



**TRANSNET**



*pipelines*

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**WASTE CLASSIFICATION**

**SPILL BASIN – MNGENI PUMP STATION**

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**PREPARED FOR :**

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## **ABSTRACT**

As per South African National Standard for Globally Harmonized System of Classification and Labelling of Chemicals (SANS 10234:2008); Spill basin – Mngeni Pump Station has been analytically classified and is deemed a type 3 waste. If the disposal is required at a landfill site, it can be directed to a Class A - Class C landfill site however waste must be solidified prior to disposal.

## **INTRODUCTION**

Dolphin Coast Environmental and Laboratory Solutions (DCELS), has been appointed by Transnet pipelines to develop a Safety Data Sheet (Annexure 1) on a waste stream generated by themselves, namely: Spill basin. In addition, DCELS was requested to classify the waste in accordance with the guidance provided by the Waste Classification and Management Regulations Government Notice 634 of 2013. This is for the organization to understand the requirements for handling and disposal of the above-mentioned waste stream. The samples will be reviewed, classified and a safety data sheet (SDS) generated in accordance with SANS 10234.

## **BACKGROUND**

Transnet pipelines has provided DCELS with the relevant Material Safety Data Sheets and process description. (Annexure 3)

## **BASIC ASSESSMENT METHODOLOGY**

The above-mentioned waste stream has been analyzed as per the norms and standards (Annexure 2) which has been evaluated and compared in the following manner; -

Two parts are reviewed when determining the type of waste:

1. The TC is compared to three threshold values stipulated by the regulations that are; TCT0, TCT1, and TCT2. The threshold values were obtained from various sources such as the land remediation values, Environmental protection agency, and SA soil screening values.
2. The LC is compared to four threshold values stipulated by the regulations that are; LCT0, LCT1, LCT2, and LCT3. The threshold values were obtained from various sources such as the standard for human effects listed for drinking water and World health organization guidelines.

In order to determine the type of waste and class of landfill that the waste can be disposed of at, the TC and LC must be assessed as per table 1 below against the given threshold limits in the method listed below.



Table 1: Criteria used in order to determine the type of waste.

<b>TYPE</b>	<b>THRESHOLD LIMITS</b>
0	$LC > LCT3$ <b>or</b> $TC > TCT2$
1	$LCT1 < LC \leq LCT2$ <b>or</b> $TCT1 < TC \leq TCT2$
2	$LCT1 < LC \leq LCT2$ <b>and</b> $TC \leq TCT1$
3	$LCT0 < LC \leq LCT1$ <b>and</b> $TC \leq TCT1$
4	$LC \leq LCT0$ <b>and</b> $TC \leq TCT0$

### **CONCLUSION**

The waste stream has been deemed a type 3 if disposal is required it can be directed to a Class A – Class C landfill site however waste sample received was a liquid and as of August 2019; such waste is not accepted at a landfill site and an alternate facility must be sourced.

### **RECOMMENDATIONS**

Note: According to Government notice 634, these classification results are valid for 5 years, if the process from which the product is derived from changes, the waste stream thereof has to be re-classified within 30 days from the change of process.

**Date report generated:** *October 2019*

**Expiration Date of report:** *October 2024*



## **ANNEXURE ONE**

A Safety Data Sheet is required for the above-mentioned product stream based as prescribed in the SANS 10234:2008.

# Safety Data Sheet

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## SECTION 1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

<b>Waste Stream</b> Spill Basin		
<b>Waste generation Process</b> The spill basin is contaminated with crude oil		
<b>Restrictions on use</b> Not to be re-used.		
<b>Generators Name</b> Transnet Pipelines -Mngeni Pumstation		
<b>Street address</b> 6 Stockville Road, Mahogany Ridge, Westmead		
<b>City</b> Durban	<b>Province</b> Kwazulu Natal	
<b>Postal Code</b>	<b>Emergency Telephone</b> 031 308 8215 & 083 452 0577	
<b>Fax</b>	<b>Email</b> <a href="mailto:sibongile.mbhele@transnet.net">sibongile.mbhele@transnet.net</a>	
<b>Date SDS prepared</b> October 2019	<b>SDS prepared by</b> Dolphin Coast Environmental Laboratory Solutions	<b>Phone number/ Email Address</b> 087 353 9750 / <a href="mailto:info@dcels.co.za">info@dcels.co.za</a>

## SECTION 2 HAZARDS IDENTIFICATION

<b>Human Health</b>	Acute toxicity – Oral (Category 5) – H303 Aspiration hazard (Category 2) – H304 Skin Irritant (Category 2) - H315 Eye irritation (Category 2B) – H320 Acute toxicity – Inhalation (Category 4) – H332 STOT Single Exposure (Category 3) - H336 Carcinogen (Category 1B) - H350 Specific target organ toxicity - repeated exposure (Category 2) – H373
<b>Environment</b>	Aquatic Chronic (Category 3) – H412
<b>Physical</b>	Flammable liquid (Category 4) - See section16
<b>Signal words</b>	<b>WARNING</b>

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<p><b>Hazard Statements</b></p>	<p><b>PHYSICAL</b> None identified</p>	<p><b>HEALTH</b> H303 – May be harmful if swallowed  H304 – May be fatal if swallowed and enters airways  H315 - Causes skin irritation  H320 – Fatal if inhaled  H350 – May Cause cancer  H336: May cause drowsiness or dizziness. Affected organs: Central nervous system Route of exposure: Inhalation  H373 – Causes damage to organs through prolonged or repeated exposure</p>	<p><b>ENVIRONMENTAL</b> H412 – Harmful to aquatic life with long lasting effects.</p>
<p><b>Precautionary statements</b></p>	<p><b>PREVENTION</b> P202: Do not handle until all safety precautions have been read and understood.  P264: Wash hands, face and other affected areas thoroughly after handling  P272: Contaminated work clothing should not be allowed out of the workplace.  P273: Avoid release to the environment.</p>	<p><b>RESPONSE</b> 332 + P313: If skin irritation occurs: Get medical advice/attention.  P333 + P313: If skin irritation or rash occurs: Get medical advice/attention.  P335 + P334: Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages.  P337 + P313: If eye irritation persists: Get medical advice/attention.  P342 + P311: If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.</p>	<p><b>STORAGE/DISPOSAL</b> P405: Store locked up.  P501: Dispose of contents/container to an approved facility</p>

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Pictograms:



## SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

Substance	Mixture	<b>X</b>
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The contaminants are listed below:

Hazardous ingredients	% (concentration range)	CAS Number
Engen Dieselube 700 Super	Residual	-
Petroleum distillates, hydro-treated heavy paraffinic	Residual	64742-54-7
Crude oil (petroleum) with recycled naphtha, distilled, cracked, hydrotreated and hydrodesulfurized	Residual	700-919-3

Note: All concentrations are based on worst case scenario.

## SECTION 4 FIRST AID MEASURES

<p><b>Skin contact:</b> Wash residue from skin with soap and water.</p>
<p><b>Eye contact</b> Immediately flush eyes with plenty of water, lifting upper and lower eyelids occasionally. Get medical attention if irritation occurs and persists. Eye wash stations in the working area are recommended.</p>
<p><b>Inhalation</b> In the event of excessive inhalation of dust; remove person to fresh air. Seek medical attention if necessary.</p>
<p><b>Ingestion</b> Rinse mouth thoroughly. Do not induce vomiting. Seek medical attention if irritation or symptoms persist.</p>
<p><b>Most important symptoms and effects (acute and delayed):</b> <b>Symptoms:</b> None identified  <b>Effects:</b> None Identified</p>

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**Protection of First Aiders and notes for doctor:**

Show this safety data sheet to the doctor in attendance,

## SECTION 5 FIRE FIGHTING MEASURES

<p><b>Suitable extinguishing media</b> Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide</p>	<p><b>Unsuitable extinguishing media</b> Do not use water and foam simultaneously. Do not use water jet</p>
<p><b>Hazardous combustion products:</b> Combustion materials may be toxic. Burning may produce carbon monoxide, carbon dioxide and other unidentified organic compounds.</p>	
<p><b>Precautions for Fire-fighters</b> Complete personal protective equipment (PPE) to be worn.</p>	

## SECTION 6 ACCIDENTAL RELEASE MEASURES

<p><b>Personal precaution</b> Wash hands, forearms and face thoroughly after handling waste stream; before eating, smoking, using the lavatory and at the end of the work day. Remove potentially contaminated clothing and wash prior to re-use. Avoid breathing excess amounts of dust. Access to area must be restricted to authorised personnel only.</p>
<p><b>Protective Equipment</b> See section 8</p>
<p><b>Emergency Procedures</b> Evacuate non-essential staff. Health and Safety personnel on-site must be contacted in order to ensure all precautionary measures are taken and correct procedures are followed.</p>
<p><b>Environmental Precautions</b> Collect recovered Waste and other materials in suitable tanks or containers for safe disposal. Material must not be allowed to enter water ways and streams.</p>
<p><b>Materials for containment</b> Small Spills - Spill kits should be available in appropriate locations i.e. waste storage area, loading area and en-route to the disposal facility. Large Spills - Appropriate hazmat team must be appointed by responsible personnel to ensure spill is appropriately cleared. Disposal vehicles must have adequate labelling.</p> <p>Collect using suitable method and dispose of according to applicable regulations and permit requirements. Avoid creating dusty conditions and prevent wind dispersal.</p>
<p><b>Methods and materials for clean-up, neutralization and recovery</b> Contain, collect and dispose of spilled waste as per local regulations and permit requirements.</p>



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## SECTION 7 HANDLING AND STORAGE

<p><b>Precautions for safe handling</b></p> <p>Ensure that all relevant regulations regarding explosive atmospheres, and handling and storage facilities of flammable products. Keep away from sparks/open flames/hot surfaces. – No smoking.</p> <p>Avoid inhalation of excessive amounts of dust particles. Remove contaminated clothing and protective equipment before entering eating areas or leaving work.</p>
<p><b>Conditions for safe storage</b></p> <p>Prior to disposal product must be stored in a dry, cool and well-ventilated area. Area must be bunded to ensure waste/product doesn't leach into the surrounding areas.</p>

## SECTION 8 EXPOSURE CONTROLS AND PERSONAL PROTECTION

<p><b>Permissible concentrations</b></p> <p><b>Date:</b> No data available</p> <p><b>Source:</b> No data available</p> <p><b>Recommended test method:</b> No data available</p>	<p><b>OEL</b></p> <p><b>Oil:</b></p> <p>ACGIH - TWA: 5mg/m<sup>3</sup></p> <p>OSHA - TWA: 5mg/m<sup>3</sup></p> <p>STEL: 10mg/m<sup>3</sup></p>	<p><b>Biological limits</b></p> <p>See comment below</p>
<p><b>Engineering controls</b></p> <p>Ensure sufficient ventilation. Reduce inhalation hazards contaminants by minimising the occupational exposure. Local Regulations must be adhered for emissions of volatile substances.</p>		
<p><b>PPE:</b></p> <p><b>Respiratory Protection:</b> Use approved respirator if ventilation is not sufficient and if mists are generated.</p> <p><b>Hand Protection:</b> chemically resistance gloves should be used</p> <p><b>Eye Protection:</b> 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 or dusts.</p> <p><b>Skin and Body Protection:</b> Chemical resistant clothing</p>		
<p><b>Comments:</b></p> <p>No conclusive exposure limits have been determined.</p>		

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## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance</b> Black Sludge	<b>Odour</b> Strong Characteristic Odour	<b>pH (concentration)</b> Can not be analysed
<b>Melting point</b> No Data Available	<b>Freezing point</b> No Data Available	<b>Boiling point, initial boiling point, boiling range</b> No Data Available
<b>Flashpoint</b> No flash <61°C	<b>Upper/lower flammability/explosive limits</b> No Data Available	<b>Vapour pressure</b> No Data Available
<b>Vapour density</b> No Data Available	<b>Density/relative density</b> No Data Available	<b>Solubility</b> Not soluble
<b>n-octanol/water partition coefficient</b> No Data Available	<b>Auto-ignition temperature</b> No Data Available	<b>Decomposition temperature</b> No Data Available
<b>Odour threshold</b> No Data Available	<b>Evaporation rate</b> No Data Available	<b>Flammability</b> Not flammable
<b>Viscosity</b> No Data Available	<b>Radioactivity</b> No Data Available	

## SECTION 10 STABILITY AND REACTIVITY

<b>Chemical Stability</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>If no, under which conditions</b> Avoid moisture. Heat, flames and sparks.
<b>Incompatibility with other substances</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>If yes, which ones?</b> Strong oxidizing agents. Amines, Bases
<b>Anticipated hazardous decomposition products</b> None identified	

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## SECTION 11 TOXICOLOGICAL INFORMATION

Component 1 – Engen Dieselube 700 Super	
<b>Acute toxicity</b> <b>Acute inhalation toxicity (Category 4)</b> (LD50: greater than 2000 mg/kg). <b>Acute oral toxicity (Category 5)</b> (LD50: Greater than 2000 mg/kg).	<b>Skin irritation/corrosion</b> Skin irritation (Category 3) H316: Causes mild skin irritation
<b>Eye damage/irritation</b> Eye irritation (Category 2B) H320: Causes eye irritation	<b>Respiratory or skin sensitisation</b> No Data Available
<b>Germ cell mutagenicity include in vitro mutagenicity</b> No Data Available	<b>Carcinogenicity</b> No Data Available
<b>Reproductive toxicity</b> No Data Available	<b>Specific target organ toxicity – single exposure</b> No Data Available
<b>Specific target organ toxicity – repeated exposure</b> No Data Available	<b>Aspiration hazard</b> No Data Available
Component 2 - Petroleum distillates, hydro-treated heavy paraffinic	
<b>Acute toxicity</b> No Data Available	<b>Skin irritation/corrosion</b> No Data Available
<b>Eye damage/irritation</b> No Data Available	<b>Respiratory or skin sensitization</b> No Data Available
<b>Germ cell mutagenicity</b> No Data Available	<b>Carcinogenicity</b> Carcinogen (Category 1B) H350 : May cause cancer
<b>Reproductive toxicity</b> No Data Available	<b>Specific target organ toxicity – single exposure</b> No Data Available
<b>Specific target organ toxicity – repeated exposure</b> No Data Available	<b>Aspiration hazard</b> No Data Available
Component 3 - Crude oil (petroleum) with recycled naphtha, distilled, cracked, hydrotreated and hydrodesulfurized	
<b>Acute toxicity</b> No Data Available	<b>Skin irritation/corrosion</b> No Data Available
<b>Eye damage/irritation</b> No Data Available	<b>Respiratory or skin sensitization</b> No Data Available

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<b>Germ cell mutagenicity</b> No Data Available	<b>Carcinogenicity</b> Carcinogen (Category 1B) - H350: May cause cancer.
<b>Reproductive toxicity</b> No Data Available	<b>Specific target organ toxicity – single exposure</b> STOT Single Exposure (Category 3) - H336: May cause drowsiness or dizziness. Affected organs: Central nervous system Route of exposure: Inhalation
<b>Specific target organ toxicity – repeated exposure</b> STOT Repeated Exposure (Category 2) - H373: May cause damage to organs through prolonged or repeated exposure Affected organs: Blood, liver, spleen, thymus	<b>Aspiration hazard</b> No Data Available

### SECTION 12 ECOLOGICAL INFORMATION

<b>Aquatic toxicity</b> Aquatic Chronic (Category 3) - H412 - Harmful to aquatic life with long lasting effects.	<b>Possible environmental impact</b> Low leach potential hence has a no significant effect on the environment.
<b>Persistence and biodegradability</b> This substance/mixture contains no components considered to be persistent	<b>Bio-accumulative potential</b> This substance/mixture contains no components considered to be, bio accumulative and toxic (PBT).
<b>Mobility in soil</b> No Data Available	<b>Ecological Limit Values</b> No data available

### SECTION 13 DISPOSAL CONSIDERATIONS

<b>Waste treatment methods</b> None Identified
<b>Waste Disposal options</b> Waste shall be disposed of according to all applicable regulations. As per the new waste regulations records of all waste been disposed must be retained and a safe disposal certificate, where applicable, must also be received from the waste disposal facility
<b>Any other information</b> Waste has been classified as a type 3 waste and can be disposed of at a Class A - Class C landfill designed in accordance with section 3(1) and 3(2) of the standards (GNR 634).

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### SECTION 14 TRANSPORT INFORMATION

<b>UN number</b> 3082	<b>UN proper shipping name</b> Environmental Hazardous Substance; Liquid; N.O.S	<b>UN classification</b> 9
<b>Packaging group</b> II	<b>Marine Pollutant</b> No	<b>Transport in bulk according to MARPOL</b> No
<b>Special Precautions</b> Drivers and conductors must be trained in order to ensure correct protocol is followed.		

### SECTION 15 REGULATORY INFORMATION

<b>Labelling Requirements</b> 
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### SECTION 16 OTHER INFORMATION

A large quantity of data has been reviewed from various sources based on the substances that could have potentially contaminated the above-mentioned waste stream.
The waste mentioned above may be flammable as a standalone chemical however the above-mentioned waste contains minute amounts. All precaution must be exercised to ensure the no smoking is practised near this bin.
The information gathered and contents of this Safety Data Sheet are based on the current knowledge of the contaminants and an overall description of what could possibly be harmful to humans/aquatic environment. The waste stream must not be used for any other purpose unless handling instructions are obtained from the supplier.
<b>ABBREVIATIONS:</b> <ul style="list-style-type: none"> <li>• STEL - Short-term exposure limits</li> <li>• TWA - Time-weighted average</li> </ul>
<b>Risk Phrases that might apply to the above product:</b> R38 Irritating to skin
<b>REFERENCES:</b> <ol style="list-style-type: none"> <li>1. The European Chemicals Agency. [ONLINE] Available at: <a href="http://echa.europa.eu/">http://echa.europa.eu/</a>.</li> <li>2. Sigma-Aldrich. 2014. sigma-Aldrich. [ONLINE] Available at: <a href="https://www.sigmaaldrich.com/south-africa.html">https://www.sigmaaldrich.com/south-africa.html</a>.</li> <li>3. Various Material safety data sheets reviewed.</li> <li>4. SANS 10243 (2008) Globally Harmonized System of classification and labelling of chemicals</li> </ol>
NOTICE: DCELS has completed this SDS through information conducted in good faith and believed to be correct and according to SANS 10234 at the date hereof. DCELS makes no depiction as to the completeness or accuracy thereof. Information is supplied and it is the responsibility of the persons receiving the substance to make their own determination as to the safety

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and suitability of their purposes prior to use. DCELS accepts no responsibility for damages of any nature whatsoever resulting from the use or reliance on the above information.

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## ANNEXURE 2

BASIC ASSESSMENT TO LANDFILL AS PER NATIONAL NORMS AND STANDARDS

**Total Concentration Threshold (TCT) Limits (mg/kg)**

Elements and Chemical Substances in Waste	TCT0	TCT1	TCT2	TC	KEY
<b>METAL IONS</b>					Type 0
As, Arsenic	5.8	500	2000	0.0025	Type 1
B, Boron	150	15000	60000	0.04	Type 2
Ba, Barium	62.5	6250	25000	0.01	Type 3
Cd, Cadmium	7.5	260	1040	0.0005	Type 4
Co, Cobalt	50	5000	20000	0.009	
Cr <sub>Total</sub> , Chromium Total	46000	800000	N/A	0.0047	
Cr(VI), Chromium (VI)	6.5	500	2000	0.006	
Cu, Copper	16	19500	78000	0.007	
Hg, Mercury	0.93	160	640	0.001	
Mn, Manganese	1000	25000	100000	1.829	
Mo, Molybdenum	40	1000	4000	0.002	
Ni, Nickel	9	10600	42400	0.026	
Pb, Lead	20	1900	7600	0.005	
Sb, Antimony	10	75	300	0.002	
Se, Selenium	10	50	200	0.003	
V, Vanadium	150	2680	10720	0.0063	
Zn, Zinc	240	160000	640000	0.213	
<b>INORGANIC ANIONS</b>					
TDS					
Chloride					
Sulphate					
NO <sub>3</sub> as N, Nitrate-N					
F, Fluoride	100	10000	40000	0	
CN (Total), Cyanide Total	14	10500	42000	0.01	
<b>ORGANICS</b>					
Benzene		10	40	0	
Benzo(a)pyrene		1.7	40	0.001	
Carbon tetrachloride		4	16	0	
Chlorobenzene		8800	35200	0	
Chloroform		700	2800	0	
2-Chlorophenol		2100	8400	0.001	
Di (2 ethylhexyl) phtalate		40	160	0.279	
1,2-Dichlorobezene		31900	127600	0	
1,4-Dichorobenzene		18400	73600	0	
1,2-Dichloroethane		3.7	14.8	0	
1,1-Dichloroethylene		150	600	0	
1-2-Dichloroethylene		3750	15000	0	
Dichloromethane		16	64	0	
2,4-Dichlorophenol		800	3200	0.0005	
2,4-Dinitrotoluene		5.2	20.8	0.0005	
Ethylbenzene		540	2160	0	
Formaldehyde		2000	8000	0	
Hexachlorobutadiene		2.8	5.4	0.001	
Methyl ethyl ketone		8000	32000	0	
MTBE (Methyl t-butyl ether)		1435	5740	0	
Nitrobenzene		45	180	0.001	
Petroleum H/Cs, C6 to C9		650	2600	0	
Petroleum H/Cs, C10 to C36		10000	40000	265.61	
Phenols (total, non-halogenated)		560	2240	0.25	
Polychlorinated biphenyls		12	48	0.002	
Styrene		120	480	0	
1,1,1,2-Tetrachloroethane		400	1600	0	
1,1,2,2-Tetrachloroethane		5	20	0	
Tetrachloroethylene		200	800	0	
Toluene		1150	4600	0	
Trichlorobenzenes (total)		3300	13200	0	
1,1,1-Trichloroethane		1200	4800	0	
1,1,2-Trichloroethane		48	192	0	
Trichloroethylene		11600	46400	0	
2,4,6-Trichlorophenol		1770	7080	0.001	
Vinyl Chloride		1.5	6	0	
Xylenes (total)		890	3560	0	
<b>PESTICIDES</b>					
Aldrin + Dieldrin	0.05	1.2	4.8	0.04	
DDT + DDD + DDE	0.05	50	200	0.12	
2,4-D	0.05	120	480	0.004	
Chlordane	0.05	4	16	0.04	
Heptachlor	0.05	1.2	4.8	0.02	