Lusail Real Estate Development Company

Health, Safety, Security, Environment, Logistics & Quality Department

STANDARD OPERATION PROCEDURE – OIL SPILL RESPONSE PLAN

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Amendment Record

This document is reviewed to ensure its continuing relevance to the systems and process that it describes. A record of contextual additions or omissions is given below:

Rev .No	Description / Comments	Prepared By	Checked By	Approved By	Issue Date
1	Pg. 1) Company Propriety Information – Not controlled if printed has been added.	HSE Working Group	Michael Ford	Uwe Krueger	1st April 2015
1	Pg. 2) Revised Amendment Table	HSE Working Group	Michael Ford Michael Ford	Uwe Krueger	1st April 2015

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1.0 OIL SPILL RESPONSE PLAN

1.1 PURPOSE OF THE PLAN

- To guide the response personnel through the process of managing a spill originating from our operations
- To mitigate the consequences of oil pollution incidents
- To allow those involved in the response to a pollution incident to rapidly disseminate information to the parties involved and to ensure the optimum deployment of available equipment.

1.2 ENVIRONMENTAL POLICY

For the purposes of oil spill response, LUSAIL will endeavour to:

- Take all reasonable steps to ensure that where an oil spill occurs that pollution is avoided or if this is not possible, to be kept to a minimum.
- Dispose of waste oiled material with least impact on the environment.
- Set standards that comply with all environmental legislation.

2.0 SEVERITY

2.1 RISK IDENTIFICATION

Possible operations/incidents within the work area that could result in pollution have been identified as follows for works on water or near the waterline:

- Collision, capsizing, breaking, sinking, rapture of oil tanks of a barge or other vessel
- Spillage following a grounding incident
- Oily bilge water inadvertently pumped into the water
- Fuel oil or waste oil transfer operations between a barge and a road tanker.
- An incident at a berth / bund / embankment where oil is spilt subsequently entering the surface water.
- Contact between a barge and a underwater object
- Car or Truck accidentally being driven into the water at a bund or shoreline
- Wilful discharge of oil into the water by vandals

For all kind of works on land, these are the main additional spill risks:

- Hazardous materials and wastes aren't stored in covered containers and protected from vandalism.
- Insufficient Training of employees in spill prevention and cleanup.
- No Designation of responsible individuals to oversee and enforce control measures.

- Barrel and containers placed in the traffic areas.
- Lack of Spill kits including shovels, brooms, disposal containers, and sorbent pads.
- Poor Housekeeping, Storage and Maintenance
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3.0 SPILL PREVENTION

In order to prevent oil spills a number of safety measures shall be implemented and maintained on the project.

- Personnel including supervisors, labour staff and equipment operators to be qualified to perform their assigned tasks.
- Work induction and initial briefings regarding spill prevention and response techniques for any newcomer on the Project is mandatory.
- Spill prevention and response Tool Box shall be held for employees regularly
- Any storage tank material shall be compatible with the liquid being stored (including solvents, lubricants and fuels) and the storage conditions.
- Secondary containment sump shall be provided below the nozzle connections and valves to prevent the contaminant from entering the environment.
- Impermeable material shall be laid above a sand layer around the containment sump below the fuel tanks in order to prevent seepage of fuel and to facilitate collection of fuel if spilled outside the containment sump.
- The length of the flexible hose used for fuelling shall be kept to a minimum in order to avoid damages and provided with valve at the fuel tank end of the hose.
- Appropriate hazard signs will be erected close to the storage tanks.
- A secondary containment shall be provided as a preventive technique during the loading and un loading operations of any hazardous material at site. This shall be done using barrels or other containers below connection points in order to collect the fuel if getting spilled.
- During refilling of fuel from tankers to equipment and other vehicles, fuel drip pans shall be placed under transfer points to contain the spilled material.
- A system shall be provided to prevent departure of the transport vehicle properly disconnecting from the fill apparatus.
- Prior to filling and departure of any tank truck, the lowermost drain and all outlets of such vehicles shall be closely examined for leakage and if necessary, tightened, of such vehicles shall be closely examined for leakage and if necessary, tightened, adjusted or replaced to prevent liquid leakage while transit.
- Load / unload connections shall be capped or blanked off when not in use.
- Drums containing lubricating oil shall be stored in a secondary containment area provided with an impervious surface and preventing run off to the ground.
- A designated area with limited access and shade be provided at the site for storage of drums containing hazardous substances.
- Storage of all flammable and combustible materials separately and away from oxidizers, corrosives and other sources of heat.

- Drums shall be properly labelled showing the contents and providing information about the stored materials, e.g. the information available in manufacture's material safety data sheets.
- Sufficient amounts of barrels or drums shall be provided to contain.

3.1 CATEGORIES OF INCIDENTS

LUSAIL would use a tiered incident response system for major Spill emergencies. However, any oil spill does require an immediate response this being in any case a very sensitive subject concerning our Environment and notified by the authorities and the press if of major kind.

The level of response should be adequately, based on worst-case scenarios to ensure that it does not escalate further than necessary.

It is necessary to define the quantity of the spill in order to determine the level of response. If the amount is unknown, the following rule of the thumb can be used:

First, qualify the oil thickness on water, using the following guide:

3.2 APPEARANCE THICKNESS

- Silver Sheen 0.0001 mm
- Rainbow Sheen 0.0030 mm
- Light Brown/Black slick 0.1000 mm
- Dark Brown/Black Slick 1.0000 mm

To determine an approximate quantity, the following formula should be used:

L (meters) x W (meters) x Thickness (mm) = Cubic Meters

1000

Oil spill response will most probably require the following level of response:

≤ 0.1 m^3	A small operational spill. The event can be controlled immediately by on-site or onboard resources with the so-called SOPEP-kit..
≥ 0.2 ≥ 500m^3	A medium sized spill; LUSAIL oil spill response team – including Contractors - shall be activated in accordance with this plan. A spill in the upper range of the given category is not to be envisaged in LUSAIL since no equipment of that risk magnitude is in use
≥ 500 m^3	A large sized spill that would require to be dealt with using the assistance of additional outside contractors. This sort of spill is not to be envisaged in LUSAIL since no equipment of that risk magnitude is in use

4.0 EMERGENCY RESPONSE RESOURCES

4.1. RESOURCES

LUSAIL in conjunction with its Contractors will have the following Oil Spill Response Equipment available:

- 100 meter of solid floating boom for quick response
- High Pressure Cleaning equipment

- 2 skimmers
- Pumps
- Small material and PPE
- Portable dispersant spray unit
- Movable Spill Kits

All Contractors to have Oil Spill Response Equipment available that suits their individual risk pattern.

Further resources can be deployed from QP if necessary.

4.2. LUSAIL OIL SPILL RESPONSE PERSONNEL

LUSAIL will have the following dedicated Emergency Response Personnel available who shall also be trained and used for oil spill response:

- 4 H&S Supervisors
- 4 Fire Fighting team leaders
- 10 Fire fighters

All staff shall receive comprehensive oil spill response training.

5.0 RESPONSE STRATEGIES

5.1. USE OF CHEMICAL DISPERSANTS

In principal, LUSAIL will NOT consider the use of chemical dispersant as a first response.

Any oil spill within our working area will be dealt with by removing by skimmer, absorbent materials or suction units.

However if oil is moved by tidal currents or wind towards an environmental sensitive area and containment cannot be achieved in time, the use of chemical dispersant shall be considered. This MUST be confirmed by the concerned Project Director.

During an Emergency Response, all safety precautions as defined in the project Risk assessments, health and safe working procedures and instructions must be adhered to. Under no circumstances the life or health of people shall be at risk for the sake of quick response etc.

5.2. DECONTAMINATION

5.2.1. CONDITIONS REQUIRING DECONTAMINATION

Where workers have been wearing protective clothing, it is likely that the clothing will become contaminated by oil during the cleanup operation. The clothing needs to be cleaned to prevent further contamination. Facilities for such cleaning will be made near to but clear of the work site.

5.2.2. PERSONAL HYGIENE PRACTICES ON THE JOB

Workers should be instructed on the dangers of ingesting hydrocarbons through contact of contaminated equipment or clothing such as gloves with the mouth and nose. Facilities for removing protective clothing and washing before consuming food or smoking should be made available.

5.2.3. DECONTAMINATION AREA DRAINAGE

The decontamination area where clothing and personal equipment is cleansed should be arranged so that cleansing water and contaminants are drained into tanks. Care should be taken to ensure that contaminated waste does not drain into either the normal drainage system nor into the soil under the decontamination area.

5.2.4. DISPOSAL OF CONTAMINATED CLOTHING

Clothing which is not fully washable or capable of having all traces of contaminant removed may need to be disposed of safely. Such clothing may comprise Special or Hazardous waste, in which case it would need to be delivered to a Special Waste Contractor.

CHARACTERISTICS OF OIL & OIL SPILLS

5.2.5. PROPERTIES OF OIL

Oil contains a variety of different types of hydrocarbons. The actual composition is dependent upon its origins. Oil may also contain a variety of impurities such as sulphur and nitrogen products. Generally, oil is of relatively low toxicity, however this is dependent upon the properties of the source oil. The route of human exposure is via inhalation and skin absorption.

5.2.6. BEHAVIOR OF OIL ON WATER

Oil spilt onto a water surface will spread and evaporate at varying rates and to varying degrees, dependent upon the oil characteristics and weather conditions. This process, known as weathering, my bring about a number of chemical and physical processes, which change the compounds that make up oil.

The type of oil spilt has a major effect on the outcome of a spill incident, very light oils will naturally disperse and evaporate quickly reducing the level of pollutant, whilst heavier oils will persist and in some cases may form emulsions which are very resistant to biodegradation. Studies have shown that 75% of diesel can be lost by evaporation within 24 to 48 hours, compared with only 10% from a heavy or residual fuel oil.

The effect of wind on an oil patch is to move the oil at 2.5 to 3.5% of wind velocity.

5.2.7. EXPLOSION & FIRE HAZARDS

Any spilled petroleum-based product is volatile. This means that it can produce a gas, which then mixes with air around the spill. It is this gas which can cause explosions and fire. However, the mixture of hydrocarbon gas and air must be of a certain composition in order to burn.

Where there is a risk of a flammable atmosphere, the area should be tested and assessed using an instant readout instrument such as an explosimeter. This device will provide readings of the proximity to the Lower Explosive Limit. To control fire and explosion hazards, the LEL should be kept below 20%. Entry into such area should not be considered until the area is sufficiently ventilated and tested.

If for any reason, the oil has ignited, where there is no danger of the fire causing damage to person or property, consideration may be given to allow any fire to burn out.

RESPONSE TO OIL SPILLS

Regardless of the size of spill, the first consideration will be to contain the oil or allow it to travel with the wind to a convenient catchments area. Oil containment booms on a transportable reel are available and can be deployed at or towed to a site area as required.

Small quantities of oil spilt will in the first instance be recovered using either sorbent pads or a rope mop skimmer unit. In the event that a larger spill occurs, it will be recovered and disposed of using LUSAIL personnel. Waste arising will be legally carried for disposal.

5.3. DISPOSAL PLAN

All waste taken from an oil spillage will be handled systematically and strictly in line with applicable Regulations.

The oil will be disposed of using a local licensed contractor. The legal disposal of recovered oil will be undertaken through a disposal route agreed with the Environmental Department.

6.0 EXERCISES

At least twice a year an oil spill response exercise is organized. The H&S Manager organizes and initiates the exercise. He is to prepare an exercise scenario and will coordinate the evaluation and follow-up later on.

Before the emergency exercise is started, the H&S Manager is to be convinced that the organization is prepared for any emergency. During an exercise, the safety of personnel is to be observed at all times.

7.0 TRAINING

LUSAIL H&S Management shall establish Oil Spill Response training for all people involved (LUSAIL-Contractors- Developers). This will include:

- Emergency Response
- Deployment of equipment
- Clean-up operations

8.0 APPENDIX

Appendix A – Oil Spill Reporting Form

APPENDIX A - OIL SPILL REPORTING FORM

Subject:	
Name (reporter)	
Company	
Location / position	
Name or ID Vessel / Boat / unit / Equipment	
Quantity	
Type of spill	
Wind	
If on Water: Waves	
If on water : Current	
Contained	
Actions taken	
Contact numbers	
If major spill : Authorities informed	
Third parties informed	
Report taken by	
Time	