Environmental Management Plan

Exigrade Feeds Pty (Ltd.)

Luderitz, Namibia

Endorsed By: Jacobus Smit
Endorsed By: Operational Director

Signature: _____

Date: 1/06/2019

EXECUTIVE SUMMARY

Exigrade Feeds Pty Ltd is an existing fishmeal plant, situated on the premises of Pescanova Seafood factory in Luderitz, Namibia. The aim of this Environmental Management Plan (EMP) is to identify and address any environmental risks associated with the facility.

As the facility is within an industrial area in the Fishing Harbour of Luderitz, it is surrounded by similar industrial facilities. Due to the nature and location of the development, impact can however be expected on the surrounding environment, see summary of potential impact below. Regular environmental performance monitoring will continue and be updated on an continues basis, to ensure compliance and that corrective measures be taken if necessary.

The fishing industry is one of the biggest contributors to the Namibian economy and is a major contributor to employment in the coastal area. The existing operations at Exigrade Feeds is contributing to the local economy by increased productivity and value addition, through continued employment, and by providing opportunities for other local businesses for service delivery.

The major concerns related to the operational activities at the Exigrade Feeds premises are that of air quality, waste production, fuel storage and consumption, and surface water impacts. All relevant local regulations and accepted best practices should always be adhered to. Noise and air pollution should always meet the minimum requirements to prevent air pollution and not to cause a nuisance to nearby receptors. Water contaminated by pollutants that can no longer be disposed of in the normal effluent disposal streams, and any other waste products, must be prevented from entering the ocean at all costs and should be disposed of appropriately. Any waste produced must be removed from site and disposed of in an appropriate way or re-used or recycled where possible. Hazardous waste must be disposed of by a registered service provider and at an approved hazardous waste disposal site. An emergency response plan must be implemented in the event of major system failures.

This Environmental Management Plan should be used as an on-site reference document during operational activities at the fish meal factory. This document should be reviewed on a regular basis, in order to ensure that it is still relevant to the activities executed at the facility. Parties responsible for transgression of the EMP should be held responsible for any rehabilitation that may need to be undertaken. Exigrade Feeds implements numerous in-house standards to ensure protection of health, safety, environment and quality. These include various policies and protocols. All personnel receive regular training on the content of these documents.

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1 COMPANY DESCRIPTION

The company was founded in 2005 by Sarel du Toit. The facility is located in Luderitz, a coastal town in Namibia (Africa). The fishmeal is produced from fresh white fish, mainly hake (whole or from parts thereof) that is provided by local fish factories. A steam dried method is used to produce the fishmeal which delivers a high-quality product. This facility is fully equipped to meet all standards for quality assurance, bagging and logistic arrangements and well suited to handle our current fish meal exports to China, Taiwan, Zambia, Zimbabwe, Nigeria and elsewhere.

- **Overview:** The company has been operating in Luderitz since 2005. The company produces high-quality white fishmeal from the offal produces by the local fish factories.
- **Scope of Works:** Exigrade is an existing company which is situated on the premises of the Pescanova Seafood Factory. No additional construction activities are envisaged for the future, except for maintenance work. The building is around 25 years old and has always been a fishmeal factory, previously managed by Pescanova.
- **Timing of Works:** Exigrade started operation on the premises in 2005
- **Site Plan:**

Fig 1.1 Position of Luderitz

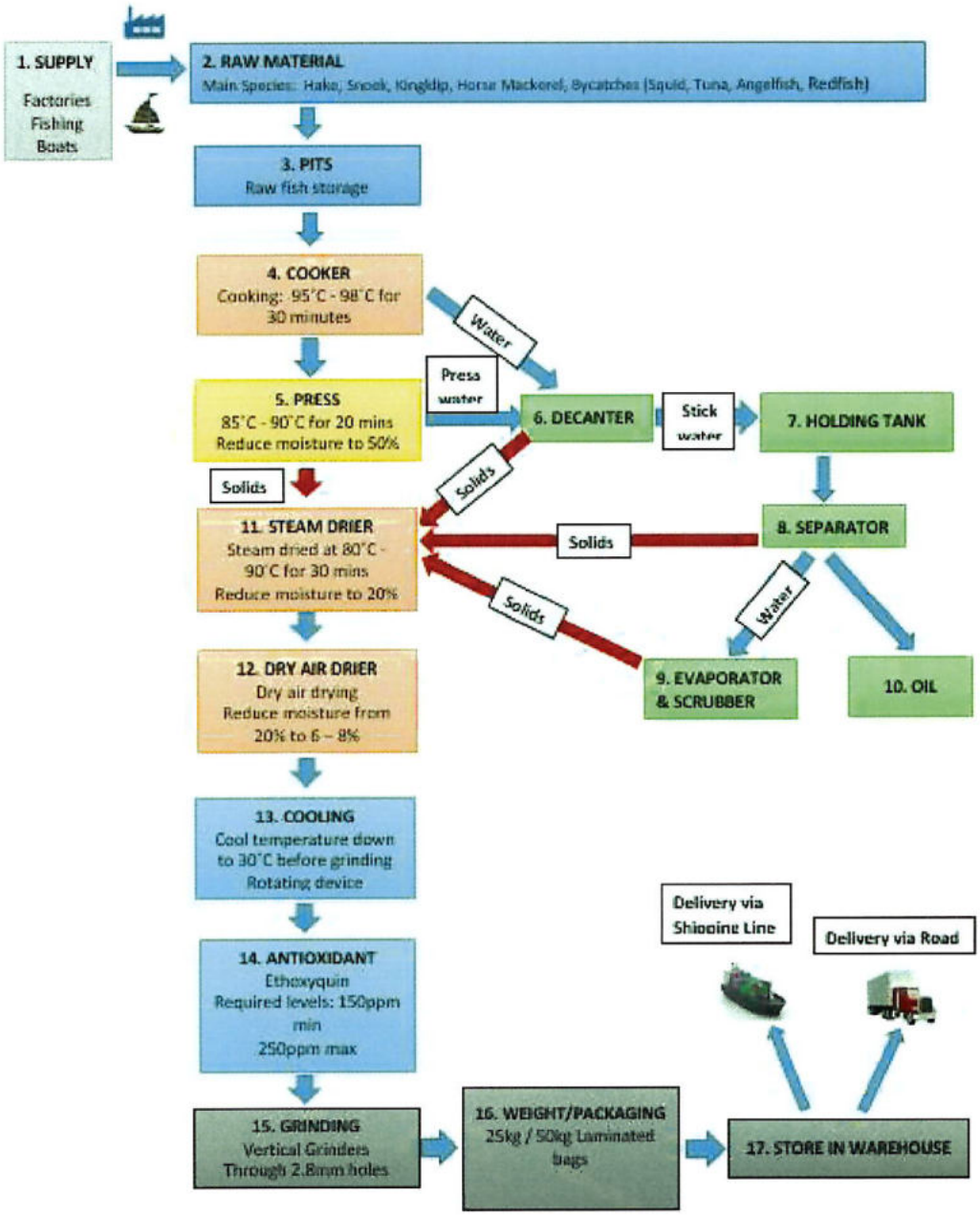
Fig 1.2 Locality of Exigrade Feeds

2 COMPANY ROLES, RESPONSIBILITIES AND CONTACTS

Table A: Responsibilities and Contact Details

POSITION	NAME		CONTACT DETAILS*
Operation Manager	Jaco Smit	JS	**+264 81 128 3159** **Jaco@dascom.co.za**
Factory Manager	Jannie Meuwesen	JM	**+264 81 247 6475** **+264 63 204 283** **jannie@exigradefeeds.com.na**
Environment Officer	Jannie Meuwesen	JM	**+264 81 247 6475** **+264 63 204 283** **jannie@exigradefeeds.com.na**
HSE Representative	Jannie Meuwesen	JM	**+264 81 247 6475** **+264 63 204 283** **jannie@exigradefeeds.com.na**
Quality Control	Natasha du Toit	NdT	**+27 21 880 2286** **+27 83 278 5106** **natasha@dascom.co.za**
Maintenance	Maritz van den Heever	MvdH	**+264 81 128 0683** **+264 63 204 283** **exigrade@iway.na**

3 PROCESS FLOW CHART



4 ENVIRONMENT RISK MANAGEMENT

Fishmeal has always been part of the fishing industry and is a by-product generated in fish factories. Previously the fishmeal process was managed by the fishing companies themselves, but in this case Exigrade manages the factory as a third party.

Out of the process, the following environmental risks have been identified:

- Sea water intake and outflow
- Cooking process
- Drying Process
- Fuel
- Oil Spillage
- Air Quality Management
- House keeping
- Pest control
- General Hygiene

4.1 Sea water intake and outflow

Exigrade Feeds do not extract any water directly from the ocean. The sea water that enters the factory is the run-off line from the Pescanova Fish factory that carries the factory's fish offal. Exigrade then filters the offal out of the sea water by means of a sieve and auger system, which allows the clean sea water to continue to the ocean.

Fig 4.1.1 Infeed Auger and Screen system.

SEA WATER INTAKE AND OUTFLOW			
Objective(s)	*To maintain and increase the quality of the sea water as it passes through the factory, by removing the fish offal*		
		Responsibility	**Timing**
Control(s)	Continues monitoring of the outflow water Ensuring plant maintenance is always up to date to minimize breakdowns Adequate personnel at all times	JM	

Performance Indicator(s)	Optimal yield in production parameters Visual inspections satisfactory	JS/JM	
Monitoring	Continuously	JM	
Reporting	Incidents are to be reported immediately to the Factory Manager. The factory manager to report significant incidents to Operations manager for further action. Copies of incident reports to be kept in Health and Safety file at all times.	JM	
Corrective Action(s)	Cease works in the impact area immediately. Implement measures outlined in EMP. Review and modify procedures/EMP if necessary.	JM	

4.2 Cooking process

Cooker: Fish is cooked at a temperature of 95°C - 98°C for 30 minutes. The cooking process is for the coagulation of the protein, thereby liberating bound oil and water. Cooking therefor is a key process of the utmost importance for the whole functioning of the factory. Good cooking leads to the proper removal of press liquor and, in particular for fatty fish species (i.e. Angle Fish and Tuna), efficient recovery of oil, giving a meal with low fat content, which is a criterion for quality. The process must be controlled to ensure sufficient cooking, but overcooking must be avoided as this results in problems with pressing and the presence of large amounts of suspended particle in the stick water, which makes evaporation difficult. The excess water produced during the cooking process is directed to the decanter.

Fig 4.2.1 Cooker

Press: The cooked fish goes to a press at temperature of 85°C - 90°C for 20 minutes. The press reduces the moisture to 50%. The separation by pressing of the coagulate yields a solid phase (press cake) containing 60 – 80% of the oil-free dry matter (protein, bones) and oil, and a liquid phase (press liquor) containing water and the rest of the solids (oil, dissolved and suspended protein, vitamins and minerals). The press liquor is transferred from the press to the decanter and the press cake is transferred to the steam dryer.

Fig 4.2.2 Press

Decanter: The press liquor and moisture produced during cooking process passes through the decanter. The main part of the sludge in the press liquor is removed by centrifugation in the decanter. Any impurities in the decanter is transferred to the steam dryer.

Fig 4.2.3 Decanter

Separator: The separator separates the press liquor into oil, stick water and fine sludge. The fine sludge is transferred to the steam dryer, stick water to the evaporator and the oil into an oil holding tank.

Evaporator: The stick water is still of value, it contains dissolved and suspended protein, fat, vitamins and minerals. Moisture content is 92% - 94%. The stick water is concentrated in the evaporator and the concentrate is transferred to the steam dryer. The water evaporates and the steam is discharged from the top of the evaporator.

Evaporators for stick water are very important, because they recover dry matter that will increase the yield of meal by 20% or more, depending on freshness and nature of raw material. The evaporator also eliminates a serious pollution problem, reduces the wasting of resources and protects the environment.

Cooking process			
Objective(s)	To maintain an excellent quality product by proper process management and good quality raw materials.		
		Responsibility	**Timing**
Control(s)	Continues monitoring of the outflow water Ensuring plant maintenance is always up to date to minimize breakdowns Adequate personnel at all times	JM/MvdH	
Performance Indicator(s)	Visual inspection of production process Constant monitoring	JM	
Monitoring	Continuously	JM/MvdH	
Reporting	Incidents are to be reported immediately to the Factory Manager. The factory manager to report significant incidents to Operations manager for further action. Copies of incident reports to be kept in Health and Safety file at all times.	JM/MvdH	
Corrective Action(s)	Cease works in the impact area immediately. Implement measures outlined in EMP. Review and modify procedures/EMP if necessary.	JM/MvdH	

4.3 Drying Process

Steam Dryer: The concentrate from the decanter and evaporator is mixed with the press cake and then dehydrated by using the Rota disk steam drying system. The steam dryer is a large heating area, which results in a good drying effect to guarantee the quality of fishmeal. The press cake is steam dried at a temperature of 80°C - 90°C for 30 minutes. This drying process reduces the moisture to 20%. The moisture generated from the process escapes a steam through a chimney.

Fig 4.3.1 Steam Dryer

Hot Air Dryer: From the steam dryer, the product is dehydrated to 6 – 8% by using the dry air method. A large fuel burner produces the heat required for this process and blows the product through the entire length of the dryer with this heat. The hot air/gas mixture moves through an exhaust at the far end of the dryer, from where it moves through a "scrubber", which cools the air with water and removes any remaining odours from the air, before it leaves the building.

Fig 4.3.2 Hot Air Dryer

Fig 4.3.3 Scrubber with Cyclone and extractor fan

Drying Process			
Objective(s)	To dry the processed fishmeal with a combination of steam and hot air		
		Responsibility	**Timing**
Controls	Continues monitoring of the production process Continuously monitoring variables Ensuring plant maintenance is always up to date to minimize breakdowns Adequate personnel at all times	JM/MvdH	
Performance Indicator(s)	Visual inspection of production process Constant monitoring	JM/MvdH	
Monitoring	Continues	JM/MvdH	
Reporting	Incidents are to be reported immediately to the Factory Manager. The factory manager to report significant incidents to Operations manager for further action. Copies of incident reports to be kept in Health and Safety file at all times	JM/MvdH	
Corrective Action(s)	Cease works in the impact area immediately. Implement measures outlined in EMP. Review and modify procedures/EMP if necessary.	JM/MvdH	

4.4 Air Quality Management

During various phases in the factory, such as cooking, pressing and drying, low volumes of gas, with higher concentrations of odours will be produced. Other phases such as conveying of fish, milling, ventilation and cooling may produce higher volumes of gas with low concentrations of odour. The necessary steps are taken to ensure the odours escaping from the factory are kept to a minimum. This is achieved by ensuring fish is processed as fresh as possible. To reduce odours and emissions from the fishmeal plant, all vapours produced in the plant passes through the scrubber and evaporation plant. No visible vapours (white vapour), except for steam, is released from the fishmeal plant.

Air Quality Management			
Objective(s)	To minimize visible vapour and odours from the Plant.		
		Responsibility	**Timing**
Controls	Continues monitoring of the production process Continuously monitoring of visible vapours Ensuring freshness of raw materials	JM	
Performance Indicator(s)	Visual inspection of production process Constant monitoring of vapours and smell	JM	
Monitoring	Continues	JM/MvdH	
Reporting	Incidents are to be reported immediately to the Factory Manager. The factory manager to report significant incidents to Operations manager for further action.	JM/MvdH	
Corrective Action(s)	Cease works in the impact area immediately. Implement measures outlined in EMP. Review and modify procedures/EMP if necessary.	JM	

4.5 Burner Fuel

Exigrade collects used oil from various sources across Namibia to be recycled through our system. The origin of the oil varies from mechanical workshops, mines and vessel services. This waste oil, that would otherwise end up on a land fill site, is then blended, filtered and cleaned to be used as burner fuel for own use only. The fuel is prepared at our Walvis Bay premises and transported by fuel tanker the Luderitz factory. Here it is stored in large fuel tanks in a bunded area until used. All ring mains and filters area situated along bunded areas. Filters are cleaned daily. Ring mains are pressure tested by an approved contractor annually, to ensure the integrity of the system.

Fig 4.4.1 Fuel Oil Storage Tank

Fuel			
Objective(s)	To collect, clean, transport, store and use mineral oil in a safe and clean manner		
		Responsibility	**Timing**
Controls	Conduct risk assessment on a continues basis	JM	

Fuel			
	Train and educate staff at regular intervals Ensure proper equipment is used at all times All storage tanks to be inside bund walls at all time Spill kits and fire fighting equipment to be properly positioned and maintained at all times		
Performance Indicator(s)	No leaks detected No spillage detected Effective transfer of fuel between tanks	MvdH	
Monitoring	Continues	JM	
Reporting	Incidents are to be reported immediately to the Factory Manager. The factory manager to report significant incidents to Operations manager for further action. Copies of incident reports to be kept in Health and Safety file at all times.	MvdH	
Corrective Action(s)	Cease works in the impact area immediately. Implement measures outlined in EMP. Review and modify procedures/EMP if necessary.	JM	

4.6 Oil and Other fuel spills

Exigrade use limited moving plant and machinery at the factory. All moving plant are serviced of site by approved contractors. All small plant is serviced in a bunded area or in a drip tray.

Fuel is stored in a bunded area in approved containers. Moving and stationary plant is fuel up at a dedicated area where any spillage accumulates in a sump, from where it is collected and transferred to tanks and transported to Walvis Bay to be recycled through our process as described in 4.4 "Burner Fuel" above.

Fig 4.5.1 Oil Spill Kit

OIL AND OTHER FUEL SUBSTANCES			
Objective(s)	To minimise the potential for general oils and fuel spillage to as low as reasonably practicable.		
		Responsibility (Role)	**Timing**
Control(s)	All hydrocarbons to be stored in an appropriate bund that is capable of holding 110% of a spill from the largest container, or 10% of total volume of stored liquids, whichever is greater.	MvdH	

OIL AND OTHER FUEL SUBSTANCES			
	Drip trays shall be placed under equipment such as generators and oils pump if such equipment is not internally bunded. All equipment will be regularly serviced to reduce emissions and reduce the chance of oil leaks on site and in marine environments. Appropriate controls in place to contain fuel leaks should they occur whilst servicing. Controls may include use of drip trays when changing oil and transporting waste oils in bunded containers. Only qualified personnel are to carry out services on plant, equipment and vehicles. Training / awareness to be included in site induction (including all staff, contractors, subbies etc.). Spill will be contained and cleaned-up immediately. Resultant wastes (soils, rags and absorbent material) shall be appropriately stored and disposed of at an approved waste facility. All spills reported and investigated as required.		
Performance Indicator(s)	Minor spills (<10L) to land contained, controlled and all contamination removed / cleaned-up within 24 hours. No spills to marine waters. No contamination of soil or surface / ground waters. No spills that require an emergency response	JM/MvdH	
Monitoring	Continues	MvdH	
Reporting	All spills to be reported to the factory manager. Factory manager to determine actions taken	MvdH	
Corrective Action(s)	Stop work immediately, contain spill (if safe). Investigate cause of spill and assess. Implement improvements as required. Implement corrective measures prior to the recommencement of works.	JM	

4.7 Housekeeping and Wastes

Exigrade feeds has a strict cleaning protocol that is always adhered to.

Waste generation from the production process is kept to a minimum, as the raw materials come into the factory by means of sea water, as described in 4.1" Sea Water Intake and Outflow". As the process of producing fish meal is a means of recycling fish offal, there is very limited additional waste generated through the production process. In the highly unlikely case where waste is generated from the process, it is kept in skip containers and disposed of by an approved contractor.

Household waste and recyclables are collected weekly by an approved contactor.

Fig 4.6.1 General waste and recycling area

Fig 4.6.2 Skip for waste collection

HOUSEKEEPING AND WASTES			
Objective(s)	Reduce waste volume, maximise recycling, reuse and recovery, prevent any waste/litter entering the environment.		
		Responsibility (Role)	**Timing**
Control(s)	Provide appropriate waste bins, type, volume and service frequency to accommodate anticipated waste streams. Provide information regarding waste management in site specific inductions, including waste separation and importance of securing vehicle loads. Ensure licensed contractors are used to collect controlled wastes	JM	
Performance Indicator(s)	Hazardous materials all appropriately disposed. Recycling of all recyclable waste Records kept of waste leaving site.	JM	
Monitoring	Daily inspection of waste bins (% full, time to next service). Waste volumes leaving the premises from waste contractors	JM	
Reporting	Environmental incident reports.	JM	

HOUSEKEEPING AND WASTES			
Corrective Action(s)	Investigate cause of inappropriate waste disposal Review cause of issue and develop response, such as variation to bin size, service schedule or waste separation awareness. Implement controls	JM	

4.8 Hygiene

Exigrade Feeds has a strict personal hygiene protocol that is non-negotiable and to be adopted by all personnel, including administrative staff, contractors and visitors to the production facility. A cleaning station is located at the entrance to the factory where it is easily accessible. Please see the company's "Personal Hygiene Protocol" document attached.

HYGIENE			
Objective(s)	*To maintain the strict hygiene protocol of Exigrade Feed*		
		Responsibility (Role)	**Timing**
Control(s)	Provide and maintain facilities for proper hygiene control to all personnel		
Performance Indicator(s)	Personnel using facilities provided		
Monitoring	Continues		
Reporting	Shortcomings to be reported to factory manager		
Corrective Action(s)	Investigate cause of unhygienic practices. Implement controls		

4.9 Pest Control

Pest control is done by an external contractor. Bait stations are located at strategic points around the facility. Bait stations are maintained monthly, and constantly monitored to ensure proper working order.

5 APPENDICES

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5.2 Fishmeal Plant Layout

5.3 Sea Water Flow Chart

5.4 Process Flow Chart

5.5 Oil

- 5.5.1 Oil permit and Statistics
- 5.5.2 Oil Plant Layout – Walvis Bay
- 5.5.3 Waste Oil Management Protocol
- 5.5.4 Presentation for LFO Renewal

5.6 Housekeeping

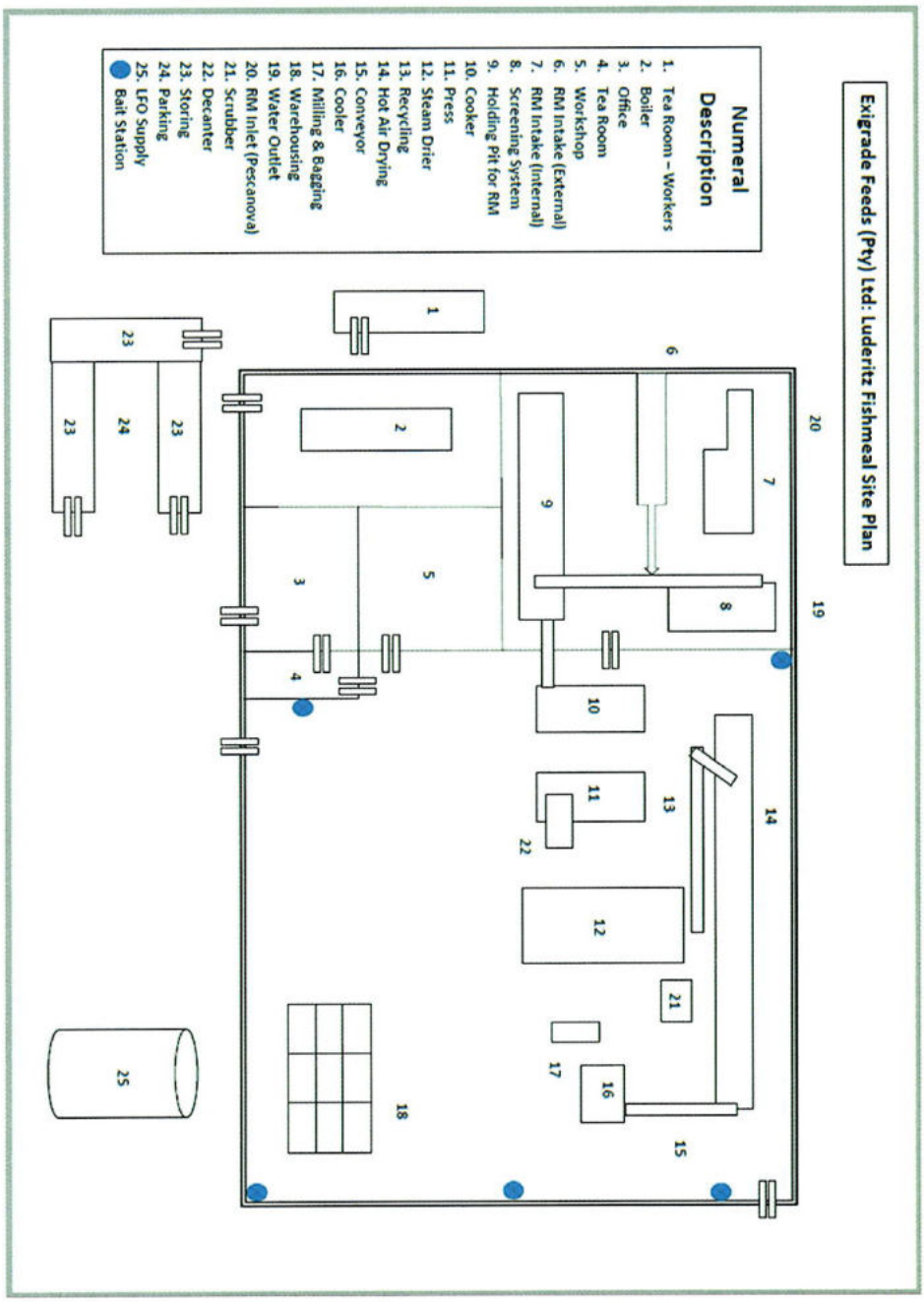
- 5.6.1 Cleaning Schedule
- 5.6.2 MSDS – Foamdent

5.7 Pest Control

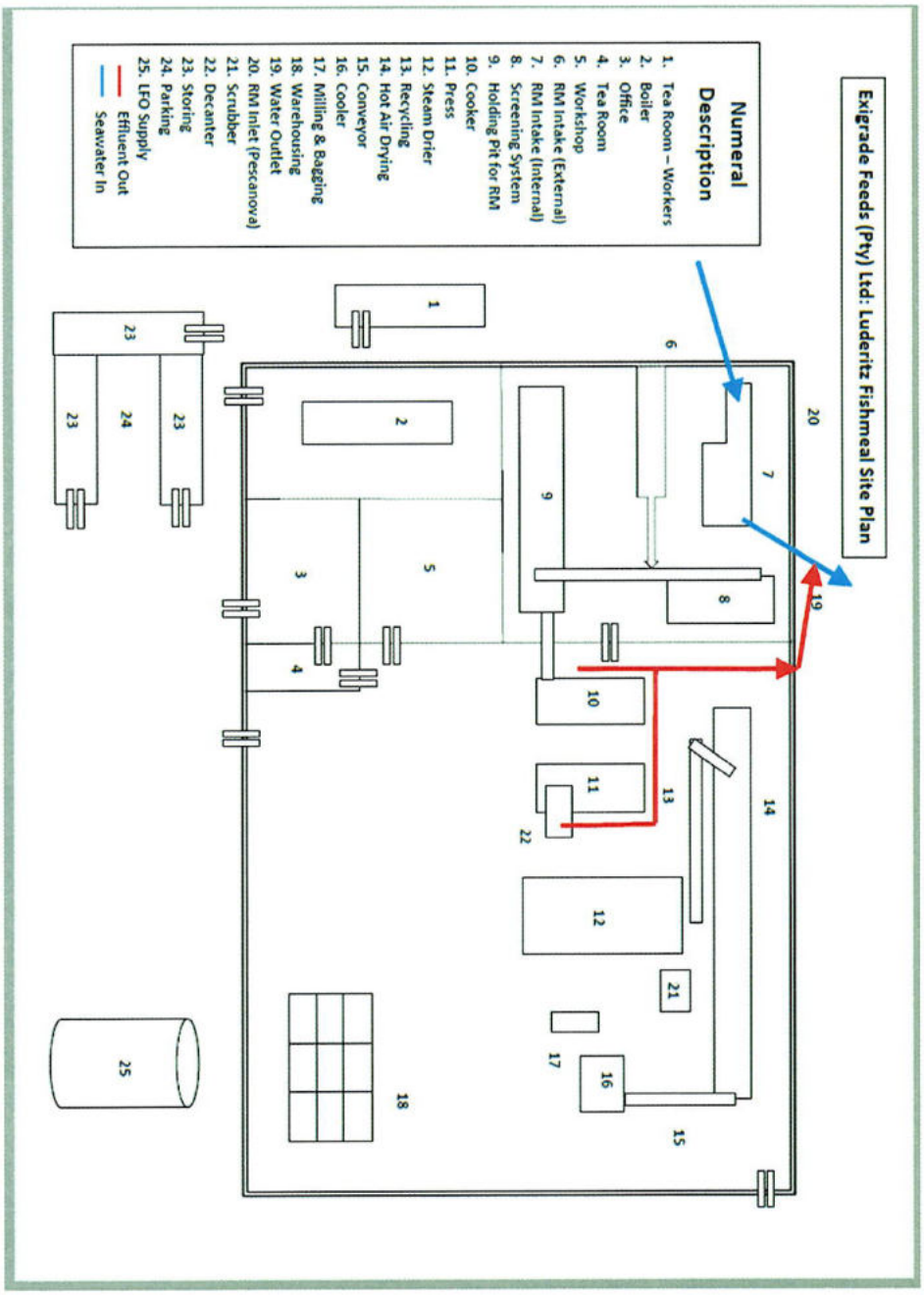
- 5.7.1 Sanitech Inspection Report
- 5.7.2 Bait Station Layout
- 5.7.3 MSDS – Bait blocks

5.8 Personal Hygiene Protocol

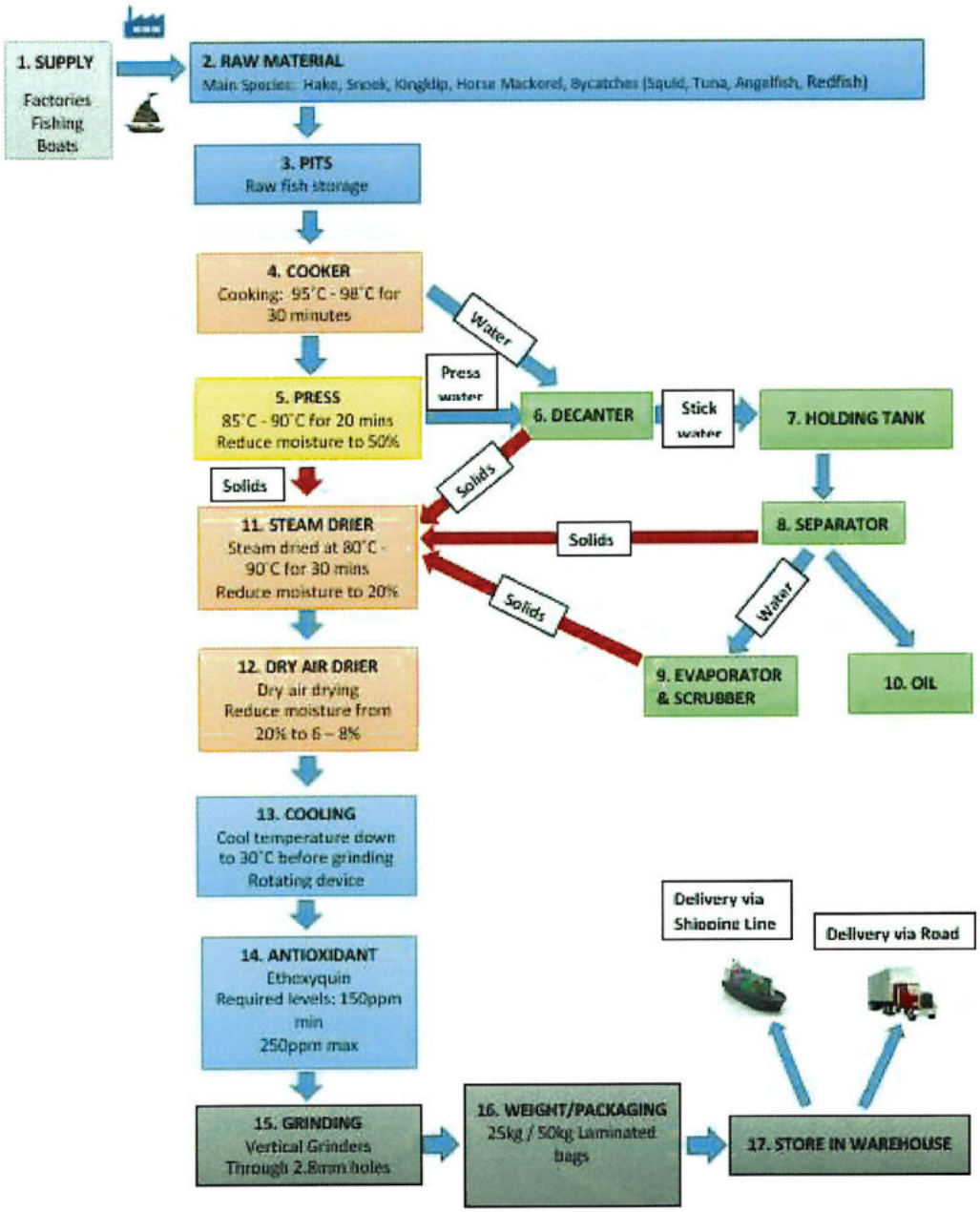
Fishmeal Plant Layout



Sea Water Flow Chart



Process Flow Chart



Oil Permit and Statistics

Republic of Namibia

MINISTRY OF MINES AND ENERGY

Tel: +264-61 284-8111
Fax: +264-61 258-643
E-mail: ...@mme.gov.na
Website: www.mme.gov.na

6 Aviation Road
Private Bag 13297
Windhoek
Namibia

PERMIT

FOR USED MINERAL OIL

PERMIT NO: 15/2018

Enquiries: I Gaingob
Reference: 10/3/2

05 October 2018

1. In terms of Section 2(1) of the Petroleum Products and Energy Act, 1990 (Act 13 of 1990) permission is hereby granted to:

   Exigrade Feeds (Pty)Ltd
   P O Box 4657
   Walvis Bay
   Namibia

   To perform the following act in respect of used mineral oil, namely obtain and store up to **150 000 liters** of used mineral oil per month for the purpose to collect throughout Namibia to store the collected used mineral oil on the premises situated at **19 Ben Amathila Ave, Walvis Bay** until the refinement thereof and sale for re-use by consumers.

2. This permit is issued subject to the conditions as laid down in Regulations No. 112 of 1991 dated 11 October 1991 relating to the purchase, sale, supply, acquisition, usage, possession, disposal, storage, transportation, recovery and re-refinement of used mineral as issued in terms of Section 2(1) of the Act and is **only valid until 05 October 2019.**

3. This permit is issued subject to the following further conditions:

   3.1 All Municipal and other Health Regulations to be adhered to.

All official correspondence must be addressed to the Permanent Secretary

3.2 All Transport Regulations to be followed regarding proper tankage, as laid down by the Ministry of Works and Transport.

3.3 All fire hazard and/or security measures to be taken in conformity with the SABS Specification 086 and 089.

4 Statistics will have to be provided before or on 28 February on an annual basis, to the:

Permanent Secretary
Ministry of Mines and Energy
Private Bag 13297
Windhoek
Namibia

Attention: Mr. I Nghishoongele

5 Re-application for this permit must occur **30 days prior to the validity date.**

Issued at Windhoek on this 05th day of October 2019.

Simeon N Negumbo
Permanent Secretary

Cc. (1) Mr. Harold Schmidt
PROMEX CC
Secretary to Oil Industry
P.O. Box 11335 Klein Windhoek,
Windhoek

(2) Permanent Secretary
Ministry of Works and Transport
Private Bag 13341
Windhoek

(3) Municipality of Walvis Bay
Health Department
Private Bag 5017
Walvis Bay

REPUBLIC OF NAMIBIA
MINISTRY OF MINES AND ENERGY
PETROLEUM PRODUCTS AND ENERGY ACT, 1990
ANNUAL STATISTICS WITH REGARD TO USED MINERAL OIL REFERRED TO IN REGULATION 10

NB. – To be completed and sent to the Permanent Secretary, Ministry of Mines and Energy, Private Bag 13297, Windhoek, Namibia (Attn.: Mr. I Gaingob)

1. Name of certificate/permit holder: **Exigrade Feeds (Pty) Ltd**

   Address: **19 Ben Amathila Ave, Walvis Bay, Namibia.**

2. Certificate or permit no: **17/2017**
   Expiry date: **14 November 2018**

3. Quantity of used mineral oil **October 2017 to Sept 2018:**

   (a) Purchased: **1 217 190 liters**

   (b) Obtained: **36 000 liters**

   (c) Re-refined: **1 253 190 liters**

   (d) Sold: **Nil**

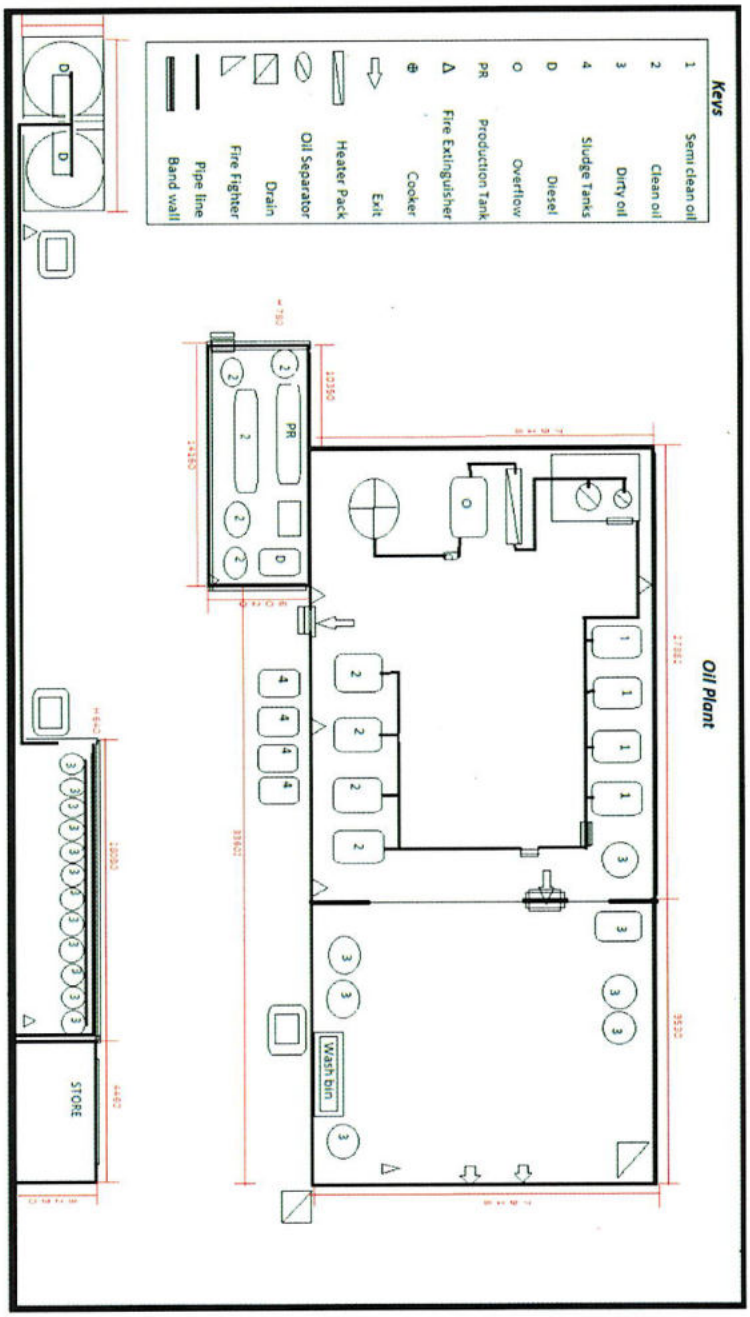
   (e) Used: **1 046 459 (WB 632 461 liters & LDZ 413 998 liters)**

4. Mention purpose for which used mineral oil declared in paragraph 3(c) has been used:
   Used as boiler fuel for own production plants (Walvis Bay & Luderitz)

5. Any other information/particulars that the certificate or permit holder wishes to declare:
   Refined oil not used for trading at all.

.....
SIGNATURE **02/10/2018**

Oil Plant Layout



Waste Management Protocol

USED OIL WASTE MANAGEMENT AND PROTOCOL DOCUMENT

Table of Content:

1. **OVERVIEW**

This document provides an overview pertaining to the collection and waste management of used oil (LFO) utilised by Exigrade Feeds for burning of it boilers.

2. **EXIGRADE'S ROLE IN THE USED OIL INDUSTRY**

It is imperative to understand the role conducted by Exigrade in the used oil environment:

- We receive/collect un-useable and un-refined waste oil which is processed/refined, cleaned and filtered into a light/low furnace oil
- Different to that of other role players, Exigrade does not trade, sell or is involved in any other application other than for own internal recycling by way of 2 boilers and burners
- Important is the fact that Exigrade is not involved in any cleaning/salvage/servicing of any kind that could risk spillage or accumulation of sludge that require huge volumes to be dumped.

From an environmental impact perspective proper containment mechanisms are ensured for the prevention of surface and groundwater pollution:

- Loading and offloading are done on surfaces with adequate spillage control
- Spillage control procedures according to SANS 089 standards are in place
- Bunded areas are sealed in line with industry approved methods
- Procedures followed to prevent environmental damage during maintenance/ servicing are complied to and correction made where necessary
- Regular checks and inspections to the reticulation systems are undertaken to prevent leakages
- Proper training of operators are conducted on a regular basis
- Spillages more than 200/ are reported to the relevant authorities
- Standard spill clean-up equipment is available on both sites and trucks
- No discharge of waste oil into sewerage systems.

Several environmental impacts have been assessed and evaluated prior to the construction of the used oil facilities and include the following:

- Fire and explosion risk
- Soil and water contamination
- Visual impact
- Traffic impact
- Economic impacts

- Health and Safety impacts
- Security impacts

3. INTRODUCTION

Proper management of used oil is important for four main reasons:

- To Protect the environment
- To protect human health
- To protect against liability for environmental damages
- To re-use, rather than waste, a valuable resource

Used oil, even when not classified as a hazardous waste, can have harmful effects if it is released into the environment. In addition, people's health can be affected if used oil is handled improperly.

Used oil is a valuable resource because of its lubrication value and heat value. When treated to remove contaminants, used oil can be used as a base stock to produce new lubricating oil. Because used oil has heat value it can be burned as fuel. Properly burning the used oil keeps its heat value from being wasted and saves the virgin heating oil that would be burned instead.

a. Purpose

This plan provides a source of documentation in terms of used oil for Exigrade Feeds, incorporating our compliance with regulations and requirements. The Plan provides a written description of used oil/waste good management practices/procedures, disposal methods and transport requirements, amongst other. We continuously encourage any suggestions that our employees have for improving our plan and we are committed to developing and maintaining an effective protocol. We strive for clear understanding and environmentally sound practices on all levels of involvement, with specific reference to the EMS Consulting Country Report (2013).

b. Used Oil Defined

Exigrade defines used oil "as any oil that has been refined from crude or any synthetic oil that has been used, and as a result of such use is contaminated by physical of chemical impurities". This includes oils that are used as hydraulic fluid as well as oils that are used to lubricate automobiles and other machinery, engines or suspend material in industrial processes. Oils used for these purposes can become

contaminated with physical material such as metal particles from engine wear or chemical contaminants such as gasoline combustion products.

4. GMP's PRACTICES FOR LFO

Used oil can be generated during "do-it-yourself" projects, from automotive industry/sources, mining operations, vessels and industrial operations. We adhere to the following practices:

- Never dump or dispose of used oil/waste in unauthorised areas
- Ensure our collection and storage facilities are leak proof, spill proof and that tanks have lids or are covered to prevent water from entering
- Maintain our collection containers regularly
- Comply with local fire and safety regulations and avoid leaks and spills
- Identify each collection drum with a "Waste Oil" sign
- Label the storage drums
- Clean up any oil spills or leaks. This includes using soak-up material such as sawdust or a commercial product for minor spills. It keeps the areas clean and helps prevent personal injury.
- Keep record of all used oil collected, refined and burned.
- Refined oil is utilised for own production, no trading activity takes place.

a. Storing

Our facility stores used oil in a combination of tanks, volumes of which ranges from 20 000 to 50 000 litres. The following practices are adhered to:

- Storage tanks are equipped with wide-mouth opening for easy access
- Separate storage tanks for un-refined and refined used oil
- Facilities are surrounded with band walls to prevent contamination in case of a spill
- Do not mix used oil with any other material
- Sufficient sorbent material such as sawdust, solvents and degreasers are on hand to clean any spills that could occur
- Area surrounding the storage devices are kept neat and clean
- Adequate fire-fighting equipment is in place throughout the facility
- Necessary hazardous and warning signs are in place.

b. Disposal

Under the Certificate of Safe Disposal issued by the Walvis Bay Municipality we are bound to laid down rules and procedures within designated areas where sludge disposal may take place. Disposal days/times are prescribed by local authorities and no operations outside these timelines are permitted. Disposal is done under supervision by local authorities.

When changing an oil filter it is done in such a manner that the solid contaminants/sludge of the old oil do not contaminate any refined oil. Used oil filters can contain up to 500ml of used oil, hence the proper management of this source receives great care. Used oil filters are not considered a hazardous waste if they have been properly drained.
We store our drained used oil filters in a container to prevent oil from being drained/washed from the filters to the surrounding environment. Our used oil filters are properly disposed of.

c. Transport

Our management standards define a used oil transporter as "any person who transports used oil, any person who collects used oil and owners/operators of used oil transfer facilities". The transporter must comply with all relevant regulations, including keeping tracking records of where and when the used oil is collected and where it will be transported to. With transportation, whether it is collection or to Luderitz, we ensure that:

- The driver must have the necessary licence and authority
- Our vehicle or that of the transporter is equipped to carry the product
- That the necessary oil spill equipment on the vehicle is adequate in case of a spill.
- The used oil is transported in proper tanks and that these are free of leaks
- The company representative signs and dates the vehicles tracking sheet.
- A goods received note is signed at all collection and delivery points. (These records are not required under the used oil management standards, but can be useful should a problem arise).
- The driver must ensure that the area of collection/delivery is clean prior to departure.
- Relevant insurance are in place for the unforeseen event.

d. Employee Training and HSE

Employees are properly trained in-house, under permanent supervision of management and informed of used oil management procedures relevant to the position in which they work. This training occurs on the job. Once a year the Fire Brigade visit our premises and stage a "live" training event with our employees. We keep record of job titles together with written job descriptions for all positions related to used oil management.

We also keep records describing the type and amount of training provided. Refreshment workshops are undertaken and done by outsourced accredited organisations and certified accordingly.
It is a requirement that the Health and Safety regulations are adhered to all the time.

e. Certification

Exigrade has the following in place:

- "Used Oil Permit" is renewed annually by The Ministry of Mines and Energy
- Municipality issues the "Fire Safety Certificate" annually
- Suppliers are issued with a "Waste Removal Certificate" when collecting oil
- Obtain a "Certificate of Safe Disposal" from the Municipality.
- Relevant signage on vehicles as required by industry

f. Plans and Layouts

For reference purposed our site plans for Walvis Bay and Luderitz are attached identifying:

- Refined/processed storage facilities
- Un-refined/un-processed storage facilities
- Disposal tank for sludge/waste and filters
- Fire-fighting equipment
- Bund walls
- Photo's of facilities

5. SPILL RISK ASSESSMENT AND PROCEDURES

Although all steps have been taken to prevent leaks or spills occuring, empluyees are trained to be prepared and respond to such spills. The following protocols are in place:

a. **Assess the spill and risk involved**
Alert employees. Identify spilled material, the source of the spill, where it is going to and determine the correct cleaning procedure. If it is a small spill continue as per procedures, in case of a large spill immediately contact a professiona clean-up vendor to assist. Control access to the area. Prevent people from walking through or vehicles driving through.

b. **Stop the source**
Stop the source. This may involve turning a container upright or plug a leak of a damaged drum or container with rags or similar material. Transfer liquids from the damaged container to a new one.

c. **Select PPE**
Choose the appropriate Personal Protective Equipment (PPE) to safely respond to the spill such as gloves, protective eyewear, facemask, etc. If you are uncertain of the danger and the spilled matrial is unknown, assume the worst and use the highest level of protection.
* WARNING- Always have the correct PPE on all vehicles and in storage areas.

d. **Confine the spill**
By acting quickly but cautiously limit the spill area by blocking, diverting or confining the spill using the booms found in the spill kit, or apply Spillsorb in an arc around the edge of the spill. Stop the flow of the liquid before it contaminnates a water source or drain. It is imperative to limit the oil spread, maximise safety and minimise liability costs.

e. **Evaluate the incident and commence clean-up**
After the leak has been stooped and spill confined, assess the incident and establish a plan of action to start cleaning up. Take the spillsorb/saw dust/wood shavings and degreaser apply around the edge of the spill and then work it towards the center.

Take the deck scrub broom and agitate the spillsord/saw dust/wood shavings until the spill is absorbed and there is no free liquid visible (apply more spillsorb/saw dust/wood shavings if spill not completely absorbed).
Pick up the saturated spillsorb/saw dust/wood shavings using the spark proof shovel and place into a heavy duty waste bag. Absorbent Pads are commonly used to absorb the remainder of the spill or wipe down equipment if the spill sprayed, alternatively place under source if it is still dripping.

f. **Decontaminate**
Decontaminate the site, personnel and equipment by removing or neutralising the hazardous materials that have accumulated during the spill. This may also involve removing and disposing of contaminated product in accordance with local regulations. Replenish all supplies immediately.

g. **Complete incident report**
Evaluate the cause of the accident and damages and complete an accident report. This is important as same can be applied to prevent future occurrence by way way of improvements.

6. **SOP's COLLECTION / DELIVERY**
OFF-SITE:

a. Check, verify and ensure the pumping kit, oil spill kit, fire extinguishers and PPE equipment on the truck are complete and in working order.
b. Ensure the necessary permits/certificates are on hand.
c. Upon arrival at the collection site the truck is parked as close as possible to the collection area.
d. Area must first be inspected for possible fire ignition and other hazards.
e. Ensure the fire-fighting equipment is placed in an easy accessible place.
f. After the pumping equipment is in place, one operator starts the pumping and another operator is at the discharge side, which is the tank on the truck. They must be within sight of each other to allow communication.

g. When pumping is done, the site is checked for any spillage. If any, saw dust is used to clean it and tuff stains are removed with degreaser.

h. Ensure all lids and valves are closed properly to avoid leaks.

i. A waste removal certificate is then issue to the supplier of the oil.

ON-SITE:

a. Upon arrival at storage site (Exigrade Feeds), the truck is parked alongside the storage tanks. This also applies to trucks that deliver used oil to our premises.

b. A crew is ready with a pump, fire-fighting equipment and the oil spill kit.

c. Correct storage tanks are indentified and oil pumped into the storage tanks.

d. Ensure all lids and valves are closed property to avoid leaks.

e. The process for cleaning/refining the oil starts by pumping the oil to the holding tank in the filtration area.

f. Make sure all connections are secured and oil seperators are functioning.

g. The semi-refined and refined product is stored in seperate tanks.

h. The sludge/waste is stored in designated marked tanks seperate from refined oil.

i. Once a month the sludge is transfer to a tanker truck and dumped at the Walvis Bay dumping sight under authorization from the Municipality of Walvis Bay.

7. PPE AND SPILL KIT REQUIREMENTS

PPE: Hard hat
Safety glasses
Ear plugs
Dusk masks
Long sleeved overall and long pant
Reflector vest
Safety boots

SPILL KIT: Gloves
Oilsweep bag

Disposal bags & ties
Dustpan & brush
Spark-proof shovel
Masks
Goggles
Mutton cloth
Chevron danger tape
Steel brush
Absorbent pads
Saw dust / wood shavings

8. GENERAL

It is imperative that periodic site audits are conducted by relevant inspectors and senior management of the company. Records of volumes must be up to date all the time.

Updating the plan as needed by incorporating any new or necessary changes/additions resulting from changes in the facility's operations.

Presentation for LFO Permit Renewal

PRESENTATION FOR LFO PERMIT APPLICATION/RENEWAL

Table of Content:

1. **Permit Application**
   See application for renewal of exiting Used Oil Permit attached.

2. **Overview**
   Refer to attached overview document pertaining to Exigrade Feeds.

3. **Exigrade's Role in the Used Oil industry**
   It is imperative to understand the role conducted by Exigrade in the used oil environment:
   - We receive/collect un-useable and un-refined waste oil which is processed/refined, cleaned and filtered into a light/low furnace oil
   - Different to that of other role players, Exigrade does not trade, sell or is involved in any other application other than for own internal recycling by way of 2 boilers and burners (boiler photo's attached)
   - Important is the fact that Exigrade is not involved in any cleaning/salvage/servicing of any kind that could risk spillage or accumulation of sludge that require huge volumes to be dumped.

   From an environmental impact perspective proper containment mechanisms are ensured for the prevention of surface and groundwater pollution:

   - Loading and offloading are done on surfaces with adequate spillage control
   - Spillage control procedures according to SANS 089 standards are in place
   - Bunded areas are sealed in line with industry approved methods
   - Procedures followed to prevent environmental damage during maintenance/ servicing are complied to and correction made where necessary
   - Regular checks and inspections to the reticulation systems are undertaken to prevent leakages
   - Proper training of operators are conducted on a regular basis
   - Spillages more than 200/ are reported to the relevant authorities
   - Standard spill clean-up equipment is available on both sites and trucks
   - No discharge of waste oil into sewerage systems.

   Several environmental impacts have been assessed and evaluated prior to the construction of the used oil facilities and include the following:

   - Fire and explosion risk
   - Soil and water contamination
   - Visual impact

- Traffic impact
- Economic impacts
- Health and Safety impacts
- Security impact

4. Introduction

Proper management of used oil is important for four main reasons:

- To Protect the environment
- To protect human health
- To protect against liability for environmental damages
- To re-use, rather than waste, a valuable resource

Used oil, even when not classified as a hazardous waste, can have harmful effects if it is released into the environment. In addition, people's health can be affected if used oil is handled improperly.

Used oil is a valuable resource because of its lubrication value and heat value. When treated to remove contaminants, used oil can be used as a base stock to produce new lubricating oil. Because used oil has heat value it can be burned as fuel. Properly burning the used oil keeps its heat value from being wasted and saves the virgin heating oil that would be burned instead.

c. Purpose

This plan provides a source of documentation in terms of used oil for Exigrade Feeds, incorporating our compliance with regulations and requirements. The Plan provides a written description of used oil good management practices/procedures, disposal methods and transport requirements, amongst other. We continuously encourage any suggestions that our employees have for improving our plan and we are committed to developing and maintaining an effective protocol. We strive for clear understanding and environmentally sound practices on all levels of involvement, with specific reference to the EMS Consulting Country Report (2013).

d. Used Oil Defined

Exigrade defines used oil "as any oil that has been refined from crude or any synthetic oil that has been used, and as a result of such use is contaminated by physical of chemical impurities". This includes oils that are used as hydraulic fluid as well as oils that are used to lubricate automobiles and other machinery, engines or suspend material in industrial processes. Oils used for these purposes can become

contaminated with physical material such as metal particles from engine wear or chemical contaminants such as gasoline combustion products.

5. GMP's Practices for LFO

Used oil can be generated during "do-it-yourself" projects, from automotive industry/sources, mining operations, vessels and industrial operations. We adhere to the following practices:

- Never dump or dispose of used oil in unauthorised areas
- Ensure our collection and storage facilities are leak proof, spill proof and that tanks have lids or are covered to prevent water from entering
- Maintain our collection containers regularly
- Comply with local fire and safety regulations and avoid leaks and spills
- Identify each collection drum with a "Waist Oil" sign
- Label the storage drums
- Clean up any oil spills or leaks. This includes using soak-up material such as sawdust or a commercial product for minor spills. It keeps the areas clean and helps prevent personal injury.
- Keep record of all used oil collected, refined and burned.
- Refined oil is utilised for own production, no trading activity takes place.

b. Storing

Our facility stores used oil in a combination of tanks, volumes of which ranges from 20 000 to 50 000 litres. The following practices are adhered to:

- Storage tanks are equipped with wide-mouth opening for easy access
- Separate storage tanks for un-refined and refined used oil
- Facilities are surrounded with band walls to prevent contamination in case of a spill
- Do not mix used oil with any other material
- Sufficient sorbent material such as sawdust, solvents and degreasers are on hand to clean any spills that could occur
- Area surrounding the storage devices are kept neat and clean
- Adequate fire-fighting equipment is in place throughout the facility
- Necessary hazardous and warning signs are in place.

c. Responding to Releases of Used Oil

Although all steps have been taken to prevent leaks or spills form occurring, we have trained employees to be prepared to respond to spills of used oil. We instruct employees to use the following protocol to manage spills and provide the necessary equipment:

- Stop the release. This action will vary depending on why the release is occurring. If the spill occurs because a valve on a tank has been left open, the valve should be closed. If a leak is a result of puncture in the tank or drum, rags or similar materials should be used to plug the leak.
- Contain to release. We strive to prevent the used oil that has been released from spreading further. For example, a sorbent such sawdust, should be spread over the spilled used oil. Clean up the release. Depending on the extent of the release, cleaning up the used oil can be simple or a complicated task. For small spills on the ground, the soil can be dug up and removed by a licensed clean-up company. (The soil must be tested to determine if it exhibits hazardous characteristics.) For larger spills where puddles of used oil was formed, professional clean-up vendors are contracted to conduct the clean-up operation.
- Properly manage the used oil that has been cleaned up.
- Property manage the solid materials generated during the clean-up. We place solid materials used into a leak proof storage device. Materials contaminated with used oil are managed in the same manner as hazardous waste.
- Contaminated materials are disposed of only at authorised areas.
- Either remove the damaged storage device from service or repair same.

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Management

Cleaning Schedule

CLEANING SCHEDULE & PROCEDURE

ITEM	FREQ	PROCEDURE	CHEMICALS AND DILUTIONS
FISHMEAL PLANT			
All Equipment,	Daily	Remove remaining fish products, clear area of bins	HD Foamset (1:30)
conveyors, etc.		and wather receptacles.	
Stainless steel	Daily	Cleaning	HD Foamset (1:30)
Hand wash basin	Daily	Clean and scrub	Handy San Blue (1:30)
Walls & Doors	Monthly or	Dilute Lift Away in bucket and scrub	Lift Away (1:30)
	when dirty	walls with brush or broom. Rinse with water and	SteriQuat (1:200)
		sanitise with Steriquat.	
Floors	Daily	With remnant foam after foaming, scrub with	HD Foamset (1:30)
		broom and rinse with water. Sanitise with Steriquat	SteriQuat (1:200)
OIL PLANT			
All Equipment, ect	Weekly	Wash and clean floors & Tanks	DC Degreaser (1:30)
WAREHOUSE			
Floors & Walls	Monthly	Wash and Sweep floors and walls	DC Floor cleaner (1:30)
Drain	Weekly or	Use Bio Klor in drain and allow 10-15 min	Bio Klor (Undiluted)
	when dirty	contact time. Scrub with brsh and rinse with water	
OFFAL AIR			
Wall, Floors & shoot	Daily	Foam the whole area with All Purpose Cleaner	HD Foam (1:30)
		and clean with High Pressure Cleaner	Steriquat (1:200)
		Sanitise with Steriquat or Quat 50	
RECEIVING AREA			
Bins, ect	Weekly	Broom and brush after wash with high pressure pump	HD Foam (1:30)
OUTSIDE RECEIVING AREA			
Whole area	Daily	Wash and broom cement and wash with high pressure	DC Floor Cleaner (1:30)
		pump	
TUBS & SKIPS			
	Weekly	Foam the skips & Tubs and brush with brooms	HD Foam (1:30)
			Steriquat (1:200)
STAFF ENTRANCE FOYERS			
Hand & apron	Daily	Clean with Lift Away. Scrub with scouring	Lift Away (1:30)
wash basins		pad and rinse with clean water. Sanitise (foam) with	SteriQuat (1:200)
Foot wash trough		Steriquat 50. Refill footbath with clean water and	
Protective clothing stands		put in Steriquat.	
Foot bath			
Walls & Doors	Monthly or		
	when dirty	Dilute Lift Away in bucket and scrub	Lift Away (1:30)
		walls with brush or broom. Rinse with water and	SteriQuat (1:200)
		sanitise with Steriquat	
Ceiling	Monthly or	Dilute Lift Away in bucket and clean with squeegee	Lift Away (1:30)
	when dirty		
Floor	Weekly	When deep clean use Klorsan-L. Wet floor and	Klorsan-L (1:2000)
		sprinkle Klorsan-L on floor and leave for 10-20 minutes	SteriQuat (1:200)
		contact time. Scrub with broom and rinse with water	
		Sanitise with SteriQuat	
TOILETS & CLOAKROOMS			
	Weekly	Wash toilets/handbasins/showers and floors	Pine fresh (1:90)

COMPILED BY: HANNES VAN WYK	DATE OF ISSUE: 27 MARCH 2018
EXIGRADE FEEDS	SIGNED BY:

MSDS – Foamdet

TECHNICAL DATA SHEET DELUXE CHEMICALS

HD FOAMDET

ALKALINE FOAM CLEANER

HD FOAMDET is an alkaline foam cleaner which contains a blend of concentrated surface active agents, sequesterants, and a water soluble solvent. HD FOAMDET can be used widely to remove animal fats, greasy and stubborn soil. HD FOAMDET holds the SABS 1828 mark and is suitable for cleaning in Dairies, Breweries, Wineries, Meat Processing Plants, Bakeries and other food and beverage industries.

Recommendations for use:

Apply HD FOAMDET by means of a foam generator. Use at a concentration of 0,5 - 3,0%, at which level a stable foam will be produced. Leave on for about 10 minutes before rinsing off with clean water.
HD FOAMDET is not recommended for use on aluminium, brass or galvanised surfaces, linoleum, vinyl, wood, painted or other surfaces low in resistance to caustic soda.

Safety Precautions:

CAUTION - CONTAINS CAUSTIC SODA.
Avoid contact with skin, eyes and clothing.
Avoid inhalation of mist.
In case of eye contact, flush eyes copiously with water. Seek medical advice.
In case of skin contact, flush with water and remove contaminated clothing.