN - Cemetery Fees (Monuments)	025/2023	Operating Revenue	450.00		450.00	0.00	312,101	
2110165	W1102	Community Hall Grounds Maintenance (Works Crew)	025/2023	Operating Expenses	(1,438.06)		0.00	(1,438.06)	310,663	
2110165	W1018	Entrance Statement (Town Oval) Maintenance	025/2023	Operating Expenses	(1,945.72)		0.00	(1,945.72)	308,717	
2110189	BM1101	Community Hall - Carter Street - Building Maintenance	025/2023	Operating Expenses	15,996.52		15,996.52	0.00	324,714	Lower due to planned capital works
2110199		HALLS - Administration Allocated	025/2023	Operating Expenses	1,749.00		1,749.00	0.00	326,463	
3110110	LRCIPI03	Lrcip Community Hall Income (Phase 3) $508,208	025/2023	Operating Revenue	150,000.00		150,000.00	0.00	476,463	Netball courts project cancelled and funds reallocated to the hall
3110135		HALLS - Other Income	025/2023	Operating Revenue	1,259.31		1,259.31	0.00	477,722	Hire of equipment and extra cleaning expenses
4110110	BC1101	Community Hall - Carter Street - Building (Capital)	025/2023	Capital Expenses	(331,448.00)		0.00	(331,448.00)	146,274	Netball courts project cancelled and funds reallocated to the hall
2110200		SWIM AREAS - Salaries	025/2023	Operating Expenses	(26,429.29)		0.00	(26,429.29)	119,845	Increase primarily due to termination pay
2110265	W1104	Swimming Pool And Surrounds Maintenance	025/2023	Operating Expenses	(15,041.17)		0.00	(15,041.17)	104,803	Employee and O/H costs $8k higher than year budget
2110288	BO005	Pump House - Mayrhofer Street - Building Operations	025/2023	Operating Expenses	15,000.00		15,000.00	0.00	119,803	No expense for the pump house. Budget reinstated based on Royal Lifesaving report
2110288	BO1104	Swimming Pool - Mayrhofer Street - Building Operations	025/2023	Operating Expenses	17,940.00		17,940.00	0.00	137,743	Water last year $24,000 YTD Actual $10,000 Budget $30,000
2110289	BM1104	Swimming Pool - Mayrhofer Street - Building Maintenance	025/2023	Operating Expenses	18,903.26		18,903.26	0.00	156,647	Building maintenance less than budgeted
2110298		SWIM AREAS - Staff Housing Costs Allocated	025/2023	Operating Expenses	(405.00)		0.00	(405.00)	156,242	

2110299		SWIM AREAS - Administration Allocated	025/2023	Operating Expenses	2,642.00		2,642.00	0.00	158,884	
3110220		SWIM AREAS - Admissions	025/2023	Operating Revenue	2,000.00		2,000.00	0.00	160,884	Pool only open from Nov 21 - Feb 22
3110235		SWIM AREAS - Other Income	025/2023	Operating Revenue	(200.00)		0.00	(200.00)	160,684	
2110365	W1105	Other Parks & Gardens Maintenance	025/2023	Operating Expenses	25,384.65		25,384.65	0.00	186,068	Expenditure YTD lower than budget
2110365	W210	Jack Thorpe Gardens Maintenance	025/2023	Operating Expenses	4,620.81		4,620.81	0.00	190,689	Expenditure YTD lower than budget
2110365	W220	Byrne Park Maintenance	025/2023	Operating Expenses	4,391.91		4,391.91	0.00	195,081	Expenditure YTD lower than budget
2110365	W230	Dominican Park Maintenance	025/2023	Operating Expenses	52,589.74		52,589.74	0.00	247,671	Expenditure YTD lower than budget
2110365	W260	Mayrhofer Park Maintenance	025/2023	Operating Expenses	(4,669.23)		0.00	(4,669.23)	243,002	Expenditure YTD lower than budget
2110365	W290	Federation Park Maintenance	025/2023	Operating Expenses	10,145.07		10,145.07	0.00	253,147	Expenditure YTD lower than budget
2110366	W1107	Oval Maintenance	025/2023	Operating Expenses	36,643.81		36,643.81	0.00	289,790	Expenditure YTD lower than budget
2110366	W1113	Hockey Grounds Maintenance	025/2023	Operating Expenses	5,984.63		5,984.63	0.00	295,775	Expenditure YTD lower than budget
2110366	W1132	Basketball Courts Maintenance	025/2023	Operating Expenses	(401.00)		0.00	(401.00)	295,374	Basketball backboard and hoops
2110367	W1110	Rollerblade Facility Maintenance	025/2023	Operating Expenses	2,051.06		2,051.06	0.00	297,425	Expenditure YTD lower than budget
2110368	W1134	Main/Railway Road Park And Playground Maintenance	025/2023	Operating Expenses	(8,015.56)		0.00	(8,015.56)	289,410	Costs higher than budget due to increased event activity on Railway Street
2110369	EV0013	Active Regional Communities Initiative Grants - Fitness Classes Expenditure	025/2023	Operating Expenses	3,200.00		3,200.00	0.00	292,610	Activity completed below budget
2110387		REC - Other Expenses	025/2023	Operating Expenses	(394.02)		0.00	(394.02)	292,216	
2110388	BO1103	Pavillion - Oval - Building Operations	025/2023	Operating Expenses	4,197.96		4,197.96	0.00	296,414	Insurance and cleaning
2110388	BO1105	Gym - Slaughter Street - Building Operations	025/2023	Operating Expenses	7,848.50		7,848.50	0.00	304,262	
2110388	BO1111	Pottery Shed - Building Operations	025/2023	Operating Expenses	258.74		258.74	0.00	304,521	Insurance only
2110388	BO1112	Playground Building - Hockey Ground - Building Operations	025/2023	Operating Expenses	325.49		325.49	0.00	304,846	
2110388	BO1113	Hockey Shed - Building Operations	025/2023	Operating Expenses	516.00		516.00	0.00	305,362	
2110388	BO1133	Netball Shed - Oval - Building Operations	025/2023	Operating Expenses	(59.28)		0.00	(59.28)	305,303	
2110389	BM1103	Pavillion - Oval - Building Maintenance	025/2023	Operating Expenses	6,536.56		6,536.56	0.00	311,840	
2110389	BM1105	Gym- Slaughter Street - Building Maintenance	025/2023	Operating Expenses	694.16		694.16	0.00	312,534	
2110389	BM1106	Sporting Club - Slaughter Street - Building Maintenance	025/2023	Operating Expenses	10,660.74		10,660.74	0.00	323,194	
2110389	BM1111	Pottery Shed - Building Maintenance	025/2023	Operating Expenses	13,443.96		13,443.96	0.00	336,638	Demolition delayed until a review of Property assets has been considered by Council
2110389	BM1112	Playground Building - Hockey Ground - Building Maintenance	025/2023	Operating Expenses	1,791.00		1,791.00	0.00	338,429	
2110389	BM1113	Hockey Shed - Building Maintenance	025/2023	Operating Expenses	(136.32)		0.00	(136.32)	338,293	
2110389	BM1133	Netball Shed - Oval - Building Maintenance	025/2023	Operating Expenses	608.00		608.00	0.00	338,901	
2110392		REC - Depreciation	025/2023	Operating Expenses	(34,569.98)	(34,569.98)	0.00	0.00	338,901	Depreciation higher due to inclusion of Dominican Park
2110399		REC - Administration Allocated	025/2023	Operating Expenses	2,390.00		2,390.00	0.00	341,291	
3110310	LRCIPI04	Lrcip Netball Courts & Lighting Income (Phase 3) $150,000	025/2023	Operating Revenue	(148,130.00)		0.00	(148,130.00)	193,161	Funds for Netball project redirected to Shire Hall Renovation
3110310	DLGSCI01	Dlgsc Club Night Lights Program - Netball Lights - Income	025/2023	Operating Revenue	(15,000.00)		0.00	(15,000.00)	178,161	Didn't apply for the grant due to unsurety about project being undertaken this year
3110310	CSRFFI01	Community Sporting And Recreation Facilities Fund - Small Grants - Netball Courts - Income	025/2023	Operating Revenue	(27,215.00)		0.00	(27,215.00)	150,946	Didn't apply for the grant due to unsurety about project being undertaken this year
3110310	EVI0013	Active Regional Communities Initiative Grants - Fitness Classes Income	025/2023	Operating Revenue	(2,675.65)		0.00	(2,675.65)	148,270	Grant partially expended in previou year
3110320		REC - Fees & Charges	025/2023	Operating Revenue	(505.43)		0.00	(505.43)	147,765	Gym memberships
3110321		REC - Sport Leases and Rentals	025/2023	Operating Revenue	19.10		19.10	0.00	147,784	
3110336		REC - Loan 161 Interest Received	025/2023	Operating Revenue	(229.43)		0.00	(229.43)	147,555	
4110310	BC1103	Pavillion - Oval - Building (Capital) (Incl New Gym Postings - Use Bc1105 For Gym From 01.07.22)	025/2023	Capital Expenses	5,000.00		5,000.00	0.00	152,555	Fridge purchased in previous year
4110370	PC1133	Netball Courts & Lighting Capital Works	025/2023	Capital Expenses	222,455.00		222,455.00	0.00	375,010	Funds redirected to Hall renovation
2110465	W1007	Fm Transmitter Maintenance	025/2023	Operating Expenses	(519.96)		0.00	(519.96)	374,490	
2110488	BO1007	Fm Radio Transmitter Buildings - Nebru Road - Building Operations	025/2023	Operating Expenses	(560.44)		0.00	(560.44)	373,929	Electricity and Inusrance
2110487		TV RADIO - Other Expenses	025/2023	Operating Expenses	(589.79)		0.00	(589.79)	373,339	
2110586		LIBRARY - Expensed Minor Asset Purchases	025/2023	Operating Expenses	(450.00)		0.00	(450.00)	372,889	unbudgetted scanner cost
2110588		LIBRARY - Library Building Operations	025/2023	Operating Expenses	(1.02)		0.00	(1.02)	372,888	Insurance only
2110599		LIBRARY - Administration Allocated	025/2023	Operating Expenses	4,505.00		4,505.00	0.00	377,393	
3110501		LIBRARY - Reimbursements Lost Books	025/2023	Operating Revenue	73.00		73.00	0.00	377,466	
2110688	BO1311	Old Nurses Quarter - Thomas Street - Building Operations	025/2023	Operating Expenses	(85.37)		0.00	(85.37)	377,381	
2110689	BM1311	Old Nurses Quarter - Thomas Street - Building Maintenance	025/2023	Operating Expenses	866.45		866.45	0.00	378,248	
2110689	BM1313	Nurses Quarters Ground Maintenance	025/2023	Operating Expenses	2,307.82		2,307.82	0.00	380,555	
2110711	EV0005	Nadc National Australia Day Expenditure	025/2023	Operating Expenses	8,895.90		8,895.90	0.00	389,451	Grant application not sucessful. Expenditure was return of unspent grant from previous year
2110724	EV0000	Small Event - Misc (Includes Events Associated With Silo Projection)	025/2023	Operating Expenses	(20,000.00)		0.00	(20,000.00)	369,451	Budget increased by $20k for the Silo Projection grand opening
2110725	EV0003	Western Desert Race	025/2023	Operating Expenses	6,551.00		6,551.00	0.00	376,002	Event did not occur this financial year
2110725	EV0004	Christmas Celebrations Inc Decorations	025/2023	Operating Expenses	(5,312.51)		0.00	(5,312.51)	370,690	Town Xmas Party with silo. Event came in over budget
2110725	EV0011	Volunteer Week Expenditure	025/2023	Operating Expenses	(386.36)		0.00	(386.36)	370,303	Unbudgeted expenditure
2110765	W1323	Arrino Community Gardens Maintenance	025/2023	Operating Expenses	(4,539.53)		0.00	(4,539.53)	365,764	Maintenance costs higher than budget
2110799		OTH CUL - Administration Allocated	025/2023	Operating Expenses	2,288.00		2,288.00	0.00	368,052	
3110710	EVI0002	Empowering Women Grant Income	025/2023	Operating Revenue	(13,518.69)		0.00	(13,518.69)	354,533	Grant not received
3110710	EVI0007	Naidoc Week Income	025/2023	Operating Revenue	386.36		386.36	0.00	354,920	Unbudgeted income

4120130	RC000B	Roads - Crack Sealing Towns Streets - General (Budgeting Only)	025/2023	Capital Expenses	3,950.00		3,950.00	0.00	358,870	
4120146	R2R056	Mckenzie Road 2021-22 Gravel Resheet Slk 0-3800 (R2R)	025/2023	Capital Expenses	(6,855.13)		0.00	(6,855.13)	352,014	
2120211	RM000	Road Maintenance General (Budgeting Only)	025/2023	Operating Expenses	(120,079.13)		0.00	(120,079.13)	231,935	Maintenance costs higher than budgeted primarily due to rain damage.
2120217	LANES	Laneway Maintenance	025/2023	Operating Expenses	(1,000.00)		0.00	(1,000.00)	230,935	
2120253		ROADM - Contract Safety and Induction	025/2023	Operating Expenses	(1,000.00)		0.00	(1,000.00)	229,935	Unbudget expenditure to commence process with meeting WHS obligations
2120289	BM1230	Shire Depot - Talc Road - Building Maintenance	025/2023	Operating Expenses	(2,122.22)		0.00	(2,122.22)	227,813	
2120289	BM1231	Depot Grounds Buildings Maintenance	025/2023	Operating Expenses	(15,098.93)		0.00	(15,098.93)	212,714	Unbudgeted Expenditure - Separation between office and other buildings
2120289	W1231	Depot Grounds Maintenance	025/2023	Operating Expenses	4,074.99		4,074.99	0.00	216,789	
2120299		ROADM - Administration Allocated	025/2023	Operating Expenses	486.00		486.00	0.00	217,275	
3120210		ROADM - Direct Road Grant (MRWA)	025/2023	Operating Revenue	2,791.00		2,791.00	0.00	220,066	
2120399		PLANT - Administration Allocated	025/2023	Operating Expenses	1,589.00		1,589.00	0.00	221,655	
3120390		PLANT - Profit on Disposal of Assets	025/2023	Operating Revenue	(9,048.42)	(9,048.42)	0.00	0.00	221,655	Sale of Loader achieved higher price than anticipated
4120330	PA5008	Purchase Of Caterpillar Loader	025/2023	Capital Expenses	13,150.00		13,150.00	0.00	234,805	Purchase completed below budget
5120350		PLANT - Proceeds on Disposal of Assets	025/2023	Capital Revenue	6,312.95		6,312.95	0.00	241,118	
5120351		PLANT - Realisation on Disposal of Assets	025/2023	Capital Revenue	(6,312.95)		0.00	(6,312.95)	234,805	
2120515		LICENSING - Printing and Stationery	025/2023	Operating Expenses	(60.00)		0.00	(60.00)	234,745	unbudgeted expense
2120520		LICENSING - Communication Expenses	025/2023	Operating Expenses	(97.45)		0.00	(97.45)	234,648	Expense higher than anticipated
2120599		LICENSING - Administration Allocated	025/2023	Operating Expenses	8,222.00		8,222.00	0.00	242,870	
2120688	BO1312	Airstrip Shed - Building Operations	025/2023	Operating Expenses	(249.81)		0.00	(249.81)	242,620	
2120699		AERO - Administration Allocated	025/2023	Operating Expenses	860.00		860.00	0.00	243,480	
2130112		RURAL - Vermin Control	025/2023	Operating Expenses	(7.00)		0.00	(7.00)	243,473	Annual gun licene
2130199		RURAL - Administration Allocated	025/2023	Operating Expenses	73.00		73.00	0.00	243,546	
2130240		TOUR - Public Relations & Area Promotion	025/2023	Operating Expenses	14,183.61		14,183.61	0.00	257,729	Expenditure likley to be less than anticipated
2130265	W270	Information Bay Maintenance Railway Rd (Town)	025/2023	Operating Expenses	(2,783.39)		0.00	(2,783.39)	254,946	Expenditure higher than anticipated
2130289	W1303	Tourist Centre - Ground Maintenance	025/2023	Operating Expenses	(2,708.86)		0.00	(2,708.86)	252,237	
2130299		TOUR - Administration Allocated	025/2023	Operating Expenses	6,720.00		6,720.00	0.00	258,957	
3130201		TOUR - Reimbursements	025/2023	Operating Revenue	(206.38)		0.00	(206.38)	258,751	
3130220		TOUR - Fees & Charges	025/2023	Operating Revenue	(989.81)		0.00	(989.81)	257,761	
3130221		TOUR - Caravan Park Fees	025/2023	Operating Revenue	(2,000.00)		0.00	(2,000.00)	255,761	Caravan fees
2130399		BUILD - Administration Allocated	025/2023	Operating Expenses	3,513.00		3,513.00	0.00	259,274	
2130699		ECON DEV - Administration Allocated	025/2023	Operating Expenses	4,898.00		4,898.00	0.00	264,172	
2130865	W1201	Lovelock Soak Maintenance/Operations	025/2023	Operating Expenses	(11,482.00)		0.00	(11,482.00)	252,690	Capital for Lovelock Plumbing PC006 in Schedule 11
2130865	W1202	Glyde Street Standpipe Maintenance/Operations	025/2023	Operating Expenses	26,262.00		26,262.00	0.00	278,952	Water usage a lot lower than anticipated
2130865	W1203	Arrino Standpipe Maintenance/Operations	025/2023	Operating Expenses	(500.00)		0.00	(500.00)	278,452	
2130865	W1204	Phillips Rd Standpipe Maintenance/Operations	025/2023	Operating Expenses	(4,850.00)		0.00	(4,850.00)	273,602	
2130865	W1205	Blue Water Rd Standpipe Maintenance/Operations	025/2023	Operating Expenses	(1,350.00)		0.00	(1,350.00)	272,252	
2130865	W1206	Nebru Rd Standpipe Maintenance/Operations	025/2023	Operating Expenses	(1,050.00)		0.00	(1,050.00)	271,202	
2130888	BO1021	Duffy'S Store - Railway Road - Building Operations	025/2023	Operating Expenses	(792.48)		0.00	(792.48)	270,410	
2130888	BO1027	Thrift Shop - Maley Street - Building Operations	025/2023	Operating Expenses	74.68		74.68	0.00	270,484	
2130889	BM013	Westrail Building - Railway Road - Building Maintenance	025/2023	Operating Expenses	(350.47)		0.00	(350.47)	270,134	
2130889	BM1021	Duffy'S Store - Railway Road - Building Maintenance	025/2023	Operating Expenses	3,034.00		3,034.00	0.00	273,168	
2130889	BM1027	Thrift Shop - Maley Street - Building Maintenance	025/2023	Operating Expenses	2,595.00		2,595.00	0.00	275,763	
2130899		OTH ECON - Administration Allocated	025/2023	Operating Expenses	1,253.00		1,253.00	0.00	277,016	
3130821		OTH ECON - Standpipe Income	025/2023	Operating Revenue	(15,000.00)		0.00	(15,000.00)	262,016	Income lower than standpipe water usage as not oncharging stockwater, BFB or Shire use
4130810	BC1021	Duffy'S Store Redevelopment Intial Planning Costs	025/2023	Capital Expenses	10,000.00		10,000.00	0.00	272,016	Allocation reduced but an allocation maintained in case Gov't open a suitable grant
2140187	PW000	Private Works General (Budgeting Only)	025/2023	Operating Expenses	607.00		607.00	0.00	272,623	
2140187	PW005	Private Works - Talc Mine	025/2023	Operating Expenses	332.00		332.00	0.00	272,955	
2140199		PRIVATE - Administration Allocated	025/2023	Operating Expenses	131.00		131.00	0.00	273,086	
3140120		PRIVATE - Private Works Income	025/2023	Operating Revenue	(2,046.61)		0.00	(2,046.61)	271,039	
2140200		ADMIN - Employee Costs	025/2023	Operating Expenses	176,066.44		176,066.44	0.00	447,106	Staff vacancies
2140203		ADMIN - Uniforms	025/2023	Operating Expenses	1,500.00		1,500.00	0.00	448,606	
2140205		ADMIN - Recruitment	025/2023	Operating Expenses	15,000.00		15,000.00	0.00	463,606	Likely to only be used for Pre-employment medicals this financial year
2140206		ADMIN - Fringe Benefits Tax (FBT)	025/2023	Operating Expenses	1,410.00		1,410.00	0.00	465,016	
2140210		ADMIN - Motor Vehicle Expenses	025/2023	Operating Expenses	(2,588.60)		0.00	(2,588.60)	462,427	
2140215		ADMIN - Printing and Stationery	025/2023	Operating Expenses	5,359.04		5,359.04	0.00	467,786	
2140216		ADMIN - Postage and Freight	025/2023	Operating Expenses	2,000.00		2,000.00	0.00	469,786	
2140220		ADMIN - Communication Expenses	025/2023	Operating Expenses	(1,066.21)		0.00	(1,066.21)	468,720	
2140221		ADMIN - Information Technology	025/2023	Operating Expenses	(56,030.71)		0.00	(56,030.71)	412,689	Altus Payroll 67,000 initial setup and then 14,615 per annum
2140230		ADMIN - Insurance Expenses (Other than Bld and W/Comp)	025/2023	Operating Expenses	(2,583.49)		0.00	(2,583.49)	410,106	
2140240		ADMIN - Advertising and Promotion	025/2023	Operating Expenses	1,500.00		1,500.00	0.00	411,606	
2140265		ADMIN - Maintenance/Operations	025/2023	Operating Expenses	(2,156.98)		0.00	(2,156.98)	409,449	

2140286		ADMIN - Expensed Minor Asset Purchases	025/2023	Operating Expenses	(4,263.00)		0.00	(4,263.00)	Standup desks, vacuum cleaner and other office furniture
								405,186	
2140288	BO4002	Admin Office - 132 Railway Rd - Building Operations	025/2023	Operating Expenses	(5,970.41)		0.00	(5,970.41)	399,215
2140289	BM4002	Admin Office - 132 Railway Rd - Building Maintenance	025/2023	Operating Expenses	5,814.43		5,814.43	0.00	405,030
2140298		ADMIN - Admin Staff Housing Costs Allocated	025/2023	Operating Expenses	9,781.00		9,781.00	0.00	414,811
2140299		ADMIN - Administration Overheads Recovered	025/2023	Operating Expenses	(145,772.00)		0.00	(145,772.00)	269,039
3140201		ADMIN - Reimbursements	025/2023	Operating Revenue	5,500.00		5,500.00	0.00	274,539
3140237		ADMIN - Admin Rebates	025/2023	Operating Revenue	(3,500.00)		0.00	(3,500.00)	271,039
4140210	BC4002A	Admin - Transportable Building For Archive Purposes (Capital)	025/2023	Capital Expenses	(2,000.00)		0.00	(2,000.00)	269,039
4140230	PE1403	Admin - Photocopier	025/2023	Capital Expenses	10,000.00		10,000.00	0.00	Not required - only photocopier we can source within budget is same as existing
								279,039	
2140300		PWO - Employee Costs	025/2023	Operating Expenses	84,638.64		84,638.64	0.00	Staffing costs lower due to staff shortages and organisation restructuring
								363,677	
2140305		PWO - Recruitment	025/2023	Operating Expenses	(265.00)		0.00	(265.00)	363,412
2140307		PWO - Protective Clothing	025/2023	Operating Expenses	1,530.80		1,530.80	0.00	364,943
2140308		PWO - Other Employee Expenses	025/2023	Operating Expenses	915.00		915.00	0.00	365,858
2140309		PWO - Travel & Accommodation	025/2023	Operating Expenses	1,000.00		1,000.00	0.00	366,858
2140310		PWO - Motor Vehicle Expenses	025/2023	Operating Expenses	18,200.72		18,200.72	0.00	385,059 Vehicle running costs lower than budgeted.
2140318		PWO - Expendable Tools / Consumables	025/2023	Operating Expenses	10,000.00		10,000.00	0.00	395,059 Purchases below buget
2140323		PWO - Sick Pay	025/2023	Operating Expenses	(10,785.75)		0.00	(10,785.75)	Considerable more time taken in sick leave than anticipated
								384,273	
2140324		PWO - Annual Leave	025/2023	Operating Expenses	(4,273.98)		0.00	(4,273.98)	Considerable more time taken in annual leave than anticipated
								379,999	
2140325		PWO - Public Holidays	025/2023	Operating Expenses	(2,735.91)		0.00	(2,735.91)	377,263
2140398		PWO - Staff Housing Costs Allocated	025/2023	Operating Expenses	15,815.00		15,815.00	0.00	393,078
2140399		PWO - Administration Allocated	025/2023	Operating Expenses	41,283.00		41,283.00	0.00	434,361
2140393		PWO - Less - Allocated to Works (PWO's)	025/2023	Operating Expenses	(155,367.51)		0.00	(155,367.51)	278,994
2140400		POC - Internal Plant Repairs - Wages & O/Head	025/2023	Operating Expenses	253,859.06		253,859.06	0.00	No mechanic as an employee - minimal mechanical works being handled in house
								532,853	
2140411		POC - External Parts & Repairs	025/2023	Operating Expenses	15,301.14		15,301.14	0.00	Includes a Pro-rata cost of Westrac service $69107 per annum to service all Caterpillar equipment as per February OCM
								548,154	
2140412		POC - Fuels and Oils	025/2023	Operating Expenses	18,433.10		18,433.10	0.00	566,587 Plant usage less than budgeted
2140417		POC - Insurance Expenses	025/2023	Operating Expenses	(1,225.56)		0.00	(1,225.56)	565,361
2140494		POC - LESS Plant Operation Costs Allocated to Works	025/2023	Operating Expenses	(286,367.74)		0.00	(286,367.74)	278,994
2140500		SAL - Gross Salary and Wages	025/2023	Operating Expenses	102,659.62		102,659.62	0.00	Salaries and Wages lower than budget due to staffing shortages during the year
								381,653	
2140501		SAL - Less Salaries & Wages Allocated	025/2023	Operating Expenses	(102,659.62)		0.00	(102,659.62)	Salaries and Wages lower than budget due to staffing shortages during the year
								278,994	
2140503		SAL - Workers Compensation Expense	025/2023	Operating Expenses	(915.92)		0.00	(915.92)	278,078 Unbudgetted expenditure
						(39,091)	**2,156,542**	**(1,878,465)**	278,078

Attachment 10.10

Printed on : 17.04.23 at 15:32 SHIRE OF THREE SPRINGS

Debtors Trial Balance
As at 31.03.2023

Debtor #	Name	Credit Limit	31.12.2022 GT 90 days	Age Of Oldest Invoice (90Days)	30.01.2023 GT 60 days	01.03.2023 GT 30 days	31.03.2023 Current	Total
B101			0.00	0	0.00	0.00	0.00	-200.00
B109			90.20	106	0.00	0.00	0.00	90.20
C102			2737.89	640	0.00	0.00	0.00	2737.89
C117			200.00	385	0.00	0.00	0.00	200.00
F29			0.00	0	0.00	0.00	0.00	-500.00
H48			0.00	0	200.00	0.00	0.00	200.00
H54			0.00	0	0.00	0.00	0.00	-50.00
H61			0.00	0	0.00	215.40	108.68	324.08
I17			0.00	0	0.00	10.30	0.00	10.30
M146			200.00	169	0.00	0.00	0.00	200.00
O17			0.00	0	0.00	0.00	0.00	-720.00
P41			0.00	0	0.00	0.00	739.00	739.00
P64			0.00	0	0.00	185.40	0.00	185.40
S7			0.00	0	0.00	0.00	1430.00	1430.00
S115			0.00	0	0.00	0.00	0.00	-400.00
T12			0.00	0	0.00	0.00	37.50	37.50
T52			0.00	0	0.00	0.00	0.00	-560.23
T57			0.00	0	0.00	0.00	42.00	42.00
W57			0.00	0	0.00	0.00	394.62	394.62
W60			0.00	0	0.00	0.00	0.00	-44.75
	Totals --- Credit Balances:	-2474.98	3228.09		200.00	411.10	2751.80	4116.01

Commonwealth Corporate Charge Card

01 March, 2023 to 29 March, 2023

Chief Executive Officer

06/03/2023 Fuel for 0TS	$	118.97
22/03/2023 Grammarly Annual Subscription	$	902.47
22/03/2023 International Transaction Fee	$	22.56
22/03/2023 Zoom Annual Subscription	$	209.90
	$	**1,253.90**

Deputy Chief Executive Officer

06/03/2023 Fuel for 001TS	$	100.01
	$	-
	$	**100.01**

Annual Card Fees	**$**	**-**
Total Direct Debit Payment made on 03/04/2023	**$**	**1,353.91**

Police Licensing

Direct Debits from Trust Account

1st March, 2023 to 31st March, 2023

CBA Police Licensing Account

Thursday, 2 March 2023	-$	88.65
Friday, 3 March 2023	-$	354.35
Tuesday, 7 March 2023	-$	491.05
Thursday, 9 March 2023	-$	425.15
Friday, 10 March 2023	-$	1,912.55
Monday, 13 March 2023	-$	94.05
Thursday, 16 March 2023	-$	857.45
Friday, 17 March 2023	-$	655.95
Monday, 20 March 2023	-$	631.90
Tuesday, 21 March 2023	-$	6,190.50
Friday, 24 March 2023	-$	195.65
Tuesday, 28 March 2023	-$	30.90
Wednesday, 29 March 2023	-$	98.20
Thursday, 30 March 2023	-$	645.30
Total Direct Debits	**-$**	**12,671.65**

Bank Fees

Direct Debits from Muni Account

1st March, 2023 to 31st March, 2023

Total direct debited from Municipal Account	**$**	**210.11**

Payroll

1st March, 2023 to 31st March, 2023

Tuesday, 14 March 2023	$	42,462.96
Tuesday, 28 March 2023	$	41,960.28
	$	**84,423.24**

Cheque /EFT No	Date	Name / Invoice Description	INV Amount	Amount
		BOC Gases		
EFT18689	08/03/2023	Monthly Service		27.08
		Bunnings Group Limited		
EFT18690	08/03/2023	Monthly account		159.40
		The Trustee For Danblue Family Trust T/a Commercial Hotel Three Springs		
EFT18691	08/03/2023	Catering		241.00
		Dormakaba Australia		
EFT18692	08/03/2023	Servicing		275.00
		Frank Gilmour Pest Control		
EFT18693	08/03/2023	ECLC Pest Inspection		440.00
		Stephen Walter Hunter		
EFT18694	08/03/2023	Contractor		450.00
		Shire of Irwin		
EFT18695	08/03/2023	Consultant		742.50
		The Trustee For Information Enterprises Trust T/as Information Enterprises Trust		
EFT18696	08/03/2023	Consultant		2,200.00
		Geraldton Kennards Hire Pty Ltd		
EFT18697	08/03/2023	Equipment Hire		55.00
		Western Australian Land Information Authority T/a Landregistryservicesaustralia		
EFT18698	08/03/2023	Mining Tenement		42.15
		The Trustee For McAuliffe Family Trust T/A Mingenew Tyre Services Pty Ltd		
EFT18699	08/03/2023	Contractor		373.76
		Soundbay Pty Ltd T/as Manny's & Store Dj		
EFT18700	08/03/2023	Silo Project		7,777.00
		Gail Murphy		
EFT18701	08/03/2023	Consultant		305.00
		Perfect Computer Solutions		
EFT18702	08/03/2023	Monthly account		255.00
		Prime Code Pty Ltd T/A Rip - It Security Shredding		
EFT18703	08/03/2023	Contractor		371.00
		Shire of Three Springs		
EFT18704	08/03/2023	GYM FOB NOT RETURNED - 0005F0E64610A4EC SHARNA WHITEHUI		170.00
		Three Springs Rural Services		
EFT18705	08/03/2023	Monthly Account		1,863.15
		Urbis Pty Ltd		
EFT18706	08/03/2023	Consultant		1,918.13
		Valentin Wayolle		
EFT18707	08/03/2023	REFUND OF GYM FOB		50.00
		Screenlink Pty Ltd T/A Aussie IT, WA Ink and Batteries Plus		
EFT18708	15/03/2023	Monthly Account		664.20
		The Trustee For The Northstar Asset Trust T/as Artistralia		
EFT18709	15/03/2023	Small Event		715.00
		Bob Waddell & Associates Pty Ltd		
EFT18710	15/03/2023	Monthly account		1,113.75
		Breeze Connect Pty Ltd		
EFT18711	15/03/2023	Monthly Account		89.84
		Robert Ross Waddell T/A Bob Waddell Consultant		

Cheque /EFT No	Date	Name Invoice Description	INV Amount	Amount
		Robert Ross Waddell T/A Bob Waddell Consultant		
EFT18712	15/03/2023	Monthly Account		412.50
		Redmach Pty Ltd T/A Redmac Ag Services		
EFT18713	15/03/2023	Monthly Account		510.08
		Winc Australia Pty Limited		
EFT18714	15/03/2023	Monthly Account		313.23
		Marie Clausen		
EFT18715	15/03/2023	REFUND OF BOND - GYM FOB 00057A7A3198212C - MARIE CLAUSEN		50.00
		Christina Anne Ford		
EFT18716	15/03/2023	Rates refund for assessment A299 43 SLAUGHTER STREET THREE SPRIN		464.35
		Geraldton Fuel Company Pty Ltd T/as Refuel Australia		
EFT18717	15/03/2023	Monthly account		1,384.77
		Geraldton Lock & Key Specialists		
EFT18718	15/03/2023	Contractor		631.00
		Frank Gilmour Pest Control		
EFT18719	15/03/2023	Monthly account		390.00
		Kevin Ernest Gill		
EFT18720	15/03/2023	REFUND OF GYM FOB - 0005F74D191BFDBA - KEVING GILL		50.00
		INFINITUM TECHNOLOGIES PTY LTD		
EFT18721	15/03/2023	Monthly account		1,663.09
		Jtagz PTY LTD		
EFT18722	15/03/2023	Monthly Account - Pet Tags		332.20
		Brianna Lim		
EFT18723	15/03/2023	REFUND OF GYM FOB - 00052ECB182D03BA - BRIANNA LIM		50.00
		Moore Australia Audit (WA) Pty Ltd		
EFT18724	15/03/2023	Workshop		3,751.00
		Marketforce Pty Ltd		
EFT18725	15/03/2023	Advertising		425.30
		The Trustee For McAuliffe Family Trust T/A Mingenew Tyre Services Pty Ltd		
EFT18726	15/03/2023	Contractor		3,463.80
		Midwest Lock And Safe		
EFT18727	15/03/2023	Monthly Account		640.51
		Soundbay Pty Ltd T/as Manny's & Store Dj		
EFT18728	15/03/2023	Silo Project		964.00
		Quoc Trong Nguyen		
EFT18729	15/03/2023	REFUND FOR GYM FOB - 00058525C61872FB- QUOC NYUGEN		50.00
		Officeworks		
EFT18730	15/03/2023	Monthly Account		116.79
		Outpost Central Pty Ltd T/A Wildeye		
EFT18731	15/03/2023	Annual Plan		264.00
		Protector Fire Services		
EFT18732	15/03/2023	Service		2,931.78
		Oliver Parry		
EFT18733	15/03/2023	REFUDN OF GYM BOND - 0005059C2209EE85 - OLIVER PARRY		50.00
		Dudawa Haulage		
EFT18734	15/03/2023	February Account		13,582.80
		Shire of Three Springs		
EFT18735	15/03/2023	REFUND OF GYM FOB - 00051EB6974DAA32 - VALENTIN WAYOLLE		50.00
		Three Springs IGA		
EFT18736	15/03/2023	Monthly Account		257.75
		Three Springs Rural Services		
EFT18737	15/03/2023	Monthly Account		17.95

Cheque /EFT No	Date	Name Invoice Description	INV Amount	Amount
		Van't Veer Services		
EFT18738	15/03/2023	Monthly Account		34.00
		Westrac Pty Ltd		
EFT18739	15/03/2023	Monthly Account		4,798.53
		Wavecom Instruments Pty Ltd		
EFT18740	15/03/2023	Service		415.80
		WA Contract Ranger Services Pty Ltd		
EFT18741	15/03/2023	Monthly Account		679.25
		Zed Elect		
EFT18742	15/03/2023	Monthly Account		8,158.52
		Kleenheat (Wesfarmers Kleenheat Gas Pty Ltd)		
EFT18743	15/03/2023	Monthly Account		93.50
		Water Corporation		
EFT18744	21/03/2023	Water Usage		11,844.48
		Water Corporation		
EFT18745	01/03/2023	Water Usage		10,222.57
		Australian Taxation Office		
EFT18746	21/03/2023	BAS Remittance for February 2023		10,828.00
		Bunnings Group Limited		
EFT18747	23/03/2023	Monthly Account		492.38
		Team Global Express Pty Ltd (TOLL)		
EFT18748	23/03/2023	Monthly Account		131.01
		Winc Australia Pty Limited		
EFT18749	23/03/2023	Monthly Account		519.52
		O'callaghan Unit Trust T/as Wm & Ar Ocallaghan Pty Ltd		
EFT18750	23/03/2023	Community Bud Inspection		182.95
		Frank Gilmour Pest Control		
EFT18751	23/03/2023	Pest Control		265.00
		Stephen Walter Hunter		
EFT18752	23/03/2023	Contractor		3,186.00
		Hersey's Safety Pty Ltd		
EFT18753	23/03/2023	Monthly Account		2,471.37
		J M & S Enterprises Pty Ltd T/As RBC Rural		
EFT18754	23/03/2023	Monthly Account		452.70
		Office of the Auditor General		
EFT18755	23/03/2023	Fee for Attest Audit for Year Ending 30 June 2022		38,500.00
		Mcintosh Holdings PL t/as Purcher International (WA)		
EFT18756	23/03/2023	Service and Repairs		5,026.71
		The Royal Life Saving Society WA		
EFT18757	23/03/2023	Aquatic Facility Compliance Assessment		559.90
		Three Springs Rural Services		
EFT18758	23/03/2023	Monthly Account		38.24
		Three Springs Motel (Barracks)		
EFT18759	23/03/2023	Catering		570.00
		Winchester Industries		
EFT18760	23/03/2023	Metal Dust		983.40
		Western Australian Local Government Association (WALGA)		
EFT18761	23/03/2023	Registration for Transport & Roads Forum 2023		70.00
		WA Contract Ranger Services Pty Ltd		
EFT18762	23/03/2023	Ranger Services		627.00
		Zed Elect		

Cheque /EFT No	Date	Name / Invoice Description	INV Amount	Amount
		Zed Elect		
EFT18763	23/03/2023	Contractor		1,614.87
		WA Treasury Corporation		
EFT18764	24/03/2023	Loan No. 161 Interest payment - Loan 161 - Self Supporting Loan TSSC		20,084.40
		BOC Gases		
EFT18765	30/03/2023	Monthly Service Fee		29.99
		Ashleigh Bennell		
EFT18766	30/03/2023	BOND REFUND - GYM FOB 00057A7A3198212C - ASHLEIGH BENNELl		50.00
		Team Global Express Pty Ltd (TOLL)		
EFT18767	30/03/2023	Monthly account		65.71
		Winc Australia Pty Limited		
EFT18768	30/03/2023	Office Equipment		261.79
		Christopher Shaun Connaughton		
EFT18769	30/03/2023	Deputy President Sitting Fees		2,807.50
		Nadine Eva		
EFT18770	30/03/2023	Councillor Sitting Fees		1,440.00
		Julia Ennor		
EFT18771	30/03/2023	Councillor Sitting Fees		1,325.00
		Herring's Coastal Plumbing & Gas Fitting Services		
EFT18772	30/03/2023	Contractor		1,248.71
		Robert James Heal		
EFT18773	30/03/2023	Councillor Sitting Fees		1,040.00
		Christine Lane		
EFT18774	30/03/2023	President Sitting Fee		5,875.00
		Jennifer Dorothy Mutter (Councillor)		
EFT18775	30/03/2023	Councillor Sitting Fees		1,440.00
		Zachary Thomas Kennedy Mills		
EFT18776	30/03/2023	Councillor Sitting Fees		1,325.00
		Soundbay Pty Ltd T/as Manny's & Store Dj		
EFT18777	30/03/2023	Silo Project		699.00
		Officeworks		
EFT18778	30/03/2023	Office Equipment		337.52
		Perfect Computer Solutions		
EFT18779	30/03/2023	Monthly account		1,762.50
		Shire of Three Springs		
EFT18780	30/03/2023	RETAINED BOND - LOST FOB 0005D3A5AA52D20D -JOANNE FORBES		120.00
		Three Springs Rural Services		
EFT18781	30/03/2023	Monthly Account		22.95
		Kylie Whait		
EFT18782	30/03/2023	BOND REFUND - GYM FOB 000505F4B7FA60BB - JACK WHAIT		50.00
		Instant Racking		
EFT18783	30/03/2023	Office Equipment		2,135.00
		Westnet Pty Ltd		
DD14624.1	01/03/2023	Monthly account		90.00
		Water Corporation		
DD14625.1	02/03/2023	Water Usage		47.76
		Exetel Pty Ltd		
DD14659.1	01/03/2023	Monthly Account		425.00
		Commonwealth Bank of Australia		
DD14660.1	03/03/2023	Monthly Account		169.40
		The Trustee For Aware Super T/a Aware Super Pty Ltd		
DD14669.1	14/03/2023	Payroll deductions		6,160.61

Cheque /EFT No	Date	Name Invoice Description	INV Amount	Amount
		ANZ Smart Choice Super		
DD14669.2	14/03/2023	Superannuation contributions		297.30
		Australian Super		
DD14669.3	14/03/2023	Superannuation contributions		1,094.58
		Amp Limited		
DD14669.4	14/03/2023	Superannuation contributions		76.39
		West Australian Newspapers Limited		
DD14671.1	09/03/2023	Annual Subscription		181.96
		Department Of Transport - Daily Licensing		
DD14696.1	21/03/2023	POLICE LICENSING DIRECT DEBIT PAYMENTS FOR 21/03/2023		6,190.50
		Department Of Transport - Daily Licensing		
DD14697.1	02/03/2023	POLICE LICENSING DIRECT DEBIT PAYMENTS FOR 02/03/2023		88.65
		Department Of Transport - Daily Licensing		
DD14698.1	03/03/2023	POLICE LICENSING DIRECT DEBIT PAYMENTS FOR 03/03/2023		354.35
		Department Of Transport - Daily Licensing		
DD14698.2	07/03/2023	POLICE LICENSING DIRECT DEBIT PAYMENTS FOR 07/03/2023		491.05
		Department Of Transport - Daily Licensing		
DD14699.1	20/03/2023	POLICE LICENSING DIRECT DEBIT PAYMENTS FOR 20/03/2023		631.90
		Department Of Transport - Daily Licensing		
DD14700.1	17/03/2023	POLICE LICENSING DIRECT DEBIT PAYMENTS FOR 17/03/2023		655.95
		Department Of Transport - Daily Licensing		
DD14701.1	09/03/2023	POLICE LICENSING DIRECT DEBIT PAYMENTS FOR 09/03/2023		425.15
		Department Of Transport - Daily Licensing		
DD14702.1	16/03/2023	POLICE LICENSING DIRECT DEBIT PAYMENTS FOR 16/03/2023		857.45
		Department Of Transport - Daily Licensing		
DD14703.1	13/03/2023	POLICE LICENSING DIRECT DEBIT PAYMENTS FOR 13/03/2023		94.05
		Department Of Transport - Daily Licensing		
DD14704.1	10/03/2023	POLICE LICENSING DIRECT DEBIT PAYMENTS FOR 10/03/2023		1,912.55
		Telstra		
DD14717.1	13/03/2023	Monthly Account		1,488.17
		Telstra		
DD14718.1	18/03/2023	Monthly Account		369.85
		Telstra		
DD14719.1	24/03/2023	Monthly Account		752.19
		Department Of Transport - Daily Licensing		
DD14725.1	24/03/2023	POLICE LICENSING DIRECT DEBIT PAYMENTS FOR 24/03/2023		195.65
		The Trustee For Aware Super T/a Aware Super Pty Ltd		
DD14727.1	28/03/2023	Payroll deductions		6,174.39
		ANZ Smart Choice Super		
DD14727.2	28/03/2023	Superannuation contributions		287.66
		Australian Super		
DD14727.3	28/03/2023	Superannuation contributions		1,021.31
		Amp Limited		
DD14727.4	28/03/2023	Superannuation contributions		96.98
		Synergy		
DD14733.1	07/03/2023	Monthly Account		2,441.98
		Synergy		
DD14734.1	30/03/2023	Monthly Account		781.83
		Synergy		
DD14735.1	31/03/2023	Monthly Account		741.77
		Department Of Transport - Daily Licensing		
DD14737.1	28/03/2023	POLICE LICENSING DIRECT PAYMENTS FOR 28/03/2023		30.90

Cheque /EFT No	Date	Name / Invoice Description	INV Amount	Amount
		Department Of Transport - Daily Licensing		
DD14745.1	29/03/2023	POLICE LICENSING DIRECT DEBIT PAYMETS FOR 29/03/23		98.20
		Department Of Transport - Daily Licensing		
DD14748.1	30/03/2023	POLICE LICENSING DIRECT DEBIT PAYMENTS FOR 30/03/2023		645.30
		Water Corporation		
DD14750.1	29/03/2023	Monthly account		1,267.25

REPORT TOTALS

Bank Code	Bank Name	TOTAL
CBA-LIC	POLICE LICENSING BANK ACCOUNT - CB	**12,671.65**
CBA-MUNI	MUNICIPAL BANK ACCOUNT - CBA	**221,967.01**
TOTAL		**234,638.66**