



Development Bank of Namibia

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DBN ENVIRONMENTAL AND SOCIAL MANAGEMENT GUIDANCE FOR THE FUEL STATION INDUSTRY

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a) Version Control

The table below serves to track the key revisions made to this document for change control purposes.

Date	Version	Change Description	Author/Editor
07/09/2016	0.01	Initial Draft for first review	Manager: Environment & Social Development
28/02/2018	0.02	DBN Logo and update as per 07 April 2017 Kreditanstalt für Wiederaufbau (KfW) Development Bank Gap Assessment of the Development Bank of Namibia's (DBN) Environmental & Social Management System (ESMS)	Officer: Environment & Social Development

1. DEFINITIONS, TERMS & ABBREVIATIONS

EC	Environmental Clearance
EIA	Environmental Impact Assessment
ESMP	Environmental and Social Management Plan
ASTs	Aboveground Storage Tanks
DBN	Development Bank of Namibia
LPG	Liquefied Petroleum Gas
USTs	Underground Storage Tanks
VOC's	Volatile organic compounds

2. INTRODUCTION

This guidance note applies to retail fuel stations where petrol, diesel and liquefied petroleum gas (LPG) are sold. Such facilities may range in size from single dispensing pumps to more than eight.

These facilities will commonly include a convenience store but may also include automobile repair services, a car wash, refreshments, water and air refill facilities. Of these ancillary activities only the carwash is covered within this guideline.

The typical layout of a fuel station would include:

- Underground Storage Tanks (USTs) and sometimes Aboveground Storage Tanks (ASTs) for fuel;
- Pump island where one or more fuel dispensers are located;
- Enclosed office for a cashier;
- Concrete hardstanding area surrounding the pumps.

Fuel is delivered from bulk storage depots by road tanker and unloaded into the storage tanks at the fuel station by the tanker driver. Fuel is piped from the storage tanks to the dispensing pumps. Automotive fuels are dispensed by trained operators employed by the facility.

Fuel Stations are listed activities under the Environmental Management Act No 7 of 2007 Regulations of 2012, of activities that cannot be undertaken without an Environmental Clearance Certificate (ECC) and therefore a thorough Environmental Impact Assessment (EIA) must be done and clearance obtained from the Ministry of Environment and Tourism (MET).

This guideline focuses on fuelling stations operations with reference to the International Finance Corporation's Environmental, Health and Safety (EHS) General Guidelines. The EHS Guidelines are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP).

3. SCOPE

This guidance is applicable to all the Development Bank of Namibia's (DBN) clients/customers who intends to or have set up operations in this sector category and, extends to their assets, facilities, operations, projects and activities, including activities undertaken by any contractor on behalf of the Company, business units and managed operations including corporate/administration offices and other facilities located off site.

4. INTENT

The intent of this guidance note is to assist prospective clients to develop a thorough Environmental and Social Management for their activities and merely act as a guidance and is not comprehensive nor exhaustive.

5. KEY EOHSS RISKS

Below are the material EOHSS risks associated with this sector and key measures to manage them. Where gaps are found in the management of key EOHSS risks, the DBN E&S risk management measures may form part of a corrective E&S action plan agreed with clients.

5.1. Collision

There is a risk of collision between vehicles using the fuel station and pedestrian traffic both on the site and passing by its entrance and exit points.

5.1.1. Mitigation and management measures

- The layout of the site should be designed to provide clear lines of sight wherever possible and to minimise the need for vehicles and pedestrians routes to cross.

5.2. Confined Spaces

Workers involved in tank repair and maintenance work, in the excavation of tank areas and decommissioning may be required to enter confined spaces where there is a risk of entrapment and asphyxiation.

5.2.1. Mitigation and management measures

- Avoid entry to a confined space where possible.
- If entry is unavoidable, follow a written safe system of work.
- Put in place adequate emergency arrangement before the work starts.

5.3. Financial Implications

- If contamination affects neighbouring property, water supplies or public health, the regulatory authorities may require remediation of the contamination or financial compensation. Similarly, private litigation may be taken to gain compensation. The cost of clean-up of contamination may be high, potentially exceeding the value of the site;
- Injuries may lead to increased payroll costs to replaced workers;
- Fines, penalties and third party claims may be incurred for non-compliance with environment, health and safety regulations.
- Separate clean and potentially contaminated drainage, the latter should be passed through oil/water separators known as oil/water separators prior to discharge;
- Ensure that the hardstanding directs all rainwater falling on it to drains fitted with oil/water separators;
- Ensure oil/water separators are properly designed, operated and maintained in order to achieve the required level of water treatment;
- Ensure that wastewater from oil/water separators is discharged to the foul sewer system for further treatment at a municipal wastewater treatment works;

- Install roofs or covers to reduce rainwater falling on potentially contaminated hardstanding;
- Ensure interceptors are regularly inspected, cleaned and maintained;
- Implement robust procedures to control storage tank filling;
- Consider automation to switch off pumps when the tank is full;
- Ensure untreated wastewater from a carwash does not discharge to watercourses;
- Prevent carwash wastewater from discharging via oil/water separators because the detergents present would inhibit their operation;
- Recycle carwash water to reduce volumes used and discharged;
- Install silt traps prior to discharge of wastewater. Ensure these are regularly cleaned;
- Implement procedures to ensure that any residual fuel is removed from tanks and connecting pipework prior to their upgrade or removal.
- Restrict access to working in confined spaces through a permit to work system.
- Install protective measures to shield tanks, pumps and staff from damage from vehicles or fire such as barriers or walls around tanks and pumps;
- Provide emergency equipment, e.g. fire suppression equipment, spill kits and review placement of equipment. Train staff in the correct use of this equipment;
- Train staff in health and safety precautions and procedures;
- Improve signage to customers and visitors regarding prohibited activities, i.e. use of mobile phones, no smoking, engines to be switched off;
- Prepare emergency contingency plans for spills and fires. These should include immediate action and calling the emergency services. Provide regular training and practice in their use;
- Consider painting ASTs with white or light coloured paints to reduce heat absorption and reduce risk of VOC emissions;
- Consider use of VOC emissions controls at unloading point.
- Consider use of VOC
- Provide proper grounding to avoid static electricity;
- Consider security features to protect staff working alone at night.

5.4. Fire/Explosion Risk

Vehicle fuels are highly flammable and if stored or handled incorrectly severe fire or explosion may result, with potential for severe injury, loss of life and damage or destruction of the site and locality. Sources of ignition include static electricity, lightning, open flames and use of electronic equipment such as mobile phones.

The site should be designed, constructed and operated according to relevant national and international standards. This will include:

5.4.1. Mitigation and management measures

- Separation from nearby buildings, design and quality of fuel tanks, petrol pumps, underground pipework and tanker offloading points;
- Appropriately engineered forecourt to prevent accidental damage of underground pipework by heavy vehicles;
- Protection of tanks, pumps and staff from accidental damage/injury by vehicles or fire. For this reason, fuel tanks are usually placed underground. ASTs, pipes and valves should be protected by barriers or walls;

- Provision and placement of emergency equipment, e.g. spill kits, fire extinguishers;
- Enforcement of health and safety requirements e.g. no smoking, no mobile phones, switch off engines;
- Emergency contingency plans with regular training and practice in their use.

5.5. Fuel Leaks and Spills

Accidental release of fuel from the site may occur due to:

- Leaks from storage tanks and connecting pipework arising from damage, aging or improper installation;
- Small spills during unloading or vehicle filling which are not cleaned up;
- Failure or absence of oil/water separators on drainage systems;
- Failure to control rainwater run-off by appropriate drainage;
- Failure to drain tanks and pipework adequately prior to maintenance and repair work;
- A major spill, such as a tank failure or overfilling.

5.5.1. Mitigation and management measures

Released fuel will enter the soil directly beneath the site or around its perimeter. Petroleum floats on water surfaces and can be transported over long distances via drainage channels and other watercourses. Petroleum (and its associated additives) is toxic to flora and fauna and can pollute significant volumes of water. Liquid product can flow downwards through soil towards the water table, where it can either float or dissolve. A large percentage of drinking water comes from groundwater resources (aquifers).

The damage caused by the release depends on the amount of material released, the local geology (i.e. how easily the leak can pass through the underlying soil and rock) and the proximity of the facility to sensitive environmental receptors such as watercourses, groundwater wells, building structures and underground services.

- Leak prevention and detection systems should be adopted to minimise the risk of fuel leakage or spills.
- Spill kits should be readily available and staff trained in their deployment.
- During site upgrade and or decommissioning of equipment, contaminated soils and waters may be discovered and petrol station operators should have formal procedures in place to manage this situation.

5.6. Nuisance

Nuisance to the immediate area surrounding a petrol station may be caused by:

- Vehicle movements to and from the station causing noise, congestion and air emissions;
- Petrol smells and related public health concerns;
- The glare of lighting.

Nuisance issues will be greatest for stations located in residential areas.

5.7. Permitting

Fuel stations in Namibia are required to be registered under the Petroleum Products and Energy Act 13 of 1990 and Regulations relating to the purchase, sale, supply, acquisition, possession, disposal, storage, transportation, recovery and re-refinement of used mineral oil contained in GN 48/1991

Operators responsible for unloading mobile containers at fuel stations may also require a permit for the transportation of hazardous materials.

Under Government Notice No. 29 of 6 February 2012; List of activities that may not be undertaken without Environmental Clearance Certificate: Environmental Management Act, 2007 (Act No. 7 of 2007) Clauses 9.1-9.5, an Environmental Impact Assessment (EIA) and Environmental Clearance is required before a new petrol station can be constructed, depending on the capacity of the station.

The EIA and EC must also be submitted to the DBN.

5.8. Wastewater

If a car wash is present, high volumes of wastewater may be produced containing detergents, oil and road dirt.

Where no car wash exists the principal source of wastewater will be rainwater runoff from delivery and dispensing areas.

5.8.1. Mitigation and management measures

- The detergents will prevent oil/water separators working effectively so the water must not be discharged to these but should be sent for treatment, e.g. at a municipal wastewater treatment works.
- The volume of rainwater falling on contaminated areas should be minimised by installing roofs and any fuel contaminated water should pass through appropriately designed, operated and maintained oil/water separators prior to discharge.

5.9. Waste

Petrol stations may generate a variety of waste types including oily waste, which must be disposed of in accordance with national law. Waste types may include:

- Waste engine oil;
- Other oily waste related to customer vehicle maintenance;
- Contaminated spill clean-up materials;
- Oily sludge from oil tank cleaning and oil/water separators,
- Contaminated soils;
- Equipment from the replacement and decommissioning of tanks and pipe work;
- General waste from any retail outlet such as packaging waste.

5.9.1. Mitigation and management measures

- Some waste types e.g. engine oil and packaging may be suitable for recovery for energy purposes or recycling.

5.10. VOC Emissions

The main emissions to air are volatile organic compounds (VOCs) i.e. fuel that evaporates, particularly during delivery and dispensing operations.

VOCs can cause dizziness, asphyxiation and are potentially carcinogenic. VOCs are also a primary component of smog, with major health impacts in urban areas.

5.10.1. Mitigation and management measures

VOC emissions can be reduced with the use of special fuel filter nozzles incorporating vapour recovery systems.

6. REVIEW

The principles contained in this guidance will be reviewed on an annual basis to facilitate improvement.

7. GENERAL REFERENCES FOR STANDARD METHODS

- International Finance Corporation (IFC) (2007), Environmental, Health and Safety Guidelines, Retail Petroleum Networks, International Finance Corporation, April 30 2007.
- International Organisation for Standardisation (ISO) www.iso.org, ISO14001:2015: Environmental Management Systems – Requirements with Guidance for use. Geneva: ISO.
- UK Environment Agency 2005, Pollution Prevention Guidelines Refuelling Facilities: PPG7, <http://publications.environment-agency.gov.uk/pdf/PMHO0804BIDG-e-e.pdf>