ENVIRONMENTAL

# Spill Response Procedures Handbook

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Nationwide delivery of Tanknology



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# TABLE OF CONTENTS

# QUICK REFERENCE

## EMERGENCY CONTACT NUMBERS:

- LCM Operations Line – 01884 841387
- Emergency Services – 999/112
- Environment Agency incident hotline – 0800 80 70 60
- Environmental Consultant Contact – 07590 227 159

## SPILL RESPONSE PRIOROTIES:

- Protect personnel on site
- Protect the public
- Protect the environment
- Protect equipment (if safe to do so)
- Prevent fire
- Isolate the discharge of oil (if safe to do so)
- Implement action aimed at containing spill on location
- Implement action aimed at preventing spill from reaching sensitive locations
- Initiate additional environmental monitoring
- Be alert for signs of oil spills or slicks
- Immediately report any spill to an Incident Manager or Environmental Consultant

# 1. PROVISION OF SERVICES OVERVIEW

LCM will support [redacted] across the UK with the provision of an incident response service as follows:

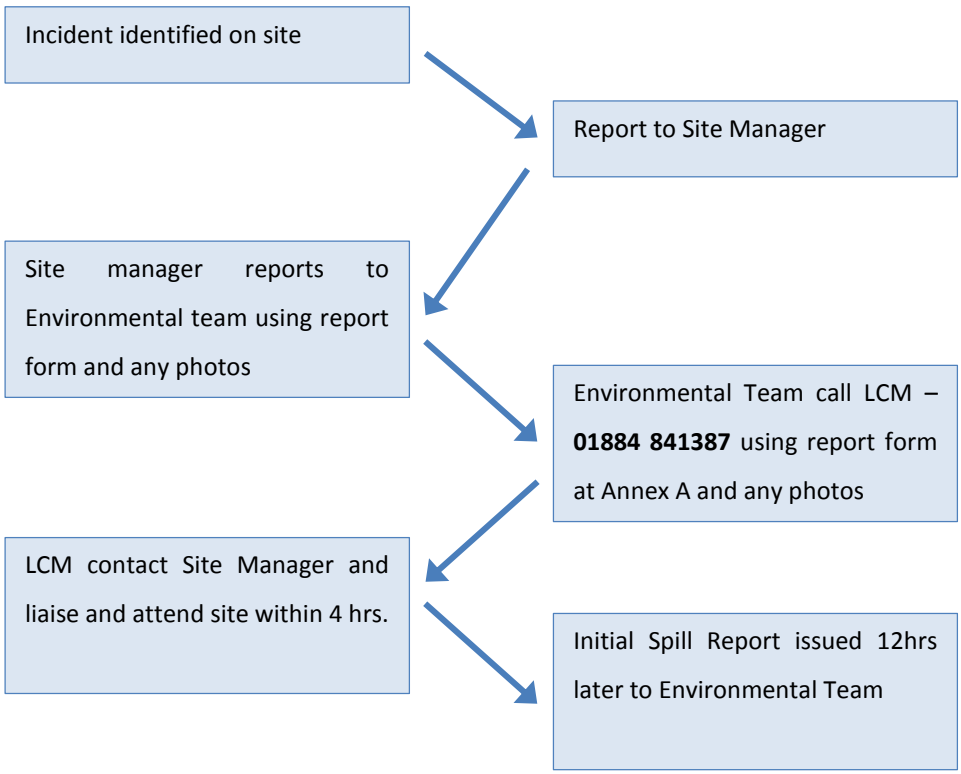
*LCM will provide a 24 hour / 365 days per year service on a call out basis, and will provide an on site response within a 4 hour timeframe.*

*LCM's service is to include not only major spill response, but also to respond to any unexpected discoveries in relation to contaminated land, protected species, invasive species and archaeological/heritage finds.*

*LCM can also be used to resolve flooding issues on site.*

## 1.1 CALL OUT PROCEDURE

The call out process is outlined below:




LCM will maintain frequent telephone contact with the Environmental Team and formal e-mail contact in Initial Spill Report 12hrs after arriving on site and then a daily spill report.

# 2. LCM INCIDENT RESPONSE PLAN

## 2.1 OVERVIEW

LCM Environmental is responsibility for the provision of a 24/7 year round spill response service. This requires that we respond to spill requests from clients' sites within 4 hours of a spill occurring.
To ensure this capability, the company uses an on call rota, ensuring there are Spill Responders, an Environmental Consultant and an Incident Manager available to attend and co-ordinate operations.

Our spill response bases are located in:

- Uffculme, Devon
- Southampton, Hampshire
- Ipswich, Suffolk
- Conway, North Wales
- Long Marston, Warwickshire
- Immingham, Lincolnshire
- Perth, Scotland

In addition to these bases we have responders based in:

- Cornwall
- Kent
- Newcastle Upon Tyne
- East Ayrshire
- South and East Wales

When a call comes in during or office hours either an Incident Manager or an Environmental Consultant manages the project, directing Spill Responders and, if required, Environmental Consultants to the site. An Environmental Consultant is required to attend site along with the initial responder when fuel has impacted unsurfaced ground or any watercourse.

The Incident Manager co-ordinates the response from one of our bases and reports the progress of any incident to the client. The Spill Responder mobilises to the site and reports back to the Incident Manager who is also able to organise other equipment and resources to support the clean-up of the spill if required.

Out of office hours, a duty Incident Manager will direct the response, dispatching spill responders and environmental consultants to the site as required. The allocation of on-call duty is on a routine basis, which is managed by the operations team.

## 2.2 SEQUENCE OF EVENTS AND ACTIONS

1. Spill report – This will be received directly from the client. The Incident Manager should receive the call and note the following details:

    - Site Details: (Location, Post Code, Opening Hours)
    - Site Contact Name:
    - Contact Phone number:
    - Nature and size of spill:
    - Proximity of drains, rivers, nature of site etc

    **See Appendix for Spill response Enquiry Form**

2. Mobilise the nearest Spill Responder

3. Spill Responder advises Incident Manager of ETA when deploying and when 1 hour from the incident, the Incident Manager advises the client.

4. On arrival at site the Spill Responder makes an initial assessment of the situation and discusses the incident with the client staff. This is passed on to the LCM Incident Manager. The details required by the Incident Manager include:

    - Pictures
    - Nature of the spill
    - What liquid is it
    - Extent of the spill
    - Any risks to health
    - Is there a risk of explosion
    - Are any emergency services required
    - Risks to the environment
    - Source of the problem
    - How is the fuel spreading
    - Has the spill gone beyond the boundary site

- Has any unsurfaced ground been impacted
- Has any water course or drain been impacted
- Can the spill be contained on site
- Do you have the resources to contain the spill
- Are additional resources required

5. The Incident Manager is to liaise with and advise the Spill Responder. The Incident Manager or Environmental Consultant is to give a written report to the client and if the spill has left the client site MAY need to discuss the incident with the following if required:

    - Local Petroleum Officer
    - Local Environment Agency office

6. Based on the extent of the spill, the Spill Responder should use equipment on his van to commence the containment and clean-up of the spill. In doing this the Spill Responder must not put himself, client staff or public in any danger and must act in a manner that protects people, the environment and property in that order.

7. The LCM Incident Manager should contact the client and discuss the measures to be taken on site to manage the spill and ensure this is appropriate and proportionate to the spill.

8. The result of this conversation should be written up and noted (time of call, who with, what was discussed, what was agreed).

9. Within the first 24hrs of a spill response the LCM Incident Manager or Environmental Consultant is to compile a report covering the initial phases of the response.

# 3. POLUTION CONTROL

## 3.1 INTRODUCTION

The strategy for an inland spill clean-up technique should be containment, locate and isolate the source, and temporary storage of contaminates. Secondary needs will include transportation and possible disposal or recycling of product. It is important to discover the source of the spill which might not always be straight forward. A steady slow seepage from a leaking disused oil storage tank may be very difficult to trace.

Since oil spills vary so much due to location, type of oil spilled and weather conditions, as such there are various points to consider. If the oil is spilt in an area other than directly into a water course the source of the spill should be identified as quickly as possible. Despite the spill not occurring within a water course there are features through which pollution may enter a water course; these include:

- Surface drains
- Seepage into water bearing strata

The speed with which containment may take place will be determined by the type of oil, how much was originally split, if the oil was hot when split and the ambient temperature by comparison. This will affect speed of flow and spread as well as the degree of penetration of the oil into the ground. The penetration will also depend on other factors, such as whether or not the soil is wet, so reducing the permeability, and how quickly the response team can begin to remove the pollution. If the ground is impervious it will result in quick and large scale spreading of the oil pollution. If the oil is volatile, light ends type, then evaporation will take place and the speed of evaporation will be dependent upon ambient temperature and wind conditions.

Low viscosity oil on a porous surface will reduce surface spread, but will greatly increase penetration. If the land area is water logged then it will be reasonably impervious to the ingress of oil. If, as previously mentioned, the oil is volatile, consideration must be given to the risk of explosion. This will depend upon the volatility of the product, volume split, ambient temperature, wind conditions and amount of spreading.

Where there may be a risk of explosion, conditions should be tested before any equipment is used and a full risk assessment must be carried out. If there is found to be an explosion risk, then suitable explosion proof equipment must be used and full precautions taken. Continual monitoring of the spill site is essential.

**For details on the methodologies outlined below contact the Incident Manager or Environmental Consultant prior to implementation.**

## 3.2 OIL FLOWING ON WATER

Spillages of this type are generally the most difficult to deal with, especially in wide rivers or fast flowing streams and in windy conditions. If the source of the leakage cannot be isolated, absorbent booms should be deployed at the outlet. Alternatively, cushions might be used if the outlet was a deep narrow drain or gulley. For containment purposes, booms strung together if necessary to form a continuous barrier of the required length, should be deployed and secured to suitable points on both banks. In fast flowing current it may be necessary to let the boom drift down stream to reduce relative speed, at the same time endeavouring to work the oil into slack water. Absorbent booms should be deployed in pairs, one in front of the other with the second acting as a backup. In this way, when the upstream boom is fully saturated with oil, it can be removed and replaced without the risk of oil escaping. In wide rivers, and especially where there is a fast flowing current, it may also be necessary to use a larger containment boom with a skirt to prevent oil being drawn downwards beneath the absorbent barrier. In such cases, the absorbent booms should be located downstream of the larger boom.

It may also be advisable to supplement the booms with loose fibre or pads. This not only provides additional protection but also speeds up the absorption process. The pads are easier to harvest than loose fibre, which needs a wire rake or specially designed scoop. However, fibre is unequalled for absorbing oil trapped in odd corners such as the angle between two joined booms or between boom and bank. Depending on the extent of the pollution, oil trapped by the booms can be left for the absorption process to take its course, with boom lengths renewed at appropriate intervals. Or the oil removed by absorbent sweeps manoeuvred from the banks or taken up with skimmers, gully sucker or other pick up devices. Where tide or abnormally high water levels have left deposits of oil on the banks of streams or rivers, rolls of absorbent can be trimmed as necessary and placed over the polluted area to absorb and prevent the spread of contamination. It is worth noting that the bright bands of colour often visible on the surface after a spillage are microscopic in thickness and will usually disappear quite quickly in fast flowing water once the source of the pollution has been isolated. If however this rainbow sheen needs to be removed, sweeps can be used to give the surface a final clean up.

## 3.3 SPILLAGE ON PONDS AND LAKES

In still or slowly flowing water the same general principles of locating the source, isolation and containment apply. Containment will of course always be easier in these conditions and there will rarely be need to employ a containment boom except possibly as a concentrator where skimmers are being used to remove a large spillage. Except where there is a serious risk to wildlife, there will generally be more time to take remedial measures. It is however important to ensure that any outlets from the pond or lake are protected by absorbent booms, or cushions in the case of deep drains or gulley, to avoid the risk of pollution spreading to nearby streams or watercourses. Such measures should be taken even if no flow is visible at the time of the incident. Rainfall or any other sudden ingress of water can quickly raise the water level and produce an outflow. Often the absorbents can be left to do their work unaided in these conditions but with no flow to disperse it, oil is more likely to be present in recoverable quantities and the use of skimmers or other devices is much more effective in still water.

In still water any rainbow sheen will take longer to disappear and its presence may in any case be unacceptable. Sweeps, pads or loose fibre can all be used very effectively in still water, the final choice depending upon the size of the polluted area.

## 3.4 SPILLAGE AROUND INTERCEPTORS AND SUMPS

In static installations such as interceptors, sumps and the bunds around tank farms, removal of leaked oil will seldom be a matter of urgency unless there is a risk of overflow. Where space allows, skimmers are often used and on larger installations where oil is always present, regular visits are made by gulley suckers. Nevertheless, for most installations absorbent cushions are the simplest and cheapest solution. This is particularly true in interceptors where access is usually via a manhole. Using a retaining rope, cushions are lowered into the pit and left to float, continually absorbing oil until saturated. Where oil occurs regularly, cushions can be replaced on a systemised weekly or monthly basis. In open sumps, a final polish can be applied with loose fibre or pads.

## 3.5 SPILLAGE AROUND INTERCEPTORS AND SUMPS

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## 3.6 SPILLAGE ON THE HIGHWAY

This is a frequent occurrence, usually following accidents, leaks from parked vehicles or incidents where the resultant spillage spreads to the highway. Here absorbents play a major role.

Once the affected stretch of roadway has been closed to traffic (normally a police responsibility), containment becomes the first priority. If sufficient has been split, oil on the carriageway can be enclosed with booms and absorbed by loose fibre, pads or rolls. More commonly, loose fibre alone is used, sometimes kept in position by a top layer of sand. Two or more applications are normally necessary before all significant traces are removed from the road surface. Rapid absorption of oil will prevent deterioration of tarmac surfaces. To prevent run off from the road into the drainage system, clay drain matts, booms, or where appropriate, cushions are deployed in all connecting drains and gutters. Where the outflow is into open ditches, back up booms should be located at inlets and at any potentially vulnerable adjoining streams or brooks. Where damaged vehicles continue to leak, cushions, pads or rolls are used to prevent oil from spreading by absorbing the leakage at source. Secured beneath the site of the leak, cushions are also an effective means of preventing oil spilling when a damaged vehicle is driven or towed away.

Finally, rolls of absorbent are used to protect nearby areas from pollution caused by spray of passing vehicles and foot traffic. Responsibility for spillage on the highway normally falls to the Fire Brigade and Highway Department of the Local Authority, both of whom work in conjunction with the Water Authority where contamination of water is likely.

## 3.7 SPILLAGE IN THE WORKSHOP

In the workshop environment, as elsewhere, prevention is infinitely better than cure. Placed beneath pump glands, pipe joints, hose unions, drip trays or other likely sources of leakage, cushions, pads and rolls can all be used to deal with pollution at source. For patches of oil split on the workshop floor loose fibre is usually sufficient, sprinkled on and brushed or scooped up when saturated. Pads can be used in the same way with the additional advantage that they can also be employed as absorbent wipes in damp or humid conditions.

Rolls are used to protect large areas such as walkways, entrance halls, stairs and doorways from the spray of high speed machinery and contamination by foot traffic. Where leakage from industrial buildings could lead to pollution of waterways through penetration of ground water, booms should be placed at outlets and at the entrance to vulnerable drains and gulley's, clay drain matts can also be used with care as they will cause the drain to back up. Depending upon the location, cushions and pads can be employed in the same way. Oil in factory sumps and inspection pits is best dealt with by cushions or pads or by loose fibre if the quantity of oil is small.

## 3.8 SPILLAGE IN RAILWAY DEPOTS AND STATION AREAS

Oil spills in the railway industry are normally the result of overfilling of diesel tanks, numerous and constant drips from diesel propelled vehicles, maintenance machinery dripping or spillage whilst refuelling from drums. The result is a highly dangerous working environment and unsightly station areas, poor ballast formation and constant pollution of nearby water courses. Some common applications include:

- Cushions in sumps, inspection pits, trackside gulley's and drains.
- Booms floating in large sumps, interceptor pits and drainage holding areas adjacent to lakes and rivers.
- Mats for use in the four foot, sleeper ends, between tracks, station concrete aprons, fuelling depot aprons and track where diesel propelled units are standing in stations or signal halts foul the ballast.
- Pads and rolls for cleaning down machinery around fuel pump pipes and sumps, in workshops, track maintenance repair shops, repair depots and inside wagons to ensure slip free surfaces.

## 3.9 OIL SPILL CONTAMINATION OF SUBSOILS

Penetration of oil will occur in porous material and the depth of penetration will be dependent on oil gravity. The area or volume of contamination will also depend upon how wet, permeable, deep and the structure of the subsoil. If there is only a thin or wet layer of subsoil lying on an impermeable layer, then the spreading effect will be greater than that of a dry, deep layer of subsoil. To dispose of contaminated subsoil's effectively, various methods should be considered; these may include:

- Excavation and transportation for incineration or disposal to a licensed tip. Possibilities also for treatment or washing depending upon the level and type of contaminants and site requirements.

- Treatment in situ by bioremediation, this is the enhancement of naturally occurring bacteria, together with seeding the contaminated area with specially developed bacteria and the addition of fertiliser, either phosphorous based or those with nitrogen are favoured.
- Spread the contaminated soil on designated unpolluted areas and aerate to increase the biodegradation through natural means. If excavation methods are employed, it is important not to penetrate the impermeable layers otherwise this will increase the potential pollution to ground waters.

## 3.10 OIL IN GROUNDWATER

If oil reaches groundwater, tracking and recovering the oil becomes complicated. Various methods can be employed and the following is an example of the simple but effective means of dealing with groundwater pollution by interception:

If the groundwater is less than 3metres from the surface, interceptor trenches can be dug across the pollution flow path. In order to remove the oil successfully, investigation should be made to determine:

- Amount and type of oil that has seeped into the ground
- Depth and area that the oil has spread into the water table
- Types of soil
- Position of water table in relation to the oil penetration

Other systems may be employed, and expert advice should be sought. One such system would include the creation of a 'cone of depression' and the sinking of bore holes which with flushing, encourages waters to flow into them bringing the oil pollution to dedicated locations for removal by vertical deployment of mops, to reduce free water pick up or by using pumps and separators to remove the free water.

# 4. ANNEX A – RESPONSE MATRIX

| | Environmental Consultant lead | Pet reg vac tanker | Non-haz vac tanker | Response van | Regional response vehicle | Portable bund 20m x 10m | EA call |
|---|---|---|---|---|---|---|---|
| Response principles | | | | | | | |
| Spillages into open watercourse (fuel) | Y | Y | | Y | Y | | Y |
| Spillages into closed watercourse (fuel) | Y | | Y | Y | | | Maybe |
| Spillages into SSSI | Y | | | Y | Y | | Y |
| Incident principles | | | | | | | |
| Hydrocarbon spill up to 500L | | | | Y | | | |

# 5. ANNEX B – LCM WASTE CARRIERS' CERTIFICATE

# 6. ANNEX C – UK SPILL ACCREDITATION CERTIFICATE

Accredited Contractor

UKSpillContractors ACCREDITATION SCHEME

This is to certify that:

## LCM Environmental Ltd

has been accredited by the UKSpill Contractors Accreditation Scheme to the standards supported by the Environment Agency for England and Wales, the Scottish Environmental Protection Agency, the Northern Ireland Environment Agency and the Maritime and Coast Guard Agency.

| Accreditation awarded | | |
|---|---|---|
| Module 1 | Standards Compliance for all Oil Spill Responders | |
| Module 3 | Ground Water Spills | |

Certification Valid Until: 31 Dec 2015

Accreditation Status: Approved

Scheme Assessor:

Environment Agency · NIEA Northern Ireland Environment Agency · SEPA Scottish Environment Protection Agency · Cyfoeth Naturiol Cymru Natural Resources Wales · Maritime and Coastguard Agency

This company is a member of the UKSpill Association.

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UKSpill ASSOCIATION

THIS PRINTOUT IS VALID AS A CERTIFICATE OF ACCREDITATION

# 7. ANNEX D – REPORT FORM

| | |
|---|---|
| Name: | Date of incident: |
| Site contact: | Time of incident: |

Site address:

Site details:

Background – nature/extent/severity/quantity lost:

Surrounding site uses:

Site hydrology and topography:

Ground conditions (site sensitivity):

Anticipated Scope of Works:

Weather Forecast:

Abnormal equipment requirements:

Preventative measures taken:

Access restrictions:

Third party involvement:

Reinstatement requirements: