# **Odour Management Plan**

### Site details

Site name: STOLTHAVEN DAGENHAM LIMITED Site address: 31 HINDMANSWAY CHOATES ROAD. DAGENHAM RM9 6PU Operator name: STOLTHAVEN DAGENHAM LIMITED Permit number:

### Who this plan is for:

- Who should be made aware of this plan? All Stolthaven Dagenham Employees, Environment Agency officers and contractors working onsite
- How will they be made aware? Internal Email Communications

### **Document owner**

Document author: ADESEYE DURODOLA

Version number: 1

### List of revisions

Revision number	Revision authorised by	Date submitted to Environment Agency	Revision owner

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## 1. Introduction

#### **1.1 Site description**

Stolthaven Dagenham limited is a ISO 9001 certified and COMAH top tier bulk liquid storage terminal. It is located on the river Thames, 15 miles from central London, with excellent hinterland connections and direct access to the A13 motorway and onwards to the M25, M11 and UK road network.

Since the terminal was acquired in 2012, it has been extensively modernised and expanded. Land is available to accommodate further expansion and customised storage requirements.

The total number of tanks is 113 and tank storage capacity is162,884m3 with tank range between 60 M<sup>3</sup> to 11,000 M<sup>3</sup> made up of mild steel, stainless steel and lined. Tanks are equipped with radar gauging systems, Remotely Operated Shutoff Valves (ROSOVs) and the latest fire fighting systems. The tank secondary containment systems have been upgraded to the latest standards, inspected and approved by the environment agency (EA) technical specialist.

Operational working hours are from 06:00am to 18:00pm Monday to Friday with flexibility to work 24/7 when required.

#### **1.2** Maintenance and review of the OMP

The SHEQ Manager is responsible for managing the site odour management plan and he's got experience in managing any odour complaints and using Root cause analysis to resolve these issues. The SHEQ Manager and other employees have also undergone ISO 9001 Quality management system training.

- who (Job Title) is responsible for the OMP and ensuring people are trained? **SHEQ Manager**
- where is the plan stored? The OMP is managed as a controlled document and stored in our P Drive,
- state when the plan is reviewed. The OMP will be reviewed every 3 years.
- what training have the staff on site received to implement the OMP? **ISO 9001 Quality Management System (QMS)**
- how often are they trained and who delivers the training? **Undergone Root Cause Analysis training**
- any other information you feel is relevant.

#### **1.3** Relevant sector guidance on which this OMP is based

- Provide titles, sources and publication dates of all guidance referred to when writing this OMP:
  - 1. Stolthaven Dagenham Safety Report April 2019
  - Hedonics of Odours and Odour Descriptors: Journal of the Air Pollution Control Association, July 1984, Vol 34 No 7 Dravnicks A, Masurat, Lamm, R A
- any other information you feel is relevant:

### 2. Receptors

### 2.1. Receptor List

Table 2.1. Receptor list

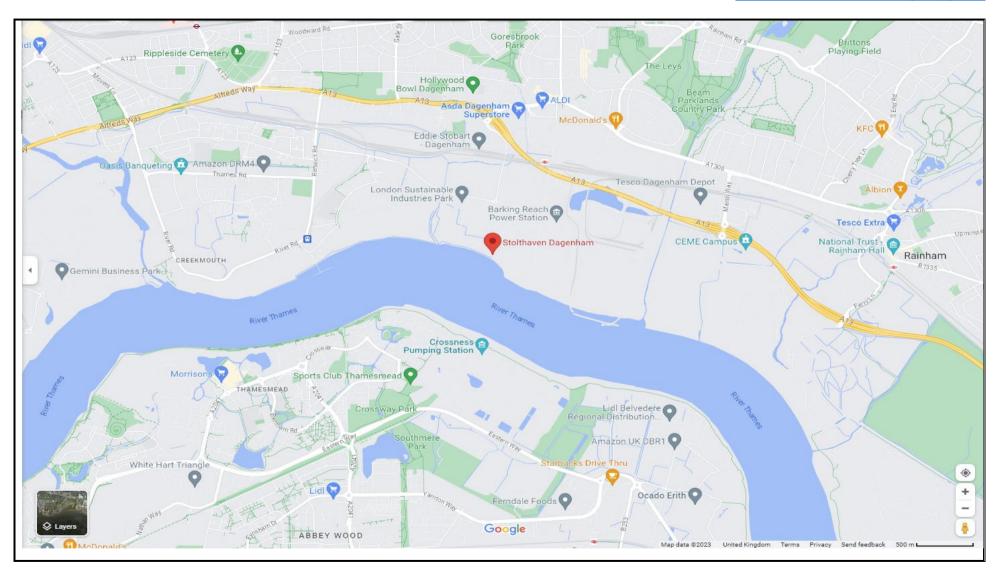
Receptor reference (A, B, C etc. Use to label Fig 2.1)	Land use e.g. house, school, hospital, com- mercial	Direction from site (North, South, East, West)	Approximate distance to site boundary (m)	Sensitivity to odour Low (e.g. footpath/road) Medium (e.g. industrial / commercial workplace) High (e.g. housing / pub / hotel etc.)
Paragon Customer Communications	commercial	North	Within 250m	Medium
United Molasses	commercial	North	Within 250m	Medium
White Skips Hire	commercial	North	Within 250m	Medium
Hunters Contracts	commercial	North	Within 250m	Medium
C&M Apostolides	commercial	North	Within 250m	Medium
Building and Struc- tural Consultant Ltd	commercial	North	Within 250m	Medium
Riverside Autos	commercial	West	3701m	Medium
Eddie Stobart (Vol- taic)	commercial	North	482m	Medium
European oak	commercial	East	1288m	Medium
Island Seafood	commercial	North	321m	Medium
Ocado Dagenham	commercial	East	1127m	Medium
Eurovia Roadstone	commercial	East	644m	Medium
British Hoverboard	commercial	East	805m	Medium
MM Supplies	commercial	East	644m	Medium
K & D Joiney	commercial	East	966m	Medium

Myrene Signs London	commercial	North	321m	Medium
Essez Nationwide				
East London Biogas	commercial	West	1126m	Medium
M Long Haulage &	commercial	West	160m	Medium
Luggaes				
M Long Haulage &	commercial	West	160m	Medium
Neptune				
CEMEX Dagenham	commercial	West	1448m	Medium
(Cement and Ash)				
Gill Aggregate	commercial	West	1288m	Medium
DBM Civils	commercial	West	1288m	Medium
Encon insulation	commercial	West	1127m	Medium
Monolith UK	commercial	North	805m	Medium
Hovis	commercial	North	805m	Medium
SPX Rail System	commercial	North	1288m	Medium
Godrand UK	commercial	North	805m	Medium
City Hire	commercial	North	805m	Medium
Thames Gatewa park	commercial	North	805m	Medium
Fresh Direct	commercial	North	1287m	Medium
Etag Fixings UK	commercial	North	1287m	Medium
Precision Proco	commercial	North	1287m	Medium
Group				
Barking Hospital	Hospital	West	4828m	Medium
Erith & District Hospi-	Hospital	North	Within 250m	Medium
tal				
Broad Street Medical	Medical Centres	North	Within 2000m	Medium
Centre				
Church Elm Lane	Medical Centres	North	Within 2700m	Medium
Medical Practice				
Heathway Medical	Medical Centres	North	Within 3900m	Medium
Centre				

Orchards Health Cen-	Medical Centres	North	Within 4500m	Medium
tre				
Plumstead Health	Medical Centres	North	Within 4900m	Medium
Centre				
Riverside School	Schools	West	Within 5km	Medium
Riverside Primary	Schools	West	Within 5km	Medium
School				
George Carey C of E	Schools	West	Within 5km	Medium
Primary School				
Riverside Bridge	Schools	West	Within 5km	Medium
School				
Jo Richardson Com-	Schools	West	Within 5km	Medium
munity School				
Goresbrook School	Schools	North	Within 5km	Medium
Hopewell School	Schools	North	Within 5km	Medium
(Harmony House)				
St Peters Catholic Pri-	Schools	North	Within 5km	Medium
mary School				
The James Cambell	Schools	North	Within 5km	Medium
Primary				
Godwin Primary	Schools	North	Within 5km	Medium
School				
Thomas Arnold Pri-	Schools	North	Within 5km	Medium
mary School				
Marsh Green Primary	Schools	North	Within 5km	Medium
School				
Dagenham Park C of	Schools	North	Within 5km	Medium
E School				
William Ford C of E	Schools	North	Within 5km	Medium
Primary School				
Village Infants	Schools	North	Within 5km	Medium
Beam Primary School	Schools	North	Within 5km	Medium

The Leys Primary	Schools	North	Within 5km	Medium
John Perry Primary School	Schools	North	Within 5km	Medium
The St Teresa Catho- lic Primary School	Schools	North	Within 5km	Medium
Hunters Hall Primary School	Schools	North	Within 5km	Medium
Richard Alibon Pri- mary School	Schools	North	Within 5km	Medium
The Sydney Russell School	Schools	North	Within 5km	Medium
Trinity School	Schools	North	Within 5km	Medium
St Joseph Catholic Primary School	Schools	North	Within 5km	Medium
Roding Primary School	Schools	West	Within 5km	Medium
Southwood Primary School	Schools	North	Within 5km	Medium
Alamiyah School	Schools	North	Within 5km	Medium

Figure 2.1 Map of site location and receptors



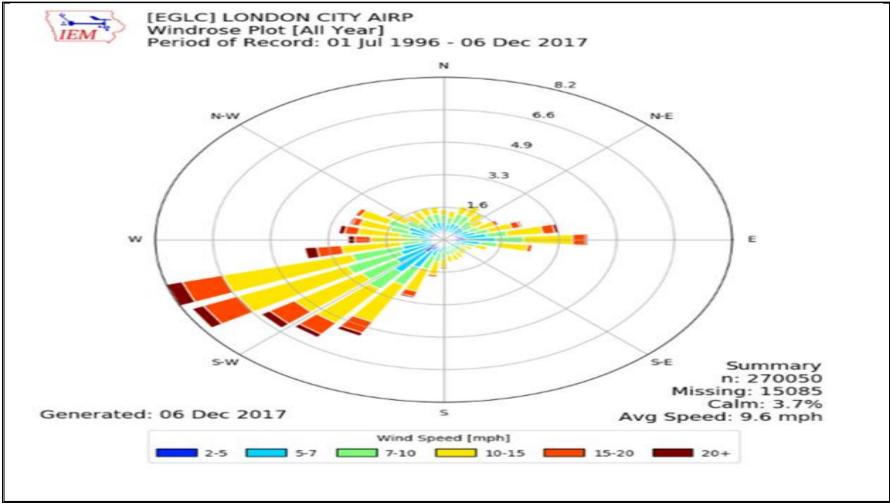




#### 2.2. Wind rose and source of weather data

The weather data for the site is obtained via

#### Figure 2.2. - Wind rose

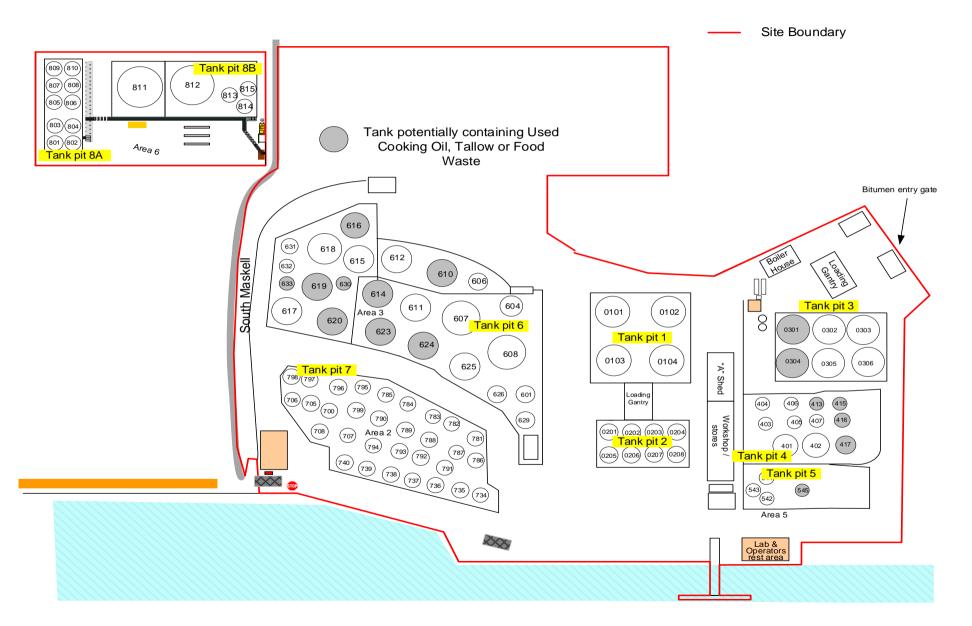


Sources of odour and site processes

#### 3.1 Odorous materials entering and leaving site

- how are deliveries made to the site e.g. road/rail/canal? Delivery to used cooking oil (UCO), Tallow or food waste to site is through either road, ship or barge.
- at what frequency does the site receive deliveries? The delivery frequency is Daily.
- what kind of containers is the material received in? The product are transferred into storage tanks (Stainless steel or Mild steel)
- are the vehicles sealed or covered? Yes sealed
- are customers / vehicle drivers provided with any special instructions about odorous loads? Yes drivers are trained
- what protocol is in place for unacceptable materials being delivered? If you have a Waste Rejection Protocol this can be cross-referenced: Onsite laboratory carry out test of any vehicle loads which may not meet the required specification.
- any other information you feel is relevant: All procedures are already due to existing product stored.

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#### 3.2 Odorous materials

Table 3.2 Odorous materials

Odorous and potentially odorous material (any solid, liquid or gas)	Odour potential High Risk / Medium Risk / Low Risk	Maximum quantity on site at any given day (tonnes per day or litres per day)	Maximum time held on site (hours or days)	Location of odorous materials on site	Additional comments
Used Cooking Oil (UCO)	Low	20,000 tonnes	Continuous	Storage Tanks	All tanks are dedicated and sealed
Tallow	Medium	10,000 Tonnes	Continuous	Storage Tanks	All tanks are dedicated and sealed
Food Waste	Medium	10,000 Tonnes	Continuous	Storage Tanks	All tanks are dedicated and sealed

#### 3.3 Overview of odorous processes and emissions

Provide a description (whether text / diagrams or tables) of the site layout and the processes carried out including the information in the bullet points below as a minimum. Use Figure 3.3 as a guide to show the site infrastructure relevant to any odorous processes carried out and the odour emission locations on your site e.g.

- name and type of buildings: Storage tanks
- if applicable, describe the building air ventilation system: Standard venting as per API standard

- loading and unloading areas,: Dedicated loading and unloading points from respective storage tanks
- storage areas,: Storage Tanks
- windrows, (if composting site), : N/a
- processing areas,: N/a
- which activities have the most odour potential e.g. a food and drink site may receive low to medium material delivered to site but processing (cooking) will mean this becomes high risk, :No Activities produce any significant odour, however loading a ship may have the potential to produce some odour.
- fixed plant and layout of equipment, e.g. trommel, conveyor etc, : See attached site Map
- locations of mobile plant,: All fixed plant
- odorous emission points,: Tank vents at high level
- risk associated with activity e.g. high medium or low,: Low
- any other information you feel is relevant: All activities are already been stored on site for several years without odour complaints from neighbours

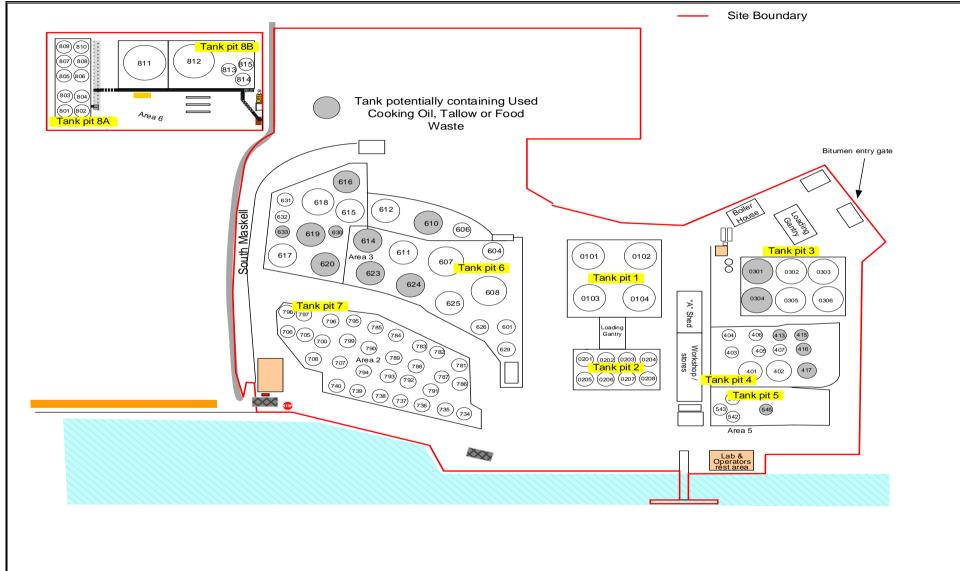


Figure 3.3 – Site plan showing odorous process locations / odorous emissions / storage

## 3. Control measures and process monitoring

### 4.1 Appropriate measures / BAT

 Table 4.1 Monitoring procedures for appropriate measures/ BAT

Odorous and potentially odorous process / material	Control measures (Appropriate Measure / BAT)	Monitoring frequency	Monitoring procedure and optimum process parameters	Trigger level	Action taken if outside optimum process parameters
UCO	Sealed Storage Tanks	Constant – ongoing through shift with site 24hrs site operation	Laboratory checks and available capaci- ties in storage tanks	No capacity due to tank be- ing full	No deliveries will be accepted until there is available space
Tallow	Sealed Storage Tanks	Constant – ongoing through shift with site 24hrs site operation	Laboratory checks and available capacities in storage tanks	No capacity due to tank being full	No deliveries will be accepted until there is available space

Food	Sealed Storage	Constant –	Laboratory checks	No capacity	No deliveries will be accepted
Waste	Tank	ongoing	and available	due to tank	until there is available space
		through shift	capacities in storage	being full	
		with site	tanks		
		24hrs site			
		operation			
		•			

## 4. Odour reporting

#### 5.1 Complaints reporting

Site is regulated under competent Authority and visited on a regular basis by the environment Agency (EA) with a dedicated EA inspector (Tracey Cocker BSc (Hons) MRSC EPR Installations/Radioactive Substance Regulation Team Leader)

#### 5.2 Community engagement

The site has Public information Zones (PIZ) as mandated under COMAH regulation

#### 5.3 **Pro-active odour monitoring**

Constant – ongoing through shift with site 24hrs site operation any odour will be reported instantly and dealt with accordingly.

#### 5.4 Reactive odour monitoring

Formal procedure in place as per ISO 9001 standard requirement

## 5. Abnormal events

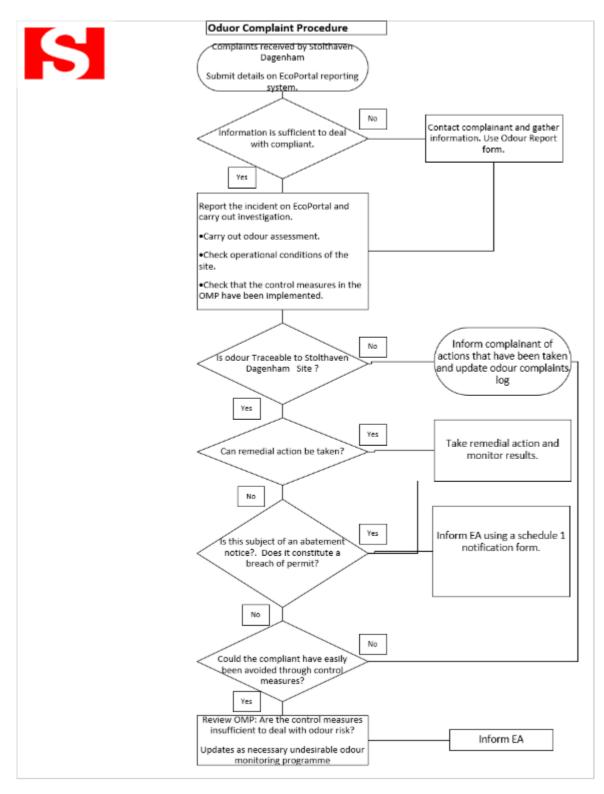
#### Table 6.1 Abnormal events

Abnormal event	Recovery steps
Tank Rup- ture	<ol> <li>Tanks held on impervious concrete bunds.</li> <li>Additional control with an inner low bund wall in place.</li> <li>Maintenance management for tanks including 3 monthly visual inspections in place.</li> <li>Inspection of tank in accordance to EEMUA 159.</li> <li>Tank construction according to relevant codes.</li> <li>Bund inspection program in place.</li> <li>Tank repair kit available.</li> <li>Establish communication with customers.</li> <li>Identify options to re-route product streams via alternative pumps or truck bays.</li> <li>If needed, determine options to quickly reinstate affected systems and infrastructure. Identify potential temporary solutions (e.g., empty tanks)</li> <li>Verify updated Terminal operations schedule to determine the need to divert or cancel shipments.</li> <li>If needed, consider declaration of Force Majeure after consultation with Corporate Management.</li> <li>Recover product and contain as appropriate</li> <li>Contractor's list prepared of disciplines required to provide immediate support for temporary solutions.</li> </ol>
Major Oil Spill affect- ing entry / exit of ves- sels into terminal	<ol> <li>Stolthaven is COMAH compliant.</li> <li>Oil pollution control equipment and oil spill response ship in place.</li> <li>Surveillance system (CCTV) in place with remote isolation on some lines.</li> <li>Jetty sump has automatic pump to dedicated tank.</li> <li>Member of Thames Oil Spill Clearance Association.</li> <li>ESD buttons on Jetty.</li> <li>Jetty operations are permanently manned with communication back to the control room.</li> <li>Tank to tank transfers via the jetty (flexible hoses) have been significantly reduced.</li> <li>Establish communication with customers.</li> <li>Closely communicate with Port Authorities to determine clear- ance status for access to Terminal.</li> <li>Verify updated Terminal operations schedule to determine the need to divert or cancel shipments.</li> <li>Explore alternative logistical arrangements with customers.</li> <li>If needed, consider declaration of Force Majeure after consul- tation with Corporate Management.</li> <li>Single jetty, control over vessel movements beyond Stoltha- vens control.</li> </ol>

Terminal1. Jetty equipped with fixed and remote firefighting system.Jetty out of order due to damage2. Berthing / unberthing operation are conducted strictly to PL guidelines with sufficient tugboats, mooring gangs & pilots. 3. Operations personnel attend to all the berthing / unberthing ordet due	
order dueguidelines with sufficient tugboats, mooring gangs & pilots.to damage3. Operations personnel attend to all the berthing / unberthing	-
order dueguidelines with sufficient tugboats, mooring gangs & pilots.to damage3. Operations personnel attend to all the berthing / unberthing	A
to damage 3. Operations personnel attend to all the berthing / unberthing	
orotions in close lisions with silet	g op-
erations in close liaison with pilot.	
Caused by A lotty draft checked and PLA conduct hydrographic survey	s of
the river	
sel impact 5. Navigation lights in place on the jetty permanently switched	d on.
6. Navigation of the River Thames is controlled by the PLA.	
7. Known limitations to safe berthing of large vessels.	
8. HVP inlet available for use by emergency responders on 7	
jetty.	
9. Jetty inspected annually by the PLA.	
10. Establish communication with customers.	
	loor
11. Closely communicate with Port Authorities to determine c	ieai-
ance status for access to Terminal.	
12. Verify updated Terminal operations schedule to determine	Э
the need to divert or cancel shipments.	
4. Explore alternative logistical arrangements with customers.	•
(e.g., Use tank containers or tank trucks).	
<ol> <li>13. Ensure pre-established connections with suppliers for swi</li> </ol>	ift
supply of equipment for repairs (e.g., portable fenders etc.).	
14. If needed, consider declaration of Force Majeure after cor	nsul-
tation with Corporate Management.	
<ol> <li>Single jetty, control over vessel movements beyond Stolth</li> </ol>	na-
vens control.	
Terminal 1. The Control Room is air-conditioned to bring down heat ge	ner-
Control ated.	
Room inac- 2. Material in the Control Room is heavily insulated - not easy	/ to
cessible catch fire.	
due to Fire 3. Smoke detector located on ceiling in Control Room.	
Damage     4. Extinguisher available inside Control Room.	
5. The Control Room is manned 24/7.	
6. Flammable liquids are not allowed to be brought into the C	on-
trol Room.	
7. Office building including ECC is now protected by a fire sup	<b>)-</b>
pression water spray.	
9. Switch to manual operations at site. (e.g., control of POV a	ind
pumps from Local control station; monitoring of tank parameter	
tank site, etc.)	
10. Deploy additional resources as required.	
11. Initiate plan for a temporary control room (e.g., mobile cor	า-
tainer / offices).	•
12. Some systems (SCADA) can be operated from other area	26
such as the Bitumen control room.	
13. Check SCADA operation from the MCC building.	
Flooding/	
•	
Natural dis-         1. Terminal flood preparedness study complete.	
aster (sig- 2. Flood warnings in place supported by the Environmen	t
nificant rain Agency.	
event,	

atorm ourgo	2. Large teleten everging conducted on flooding event with
storm surge etc.)	<ol> <li>Large tabletop exercise conducted on flooding event with key stakeholders including emergency responders.</li> </ol>
	4. Flood risk assessment carried out reviewed by EA.
	5. On-site and off-site emergency plans.
	6. Flood defenses in place and maintained.
	<ol> <li>Local tabletop exercise carried out in 2020 including flooding scenario.</li> </ol>
	8. Registered persons receive text messages from the environmental agency warning of flood.
	9. Terminals vacuum tankers can clear rainwater from key areas.
	10. More areas are connected to the local storm water drains.
	11. Bund water management plan in place.
	12. Effluent checks in place of bund, interceptors etc.
	13. Assess nature of flooding event. (e.g., flash flood/ long term)
	14. Execute flood/disaster contingency plan (e.g., opening tank manhole for empty tanks.
	15. Evaluate damage/ duration of disruption to business.
	16. Provide regular status updates to customers and stakeholders.
	17. Prepare for the potential relocation of key office staff to the Romford office building or if possible, work from home.
	18. If needed, consider declaration of Force Majeure after consultation with Corporate Management.
	19. Communicate with Met Police/ LFB regarding access to site.
Power dis- ruption	<ol> <li>Back-up generators available to hire at short notice.</li> <li>UPS on some systems including fire system.</li> <li>Emergency lighting in key locations.</li> <li>Contract with vendor 24/7 standby.</li> <li>Fixed fire system is diesel powered.</li> <li>Backup generator for jetty including fire pumps.</li> <li>Upgrade to a HV system is in progress.</li> <li>Identify critical operating area / business affected.</li> <li>Promptly update affected customers and divert shipments/ affected operations accordingly.</li> <li>Activate contractor for alternative power supply to critical asset / operations.</li> </ol>

0	
	11. Consider alternative operating mode/ arrangement (e.g. load-
	ing via gravitation, air driven pumps where possible).
	12. Deploy additional resources to operate site equipment. (e.g.
	generator/ manpower)
	13. Sites has experience of running on generators as part of ter-
-	minal upgrades.
Terrorist At-	1. Trained Security Guards on site
tack	2. Available 24hr CCTV coverage on site
	3. Scan Training provided by MET police
	4. 24hr Manned site
	5. Information plan carried out by MET police (Counter Terror-
	ism) 5 Twice deily visit from the Delice
	5 Twice daily visit from the Police
	<ol><li>Regular contact with department of transport on security no- tices</li></ol>
	7. Maintain situational awareness
	8. Continue Scan training for all employee
	9. Installing Intercom and locking of entrance gates (remote re-
	lease locks install on the metal gates)
Arson	1. Trained Security Guards on site
A13011	2. Available 24hr CCTV coverage on site
	3. Scan Training provided by MET police
	4. 24hr Manned site
	5. Information plan carried out by MET police (Counter Terror-
	ism)
	5 Twice daily visit from the Police
	6. Regular contact with department of transport on security no-
	tices
	7. Maintain situational awareness
	15. Provide training for all employees on Arson prevention
Utility sup-	1. Supply contracts in place for utilities like nitrogen, water, natu-
ply break-	ral gas.
down	2. High variance investigations
	3. More than a single provider for all utilities.
	<ol><li>Explore options of alternate supplier or services or different</li></ol>
	modes (e.g., Using nitrogen tank/ bottles vs pipeline supply)
Cyber Se-	1. Firewalls in place on OT & IT networks
curity	2. Authenticator application in place for remote working.
	3. Quick response to rebuild the OT system.
	4. New hardware can be obtained in a reasonable timeframe.
	5. Cyber security training provided by Stolt Nielsen.
	6. Software backups in place.
	7. Carry out cyber security risk assessment
	8. Prepare for a HSE intervention on cyber security.
Mass resig-	1. Salary Package is market compatible.
nation/	2. Overtime coverage.
Strike	3. Slowdown in activities.
against	4. Welfare programme and activities.
company	5. Engagement with workers union.
. ,	6. Seek Corporate Management advice.



#### Odour Report Form Site Location Date **Complaints received Complaints received** Number of Complaints received Complaints Date and time of Complaints received Complaint(s) Noticed Date and time of Complaints received Complaint(s) received Time of weather assessment Wind Speed Wind direction Air temperature C General weather conditions Potential Intensity (0 Offensiveness Description External Test location Time Sources within of odour to 6) (0 to-4) Sources site North boundary East boundary South Boundary West boundary Intensity Scale Offensiveness Scale Perceived Hedonic Tone Score Intensity Score 0 No Oduor 0 No odour/Neutral odour Very faint odour -1 Mildly unpleasant 1 Faint Odour 2 -2 Moderately unpleasant Distinct odour 3 -3 Unpleasant 4 Strong odour -4 Very Unpleasant 5 Very Strong odour 6 Extremely Comments Action Required Name Signature