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ASCO UK LTD

GREAT YARMOUTH SHIP TO SHORE FACILITY

BEST AVAILABLE TECHNIQUES ASSESSMENT

DECEMBER 2022



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ASCO UK LTD

GREAT YARMOUTH SHIP TO SHORE FACILITY

BEST AVAILABLE TECHNIQUES ASSESSMENT ERROR! NOT A VALID BOOKMARK SELF-REFERENCE.

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1 INTRODUCTION

- 1.1.1 ASCO UK Ltd propose to develop a waste storage facility (tank farm) at its 'ship to shore' site on South Denes Road, Great Yarmouth. The location of the site is shown on drawing ST16483-001.
- 1.1.2 The facility will accept up to 20,000 tonnes per annum of hazardous and non-hazardous wastes from the oil and gas industry, including off-shore platforms, drilling rigs and onshore gas terminals.
- 1.1.3 Under the Environmental Permitting (England and Wales) Regulations 2016, the proposed storage of hazardous waste is classified as an installation activity and listed under Schedule 1, Part 2, Section 5.6 A(1), while the storage of non-hazardous waste is classified as a waste operation. The physico-chemical treatment (by gravity separation) of hazardous waste for recovery or disposal and the physico-chemical treatment of non-hazardous waste for disposal are also listed activities, falling under Section 5.3 A(1) and Section 5.4 A(1), respectively. The treatment of non-hazardous waste for recovery is classified as a waste operation.
- 1.1.4 Permitted wastes will be limited to drilling fluids contaminated with hydrocarbons, plus other liquid and slurry wastes from the oil and gas industry including slops. No Naturally Occurring Radioactive Materials (NORM) will be deposited at the facility. All waste deliveries will be made by ship whilst all wastes will be removed from site by road tanker.
- 1.1.5 The facility will comprise five storage tanks with a total storage capacity of 550m³. All tanks will be located within a single bund with a capacity of c. 392m³ that provides sufficient capacity for 110% of the largest tank (c. 177m³) and at least 25% of the total tank capacity (137.5 m³). Hazardous and non-hazardous wastes will not be stored in the same tank.
- 1.1.6 The permit boundary is shown on drawing BM12124-002 and includes the tank farm, all related pipework and an area adjacent to the bund for outloading to road tankers. The wider ASCO site includes a lower tier COMAH facility which is located adjacent to the permit boundary of the ship to shore site.
- 1.1.7 The facility will be operated under an Environmental Management System (EMS) accredited to ISO14001.

- 1.1.8 Section 2 provides an assessment of the ship to shore facility against the indicative BAT standards set out in Environment Agency guidance S5.06: recovery and disposal of hazardous and non-hazardous waste.
- 1.1.9 Section 3 provides a summary of how the activity of gravity separation meets the BAT standards against the BRef for Waste Treatment.
- 1.1.10 Section 4 provides an assessment of how the ship to shore facility will meet Environment Agency guidance on Chemical Waste: appropriate measures for waste storage, segregation and handling at regulated facilities with an environmental permit for treating or transferring chemical waste.

2 BAT CONSIDERATIONS FOR THE RECOVERY AND DISPOSAL OF HAZARDOUS AND NON-HAZARDOUS WASTE

- 2.1.1 This section provides an assessment of the ship to shore facility against the indicative BAT standards set out in Environment Agency guidance S5.06: recovery and disposal of hazardous and non-hazardous waste.
- 2.1.2 This section also covers any additional appropriate measures listed in the EA’s guidance for ‘Non-hazardous and inert waste: appropriate measures for permitted facilities’.
- 2.2 Considerations for Waste Pre-Acceptance

Table 2.1 Specific BAT Considerations for Waste Pre-acceptance

Consideration	Measures implemented
Before deposit at the site, the facility operator must obtain information regarding the waste characterisation, process that produced it, chemical composition and other essential information.	ASCO UK Limited will ensure they have received pre-acceptance information and characterisation before accepting wastes at the facility. This will include source, chemical composition, the process producing the waste, tonnage and its physical state. Any special storage or other information regarding the handling of the waste and incompatibility will be made known to the facility in the pre-acceptance stage. Where possible, offshore producers will take samples of the waste, in accordance with annex 10-f of the Guidelines For Offshore Marine Operations (GOMO), with the results provided with pre-acceptance information. Samples will be taken by the operator and checked for consistency against the pre-acceptance records. Samples will be tracked and accounted for at all times. All samples will be representative of the waste.
Waste will not be accepted at the facility without a clearly defined treatment or disposal route.	The waste will have been fully characterised and its onward destination for treatment or disposal defined before received at the facility. Only

Table 2.1 Specific BAT Considerations for Waste Pre-acceptance

Consideration	Measures implemented
	wastes compliant with the permit conditions will be approved for reception at the site.
A technical assessment of the waste will be made	The site chemist or Technically Competent Manager will fully assess the suitability of the waste's characterisation information before the waste is acceptable for deposit at the site.
Retain records on waste pre-acceptance for three years	Pre-acceptance records will be retained for three years as a minimum.
Additional Appropriate Measures for Non-hazardous and Inert Waste	
<p>For commercial and industrial waste you must get the following information in writing or electronic form:</p> <ul style="list-style-type: none"> • details of the waste producer • a description of the waste • the waste classification/EWC code • the source of the waste • information on the nature and variability of the waste production process • information about the history of the producer site • the waste's physical form • the waste's composition (based on representative samples if necessary) • a description of the waste's odour and whether it is likely to be odorous • an estimate of the quantity you expect to receive in each load and in a year <p>For mirror entry LoW codes, you must keep the evidence that you have made an assessment of the waste to assign the relevant mirror entry code.</p>	<p>ASCO UK Limited will ensure they have received all necessary pre-acceptance information and characterisation before accepting wastes at the facility, including source, waste classification, the chemical composition, the process producing the waste, tonnage and its physical state. The waste will be from single sources and the process producing the waste are reliably understood. The waste will have been fully characterised before received at the facility.</p>
<p>You must reassess the information required at pre-acceptance if the:</p> <ul style="list-style-type: none"> • waste changes • process giving rise to the waste changes • waste received does not conform to the pre-acceptance information <p>In all cases you must reassess the information required at pre-acceptance on an annual basis.</p>	<p>Due to the nature of the waste, it is anticipated that each waste stream will be subject to the necessary pre-acceptance checks before being received at the facility. Any regularly arising waste streams will be reassessed each year as a minimum, or if the waste changes, the process giving rise to the waste changes or if the waste does not conform to pre-acceptance information.</p>

2.3 Specific Conditions for Waste Acceptance

Table 2.2 Specific BAT Considerations for Waste Acceptance	
Consideration	Measures implemented
On arrival, loads shall be weighed. Loads shall not be accepted unless there is sufficient capacity at the site to store them.	<p>Loads will be described in relation to their volume due to the nature of the waste. This volume will be confirmed on arrival.</p> <p>Process control will ensure that there is sufficient capacity in the storage tanks for waste before it is allowed to be offloaded at the facility.</p>
Check and approve all documentation and labelling of the waste before it is deposited for storage	The site staff will ensure that appropriate duty of care paperwork is exchanged and that the waste is correctly identified before it is allowed to be offloaded to the facility
Carry out visual and/or other confirmatory checks on the waste being deposited	Where possible, wastes will be visually checked before being offloaded, however waste will be transferred in an enclosed system. Samples will be taken during offloading, which will be visually checked. Additional checks on the duty of care paperwork and other documentation will be carried out to determine the nature of the waste and confirm it conforms to the characterisation and the waste the facility is expecting to receive.
Confirm quantities and wastes actually received against the documentary records accompanying it.	All wastes will be confirmed against the duty of care paperwork to ensure that it meets the description.
Sampling, checking and chemical testing to confirm the contents and characterisation of the wastes	<p>All wastes will be sampled on arrival to ensure that it is as described and that it conforms to the characterisation and written descriptions of the expected wastes, as described in the Operating Techniques document.</p> <p>Pre-acceptance characterisation information will be provided to the operator by the waste producer, including the results of chemical testing and analysis, ensuring the waste is fully described and its properties known before arrival at the tank farm. Producers of wastes from off-shore sources will be expected to act in accordance with Appendix 10-f of GOMO, and will undertake testing to confirm the material's properties. This information will be made available to the waste facility on arrival at Great Yarmouth.</p> <p>Waste shipments from the off-shore platforms will make their contents known to the facility while en route to the site or before.</p>
Rejection of loads will be specified and procedures described in clear and unambiguous criteria and procedures.	<p>A clear rejection procedure is in place. Non-conforming waste arriving by road tanker will be returned to the producer or diverted to a suitably permitted facility.</p> <p>Road tankers will be used to directly receive a rejected load directly from the ship.</p> <p>A written procedure for rejection of loads will be followed as part of the Environment Management System.</p>

Table 2.2 Specific BAT Considerations for Waste Acceptance

Consideration	Measures implemented
Documentation will be exchanged with the waste producer and records of testing and wastes accepted will be added to the tracking system and retained	The document management system will be used to track and retain all sampling, verification and other documentation that are required for this site and wastes. These will be retained for two years as a minimum.
Additional Appropriate Measures for Non-hazardous and Inert Waste	
Check and validate all transfer documentation and resolve discrepancies before accepting the waste.	<p>Checks on the duty of care paperwork and other documentation will be carried out to determine the nature of the waste and confirm it conforms to the characterisation and the waste the facility is expecting to receive. All wastes will be sampled on arrival to ensure that it is as described and that it conforms to the characterisation and written descriptions of the expected wastes, as described in the Operating Techniques document.</p> <p>Any incorrect or incomplete information will be queried with the original waste producer or waste carrier during waste acceptance by a competent site operative. Once any discrepancies are resolved, the competent site operative may decide the waste is acceptable on the site, documenting the reason why, or otherwise initiate the rejection procedure.</p> <p>Where any hazardous waste loads are rejected, for example a consignment note is not presented, rejection procedures will follow those set out in the EA's <i>Hazardous waste: rejected loads guidance</i></p>
<p>Have clear criteria used to identify non-conforming wastes and wastes to be rejected.</p> <p>Have written procedures for recording, reporting and tracking non-conforming and rejected wastes. These must include:</p> <ul style="list-style-type: none"> • using quarantine storage • notifying the relevant customer or waste producer • recording a summary of your justification for accepting non-conforming waste in your electronic (or equivalent) system <p>Take measures to prevent the recurrence of non-conforming and rejected wastes</p>	<p>The operator has stringent waste acceptance procedures in place to identify non-conforming wastes, and rejection procedures to ensure non-permitted waste is directed away from the facility.</p> <p>Written procedures for recording, reporting and tracking non-conforming waste are handled through the site's ISO14001 accredited management system. This will include procedures for quarantine storage, notification, and records of acceptance of non-conforming waste.</p> <p>Where recurrence of non-conforming wastes are identified, the operator will take steps to work with the waste producer to resolve the issue.</p>
Procedures must make sure that staff watch waste being unloaded, so it can	All waste deliveries will be attended by a suitably trained site operative during unloading, and will cease the delivery if any issues are detected

Table 2.2 Specific BAT Considerations for Waste Acceptance

Consideration	Measures implemented
<p>be quarantined if necessary before it is mixed with other material.</p>	<p>during acceptance. No incompatible wastes will be mixed on the site (including hazardous and non-hazardous).</p> <p>Wastes are stored in dedicated tanks which will be clearly labelled with its contents. As far as possible, non-conforming materials will be redirected directly to another permitted facility, or directly loaded into a road tanker for removal to another permitted facility. Any non-conforming waste that enters the site tank will be clearly labelled and scheduled for removal as soon as practicable.</p>
<p>Offloading and reception areas must have an impermeable surface with self-contained drainage, to prevent any potentially polluting liquid from escaping off site.</p>	<p>The whole extent of the site benefits from an impermeable surface with a drainage system equipped with automated shut off valves installed at all discharge points. These engage if hydrocarbons are detected in the runoff from site, preventing contamination entering the River Yare. This effectively provides secondary containment for the reception point (pipe connection) and outloading areas of the facility.</p>
<p>A dedicated waste quarantine area for temporary storage of rejected (or non-conforming waste whilst it is being assessed) must be available. It must have impermeable surface with self-contained drainage if there is a risk of contaminated runoff from the quarantined waste.</p> <p>Where there is a risk of fugitive emissions, quarantined waste you must store it in closed or covered containers or within a building.</p> <p>Quarantine storage must be separate from all other storage and clearly marked as a quarantine area.</p> <p>Written procedures must be in place for dealing with wastes held in quarantine, including a maximum storage volume. The maximum storage time must take account of the potential for odour generation, pest infestation and storage conditions. If the waste is infested or odorous you must remove it within 24 hours or sooner.</p>	<p>As far as possible, non-conforming materials will be redirected directly to another permitted facility, or directly loaded into a road tanker for removal to another permitted facility. If necessary to temporarily store non-conforming waste in a site tank, it will only be done so if an empty tank is available which can accommodate the volume of waste, which will be clearly labelled as quarantined waste.</p> <p>All tanks and pipework are sealed to prevent any emissions. Secondary containment is provided for all tanks by the bunded area. Tertiary containment is also provided through the wider site surface water drainage system which will provide a sealed system through automated shut-off valves, providing effective protection to surface and groundwater.</p> <p>Written procedures will be in place for the quarantine of waste. Any waste to be delivered to site is highly unlikely to attract pests, as it will be liquid waste delivered in a sealed system.</p>
<p>An electronic or equivalent system to hold up-to-date information about the available capacity of different parts of the facility.</p> <p>A pre-booking system should be in place to make sure enough waste storage and process capacity is</p>	<p>The operator will keep all records all the information generated during pre-acceptance, acceptance, non-conformance or rejection, storage, treatment, and removal off site. The system will track the available capacity of all tanks and their contents.</p>

Table 2.2 Specific BAT Considerations for Waste Acceptance

Consideration	Measures implemented
available for the incoming acceptable waste.	During pre-acceptance checks, incoming waste will be allocated for delivery to a tank with appropriate capacity, ensuring no incompatible wastes are mixed.
Records must be updated to reflect deliveries, on-site treatment and despatches, operating as a waste inventory and stock control system. The electronic (or equivalent) system must be able to track each LoW code. You must store back-up copies of records off site. These records must be readily accessible in an emergency.	Records of will be kept up-to-date at all times, maintaining effective waste tracking. As a minimum, the following records will be kept of all incoming and dispatched wastes: <ul style="list-style-type: none"> • date of waste arrival • the original producer's details • a unique reference number • waste pre-acceptance and acceptance information • the intended treatment or disposal route • the nature and quantity of wastes held on site • where the waste is physically located • where the waste is in the designated recovery or disposal process • identity of staff who have taken any decisions about accepting or rejecting waste streams • relevant transfer notes reference • details of any non-conformances and rejections For each waste code stored on site the following records will be kept: <ul style="list-style-type: none"> • the total quantity of waste present on site at any one time • a breakdown of the waste quantities undergoing on-site treatment or awaiting onward transfer • the quantity and storage time of waste on site compared with the permit limits
You must keep acceptance records for a minimum of 2 years after you have treated the waste or removed it off site	Records of waste tracking will be kept for two years, or longer if required for other purposes (for example hazardous waste consignment notes).

2.4 Specific BAT Considerations for Waste Storage

Table 2.3 Specific BAT Considerations for Waste Storage

Consideration	Measures implemented
Appropriate storage for wastes are required to prevent escape	Wastes will be stored within dedicated tanks at the facility, which are of an appropriate construction and condition for the waste types proposed. Secondary containment is provided through a sealed bund constructed to BS8500 providing a storage capacity greater than 110% of the largest tank and at least 25% of the total tank capacity. Tertiary containment is provided through a the drainage system across the wider site, fitted with automated shut-off valves.
Appropriate separation of wastes whilst stored	Wastes will be stored separately within the tanks according to their properties.

Table 2.3 Specific BAT Considerations for Waste Storage

Consideration	Measures implemented
	<p>There will be no incompatible wastes stored together on site. Hazardous wastes will not be mixed with non-hazardous wastes.</p> <p>The Technically Competent Manager for the site will ensure that this happens and that the contents of the waste tanks are clearly labelled as to their contents.</p>
Storage signing and identification	Wastes will be clearly identified and their storage labelled or otherwise identified so that staff are able to easily identify the contents of each tank.
Secure storage	The storage tanks are located on a secure existing facility. The site is staffed and there is secondary containment of the tanks should vandalism occur.
Monitoring of available storage capacity	<p>Fill level monitoring and high-level alarms will be fitted to tanks to ensure that their contents and fill level are known.</p> <p>Available storage capacities will be monitored for each tank. Wastes will not be accepted unless there is sufficient capacity in the appropriate tank for that waste type.</p>
Inspection and maintenance of storage areas and equipment	All storage facilities will be subject to a regular, preventative maintenance schedule detailed in the Environmental Management System. The site staff are trained and fully conversant with the requirements of the inspection regimes and reporting of any faults.
Spillages must be logged and cleaned up	<p>Whilst spillages are very unlikely, in the event of one occurring, then this will be cleaned up using on site spill kits and then disposed of appropriately. Details will be entered into the site diary.</p> <p>There will be monitoring of equipment for leaks and spillages, as well as supervised deliveries by site staff and management during the site operation.</p>
Supervision of bulking up transfers	All deliveries into the facility's tanks will be fully supervised by a trained member of staff. The facility's Technically Competent Manager will be available, should they be required.
Tanks and vessels stored on impermeable drainage with gauges and level alarms	All tanks are located on an area of impermeable drainage with secondary containment. There are level gauges and high-level alarms on fill points.
Labelling and identification of pipes and valves	All pipework will be colour coded or labelled to identify its use. Valves will be clearly labelled or identified.
Additional Appropriate Measures for Non-hazardous and Inert Waste	
Waste must not be accumulated, but should be treated and removed as soon as possible	Storage/treatment times will be for adequate lengths of time to allow for appropriate volumes of material to be bulked up for onward disposal or treatment, and to allow the solid component to settle out of the liquid component through gravity separation. This will not mean

Table 2.3 Specific BAT Considerations for Waste Storage

Consideration	Measures implemented
First-in-first-out principle is followed, unless more recently received wastes pose a higher risk of pollution.	extended storage times, but times may vary to optimise the efficiency of onward transport.
Clean storage containers on a regular basis to prevent the build-up of aging waste, which will be a source of odour and attract vermin.	<p>Pipes will be routinely blown with air to prevent any build-up within the system. Wastes are liquid with a high water content, therefore build-up of aging waste is highly unlikely.</p> <p>The waste types to be accepted are not inherently odours or biodegradable, and are highly unlikely to cause odour or attract pests. Waste is accepted and dispatched in a sealed system, further preventing pests or odour.</p>

2.5 Emissions to Air

- 2.5.1 There will be no risk to the environment from emissions to air resulting from the site. Pressure relief valves are provided on storage tanks to allow for the displacement of air during filling. These will result in negligible emissions and will not be a source of continuous point emissions to air.

2.6 Measures for Emissions to Surface/Ground Water

Table 2.4 Measures to Prevent Fugitive Emissions to Surface/Ground Water

Consideration	Measures implemented
<p>For subsurface structures:</p> <ul style="list-style-type: none"> Identify all drains and pipes below ground identify all sub-surface sumps and storage vessels; engineer systems to minimise leakages from pipes and ensure detection of any leaks particularly where hazardous substances are involved; provide secondary containment and/or leakage detection for sub-surface pipework, sumps and storage vessels; put an inspection and maintenance programme in place for all subsurface structures, eg. Pressure tests, leak tests, material thickness checks or CCTV <p>All sumps should:</p> <ul style="list-style-type: none"> be impermeable and resistant to stored materials; 	<p>The facility is constructed with impermeable surfacing and a bund to provide secondary containment for the tanks and any other polluting liquids or wastes. There will be no direct runoff or discharges to surface waters or groundwaters.</p> <p>Inspection and maintenance schedules will be delivered through the Environmental Management System, ensuring that defects are detected early and leaks are effectively prevented.</p> <p>An interceptor system is provided for clean surface water runoff from the tanker unloading area.</p> <p>Routine visual inspections of all pipes, surfacing, tanks and secondary containment will be undertaken. These will be delivered through the Environmental Management System in addition to a preventative maintenance schedule.</p>

Table 2.4 Measures to Prevent Fugitive Emissions to Surface/Ground Water

Consideration	Measures implemented
<ul style="list-style-type: none"> • be subject to regular visual inspection and any contents pumped out or otherwise removed after checking for contamination; • where not frequently inspected, be fitted with a high-level probe and alarm, as appropriate; • be subject to programmed engineering inspection (normally visual, but extending to water testing where structural integrity is in doubt). 	
<p>For surfacing:</p> <ul style="list-style-type: none"> • design appropriate surfacing and containment or drainage facilities for all operational areas, taking into consideration collection capacities, surface thicknesses, strength/reinforcement; falls, materials of construction, permeability, resistance to chemical attack, and inspection and maintenance procedures; • have an inspection and maintenance programme for impervious surfaces and containment facilities; • unless the risk is negligible, have improvement plans in place where operational areas have not been equipped with: <ul style="list-style-type: none"> – an impervious surface – spill containment kerbs – sealed construction joints – connection to a sealed drainage system 	<p>All storage tanks will be bunded. The bund has a capacity of greater than 110% of the largest tank and at least 25% of the total tank capacity.</p> <p>Secondary containment is provided in all parts of the site where waste will be handled or stored. Clean surface water from the tanker outloading area will be discharged to the River Yare via the site's drainage system, fitted with automated stop valves to prevent pollution entering the river. All joints will be sealed and construction will be appropriate to the use.</p> <p>These surfaces and drainage system will be regularly inspected through the maintenance regime in the site Environmental Management System.</p>

Table 2.4 Measures to Prevent Fugitive Emissions to Surface/Ground Water

Consideration	Measures implemented
<p>All above-ground tanks containing liquids whose spillage could be harmful to the environment should be bunded. Bunds should:</p> <ul style="list-style-type: none"> • be impermeable and resistant to the stored materials; • have no outlet (that is, no drains or taps) and drain to a blind collection point; • have pipework routed within bunded areas with no penetration of contained surfaces; • be designed to catch leaks from tanks or fittings; • have a capacity greater than 110 percent of the largest tank or 25 percent of the total tankage, whichever is the larger; • be subject to regular visual inspection and any contents pumped out or otherwise removed under manual control after checking for contamination; • where not frequently inspected, be fitted with a high-level probe and an alarm, as appropriate; • where possible, locate tanker connection points within the bund, otherwise provide adequate containment; • be subject to programmed engineering inspection (normally visual, but extending to water testing where structural integrity is in doubt). 	<p>All storage tanks will be bunded to meet CIRIA 736 or an equivalent approved standard. The bund has a capacity of greater than 110% of the largest tank and at least 25% of the total tank capacity. Tertiary containment is provided through the wider site drainage system, which is fitted with automated stop valves to prevent pollution to surface water. This also effectively provides secondary containment for the reception point (pipe connection) and unloading areas of the facility.</p> <p>High level alarms will be fitted to tanks to prevent overfilling.</p> <p>Regular inspection and maintenance will be carried out through the Environmental Management System.</p> <p>Routine testing and inspection of tanks and vessels for leaks to ensure there is no fugitive emissions to surface or groundwater will be undertaken.</p> <p>Tanks will have all ancillary equipment within the bunds and any leaks or spillages will be caught by the secondary containment.</p>
Additional Appropriate Measures for Non-hazardous and Inert Waste	
<p>Produce and implement a spillage response plan and train staff to follow it and test it. Procedures and associated training must ensure spillages are immediately dealt with.</p>	<p>A Spill procedure will be produced and implemented through the site's Environmental Management System. Further details are provided in Section 2.11 Specific Requirements for Accidents and Abnormal Operations</p>

2.7 Raw Materials and Raw Materials Selection

Table 2.5 Specific Measures Relating to Raw Materials

Consideration	Measures implemented
<p>The Operator should maintain a list of raw materials and their properties as noted above. The Operator should have procedures for the regular review of new developments in raw materials and for the implementation of any suitable ones with an improved environmental profile. The Operator should have quality-assurance procedures for controlling the impurity content of raw materials. The Operator should complete any longer-term studies needed into the less polluting options and should make any material substitutions identified. Substitutions should be employed, where applicable.</p>	<p>A list of raw materials used at the site will be maintained and reviewed at appropriate intervals.</p> <p>Reviews will look at any available substitutes and consideration for their implementation will be made during this review.</p> <p>Raw materials will be purchased in a manner that facilitates waste reduction and recycling.</p> <p>The regular review of raw materials through the will ensure that if any substitutions for raw materials become available, they are evaluated and reviewed for potential uptake and use.</p>

Table 2.6 Compliance with Indicative BAT For Raw Materials

Indicative BAT for Raw Materials	Compliance with Indicative BAT requirements
<p>The Operator should maintain a list of raw materials and their properties as noted above.</p>	<p>Table 2.8 below, details the raw materials used at the site and their properties.</p> <p>Raw materials are further discussed in the Operating Techniques Report as part of this application.</p>
<p>The Operator should have procedures for the regular review of new developments in raw materials and for the implementation of any suitable ones with an improved environmental profile.</p>	<p>Few raw materials are used on site as there will be no on-site chemical treatment of waste.</p> <p>ASCO UK Limited will review water use at least once every two years to identify whether or not any increased efficiencies can be made.</p> <p>Use of oils and other materials in maintenance will be reviewed at least once every two years in order to assess whether there are opportunities to minimise raw material use. Where improvements in raw material use can be achieved without excessive cost or reduction in the quality of the product these will be implemented.</p>
Additional Appropriate Measures for Non-hazardous and Inert Waste	
<p>Justify the continued use of any substance for which there is a less hazardous alternative.</p> <p>Quality assurance procedures are in place to control the content of raw materials.</p>	<p>Regular review will ensure that any less hazardous alternatives to raw materials used in site are identified and, if appropriate (i.e. without excessive cost or undue reduction in the quality of the result) will be substituted.</p> <p>Quality assurance measures will be handled through the sites ISO 14001 EMS.</p>

Table 2.7 Raw Materials

Raw Material	Required Stage	Chemical Composition	Typical Usage per Annum	Quantity Stored on Site at One Time	Use of material	Hazardous Properties	Assessment of alternatives / Reduction
Lubricating Oil	Plant and machinery Maintenance	Petroleum Hydrocarbon + Additives	100 litres	75 litres Stored: suitable can / drum in a bund or drip tray.	Used for plant and equipment maintenance.	Prolonged or repeated contact with skin may cause mild irritation and possibly dermatitis. Mildly irritating to eyes. Waste oils may be carcinogenic.	Essential to proper operation of plant and machinery, no alternative available. Servicing of plant and machinery carried out in accordance with manufacturer's recommendations.

2.8 Specific Requirements for Waste Recovery and Disposal

Table 2.8 Measures for Waste Minimisation, Recovery and Disposal	
Consideration	Measures Implemented
Waste production should be avoided wherever possible. Any waste that is produced should be recovered, unless it is technically or economically impractical to do so.	Wastes generated on site will be removed and either recovered or disposed of in line with accepted waste management practices and options. Review of raw materials will ensure that any opportunities for purchasing more efficient products that produce less waste, are identified and utilised where appropriate. As new routes for recovery become more viable, these will be investigated as to their feasibility both financially and technically.
Where waste must be disposed of, the Operator should provide a detailed assessment identifying the best environmental options for waste disposal - unless the Regulator agrees that this is unnecessary. For existing disposal activities, this assessment may be carried out as an improvement condition to a timescale to be approved by the Regulator.	Wastes will be assessed to ensure that they are dealt with appropriately and recovered wherever possible. The operator will ensure that wastes are described and appropriate avenues for recovery are identified.
Additional Appropriate Measures for Non-hazardous and Inert Waste	
Implement a residues management plan Carry out a detailed assessment identifying the best environmental options for waste disposal.	A residues management plan will be implemented through the site's environmental management system. The operator will ensure that wastes are described and appropriate avenues for recovery are identified, and materials are only sent for disposal where recovery is reasonably impractical. Options for recovering and disposing of waste produced at the facility will be reviewed on a regular basis options, ensuring best environmental option is implemented and promoting the recovery of waste where technically and economically viable.

2.9 Specific Requirements for Water Use

2.9.1 Water use at the site will be minimal, given the nature of the site and its activities.

Water will be used for the flushing and washing out of tanks and pipes following the storage of wastes at the site.

2.9.2 Contaminated wash waters will be sent for treatment at an appropriately permitted facility.

Table 2.9 Specific Measures Relating to Water Use	
Consideration	Measures implemented
The Operator should carry out a regular review of water use (water efficiency audit).The following	Water usage is minimal at the site and only used for cleaning down tanks and pipes. In most circumstances, pipes will be cleaned with blown air. The wastes are anticipated to be

Table 2.9 Specific Measures Relating to Water Use

Consideration	Measures implemented
<p>general principles should be applied in sequence to reduce emissions to water:</p> <p>Water-efficient techniques, recycling, separate storage of rainwater.</p> <p>The following general principles should be applied in sequence to reduce emissions to water:</p> <ul style="list-style-type: none"> • Water-efficient techniques should be used at source where possible • Water should be recycled within the process from which it issues, by treating it first if necessary. Where this is not practicable, it should be recycled to another part of the process that has a lower water-quality requirement • In particular, if uncontaminated roof and surface water cannot be used in the process, it should be kept separate from other discharge streams, at least until after the contaminated streams have been treated in an effluent treatment system and been subject to final monitoring. <p>Measures should be in place to minimise the risk of contamination of surface waters or groundwater by fugitive releases of liquids or solids.</p> <p>The water-quality requirements associated with each use should be established, and the scope for substituting water from recycled sources identified and input into the improvement plan.</p> <p>Less contaminated water streams should be kept separate where there is scope for reuse.</p> <p>Water usage for cleaning and washing down should be minimised.</p> <p>Fresh water consumption should be directly measured and recorded regularly.</p>	<p>highly aqueous and not prone to building up residues. Water use will be monitored and reviewed every two years. When new opportunities present themselves, they will be appropriately evaluated and if deemed appropriate, incorporated into the site management procedures.</p> <p>ASCO will periodically review opportunities to reuse water. Care has to be given due to cross-contamination of waters used at the site and this will dictate any such recycling.</p> <p>If used, wash water will be stored in separate tank awaiting offsite treatment.. This will be clearly identified and labelled to ensure there is no contamination of clean waters.</p> <p>Fresh water consumption will be minimal.</p>

2.10 Measures for Energy Usage and Environmental Emissions

- 2.10.1 It is predicted that the energy consumption of the site will be negligible, limited to just lighting and the ultrasonic volume measurements on the tanks.
- 2.10.2 The site does not have its own metered energy connection, but is powered through the nearby main base. It is therefore not appropriate to benchmark the specific energy usage relating to the site at this time.
- 2.10.3 Energy minimisation measures will be implemented through ASCOs ISO14001 accredited management system. Table 2.13 describes specific measures that will be in place to minimise energy usage wherever practicable.
- 2.10.4 Estimated carbon dioxide emissions from the site as a result of energy usage are also anticipated to be negligible. The contribution that the site makes to savings in carbon dioxide emissions through reduced use of fossil fuel and reduced waste to landfill are likely to be much more significant than this.

Table 2.10 Specific Measures Relating to Energy Use

Consideration	Measures implemented
<p>The Operator should provide the energy consumption information.</p> <p>The Operator should provide the following Specific Energy Consumption (SEC) information. Define and calculate the SEC of the activity (or activities) based on primary energy consumption for the products or raw material inputs that most closely match the main purpose or production capacity of the installation.</p>	<p>Electricity supply for the site will be derived from connection to the electricity grid via the main base.</p> <p>Energy use for the wider site is metered and records will be kept regarding use of electricity and/or diesel. Energy usage will be reviewed at least once every two years and potential energy savings will be identified and implemented where possible.</p> <p>The only energy usage will be lighting and volume measurement systems.</p>
<p>Energy management techniques should be in place in particular, the need for monitoring of energy flows and targeting of areas for reductions.</p>	<p>Regular reviews will be carried out to determine trends in energy use and identify efficiencies. This will be detailed in the Environmental Management System.</p> <p>In purchasing or replacement of equipment, energy efficiency will be a consideration and energy efficient models will be selected where they deliver the same performance and are of reasonable cost.</p> <p>Energy use will be minimised using simple management techniques including:</p> <ul style="list-style-type: none"> switching plant off when it is not in use; maintaining all equipment in accordance with the manufacturer’s recommendations and ensuring that adequate lubrication is used; and

Table 2.10 Specific Measures Relating to Energy Use

Consideration	Measures implemented
	<ul style="list-style-type: none"> considering energy efficiency in the specification of lighting and tank systems

2.11 Specific Requirements for Accidents and Abnormal Operations

Table 2.11 Accidents and Abnormal Operations

Consideration	Measures Implemented
<p>A formal structured accident management plan should be in place which covers the following aspects:</p> <p>Identification of the hazards to the environment posed by the installation using a methodology akin to a Hazop study.</p>	<p>The permit application includes an Amenity and Accident Risk Assessment.</p>
<p>The hazards having been identified, the process of assessing the risks should address six basic questions:</p> <ul style="list-style-type: none"> how likely is the particular event to occur (source frequency)? what substances are released and how much of each (risk evaluation of the event)? where do the released substances end up (emission prediction - what are the pathways and receptors)? what are the consequences (consequence assessment – what are the effects on the receptors)? what are the overall risks (determination of overall risk and its significance to the environment)? what can prevent or reduce the risk (risk management – measures to prevent accidents and/or reduce their environmental consequences)? 	<p>The Amenity and Accident Risk Assessment identifies potential hazards, pathways and receptors, along with potential incidents that may occur from these, the possible effects and the mitigation measures to be implemented to prevent or manage the risk.</p> <p>Where plant breakdown could affect the compliance of the facility or cause a pollution, that plant will be shut down. If necessary, the site will cease accepting waste until the plant in question has been repaired and compliance is assured.</p>
<p>The following techniques are relevant to most installations:</p> <ul style="list-style-type: none"> there should be an up-to-date inventory of substances, present or likely to be present, which could have environmental consequences if they escape. there should be an up-to-date site plan showing the precise location of wastes having specific hazard characteristics (eg oxidising, flammable, dangerous when wet etc) with clear identification of the perimeters of the various designated storage areas and their maximum storage capacity. 	<p>The Amenity and Accident Risk Assessment identifies all substances that are present on the site that could be a risk to the environment in the event of an accident. Regular reviews will be carried out and any changes notified to the Environment Agency.</p> <p>No flammable materials are used or stored at the site.</p> <p>All storage will be carried out to prevent incidents or accidents.</p> <p>There will be automated process control to ensure that filling will not cause an environmental incident.</p>

Table 2.11 Accidents and Abnormal Operations

Consideration	Measures Implemented
<ul style="list-style-type: none"> • procedures should be in place for checking and handling raw materials and wastes to ensure compatibility with other substances with which they may accidentally come into contact. • storage arrangements for raw materials, products and wastes should be designed and operated to minimise risks to the environment. • there should be automatic process controls backed-up by manual supervision, both to minimise the frequency of emergency situations and to maintain control during emergency situations. • Instrumentation will include, where appropriate, microprocessor control, trips and process interlocks, coupled with independent level, temperature, flow and pressure metering and high or low alarms. • physical protection should be in place where appropriate (eg. barriers to prevent damage to equipment from the movement of vehicles). • there should be appropriate secondary containment. • techniques and procedures should be in place to prevent overfilling of tanks. • where the installation is situated in a floodplain, consideration should be given to techniques which will minimise the risk of the flooding causing a pollution incident or making one worse. security systems to prevent unauthorised access should be provided where appropriate. • there should be formal systems for the logging and recording of all incidents, near-misses, abnormal events, changes to procedures and significant findings of maintenance inspections. • there should be procedures for responding to and learning from incidents, near-misses, etc. • the roles and responsibilities of personnel involved in incident management should be formally specified. • clear guidance should be available on how each accident scenario might best be managed (eg. containment or dispersion, to extinguish fires or to let them burn). • procedures should be in place to avoid incidents occurring as a result of poor communications between staff at shift change or during maintenance or other engineering work. • safe shutdown procedures should be in place. • communication channels with emergency services and other relevant authorities should be established, and available for use in the event of an incident. Procedures should include the 	<p>All deliveries will be supervised and there will be non-return valves and secondary containment to ensure that spillages are not released to the environment.</p> <p>The Environmental Management System will ensure that all incidents and dangerous occurrences will be logged and investigated. Any occurrences or potential for incidents and accidents will be logged and investigated under the Environmental Management System. The findings will be incorporated into site procedures.</p> <p>In the event of an incident communications with emergency services and the Environment Agency will be established and maintained.</p> <p>Staff will be trained and testing of staff knowledge, procedures and materials for incident response will take place.</p> <p>The secondary and tertiary containment infrastructure will retain all waters from fire or spillages so that they are not allowed to escape the site containment. Such waters and effluents will be removed and tankered away by road as soon as possible and safe.</p> <p>Vehicle movements around the bunds enclosing the tanks will be limited to those of lorries that are removing wastes from the tank farm.</p> <p>The site diary will act as a communications log between shifts.</p> <p>There are no risks of fire at the site as the waste is not combustible. No fuels are required for the site operations.</p> <p>The drainage system will be checked under the preventative maintenance schedule. The infrastructure is appropriately constructed and will be serviced and cleaned regularly.</p> <p>Only clean rainwater will be discharged from the facility via the interceptor. Contaminated waters and those accumulated in the bund will be tankered away for appropriate treatment and/or disposal at a suitably permitted site.</p> <p>The sumps and interceptors will be checked and will have fill levels and/or high level alarms to avoid overfilling.</p> <p>Spillages of raw materials will not be high risk. No fuels are stored on site and any oils for maintenance are stored within secondary containment. These oils will be in small containers and so if any spillage did occur, then there would not be any significant volume of oil that could cause a pollution. Clean-</p>

Table 2.11 Accidents and Abnormal Operations

Consideration	Measures Implemented
<ul style="list-style-type: none"> • assessment of harm following an incident and the steps needed to redress this • appropriate control techniques should be in place to limit the consequences of an accident, such as; fire walls, firebreak's isolation of drains, provision of oil spillage equipment, alerting of relevant authorities and evacuation procedures. • personnel training requirements should be identified and training provided. • for drainage systems: – procedures should be in place to ensure that the composition of the contents of a bund sump are checked before treatment or disposal; – drainage sumps should be equipped with a high-level alarm where needed duplicate or standby plant should be provided where necessary, with maintenance and testing to the same standards as the main plant; • spill contingency procedures should be in place to minimise accidental release of raw materials, products and waste materials and then to prevent their entry into water. <p>Process waters, potentially contaminated site drainage waters, emergency firewater, chemically-contaminated waters and spillages of chemicals should be contained and, where necessary, routed to the effluent system and treated before emission to controlled waters or sewer. Sufficient storage should be provided to ensure that this can be achieved. Any emergency firewater collection system should take account of the additional firewater flows and fire-fighting foams.</p> <p>Consideration should be given to the possibility of containment or abatement of accidental emissions from vents and safety relief valves/bursting discs.</p>	<p>up measures would be able to effectively identify and clean up any spillage.</p> <p>General use of oils will be needed to support the running of the facility and plant associated with it. All oil and waste oil storage will be within impermeable surfaced areas and be provided with secondary containment.</p> <p>Pipework will be contained within the secondary containment and will be lagged or otherwise protected from frost and other extremes of weather.</p> <p>All tanks, storage and delivery operations will take place within and on impermeable surfaces with sealed, secondary containment. The impermeable surfaces and secondary containment will be inspected to ensure there is no damage or leaks that could cause a pollution.</p> <p>The operation is one of simple storage and accidental emissions from vents, relief valves etc are unlikely to occur.</p>
<p>Spillage prevention controls must be in place during the transfer of substances (for example, transfer of bulk liquid waste from tanker to storage vessels)</p>	<p>Waste reception and outloading will be supervised and utilise pipework and non-return valves to prevent leaks and spills. All deliveries and offloading will take place within sealed containment.</p> <p>All pipes and valves will be able to withstand pressures that may be present. Pumps and pipework will be regularly inspected for leaks and damage.</p> <p>Contractors on site will be made fully aware of the requirements of the Environmental Permit and will be required to ensure that their equipment is fully compliant with requirements and operated and maintained to prevent leaks and spillages.</p>

Table 2.11 Accidents and Abnormal Operations

Consideration	Measures Implemented
	<p>All bunds will be cleaned and free of materials, liquids and items that will or could reduce their capacity.</p> <p>A proactive and preventative housekeeping and maintenance schedule will be in place to check and ensure all pipes, pumps and valves are in good working order and do not present a risk of leaks.</p> <p>Spill kits are available at the site for any spillages and these kits will be replenished as used.</p> <p>Tankers and ships using the facility will be well maintained. As part of the Environmental Management System, those using the facility to ensure all equipment is will be required in good working order.</p> <p>All wastes will be checked on arrival and will be assigned a tank for discharge into. This tank will have been identified as suitable based on its existing contents and the characteristics of the waste to be deposited.</p> <p>Drummed waste will not be accepted at the site and waste will not be palletised. Wastes will not be decanted from one container to another except for offloading from ships to the tank farm on arrival.</p> <p>Wastes will be kept securely in the tanks at the site until they are unloaded for removal from the site.</p>
Additional Appropriate Measures for Non-hazardous and Inert Waste	
<p>Notify the Environment Agency without delay if an event which is causing, or may cause, significant pollution is detected</p>	<p>The operator will inform the Environment Agency as soon as practicable if an abnormal event has led or may lead to pollution, including:</p> <ul style="list-style-type: none"> • a malfunction • a breakdown or failure • an accident • unpermitted emission of a substance • breach of an emissions limit
<p>Implement a contingency plan</p> <p>Contingency procedures ensure any planned shutdowns at waste management facilities material is sent to are known as far as possible</p> <p>Contracted or regular customers are aware of the contingency plan and of the circumstances in which you would stop accepting waste from them.</p> <p>Consider whether the sites or companies relied on in the contingency plan:</p>	<p>The operator will implement a contingency plan which ensures that the site is able to comply with its environmental permit and site procedures during maintenance and/or shutdown events, including disruption at facilities sending and receiving waste.</p> <p>The contingency measures will ensure that the facility continue to apply appropriate measures for storing and handling waste during any shutdown events or abnormal operations.</p> <p>Wastes will only be accepted at the site is the operator is confident that there is a clear method of recovery or disposal</p>

Table 2.11 Accidents and Abnormal Operations

Consideration	Measures Implemented
<ul style="list-style-type: none"> • can take waste at short notice • are authorised to do so in the quantities and types likely to be needed, in addition to carrying out their existing activities <p>If permitted limits may be exceeded, alternative disposal or recovery options must not be discounted on the basis of extra cost or geographical distance.</p> <p>Unauthorised capacity is not included in the contingency plan.</p>	<p>available for the waste types, including identification of contingency facilities where the preferred route is not available.</p> <p>The environmental permit for the facilities receiving waste, including those used as contingency, from the site will be reviewed to ensure they are appropriate for the recovery or disposal of the wastes.</p> <p>The site has a finite capacity to accept waste (5 tanks) therefore will not exceed its storage capacity. Effective waste tracking methods will ensure the facility will not exceed acceptance of 20,000 tonnes of waste per year. In the unlikely even wastes are scheduled for acceptance beyond the permitted limits for the site, they will be redirected to an appropriately permitted facility (the appropriate facility will not be discounted because of extra cost or geographical distance) which will be identified in the contingency plan.</p>

2.12 Specific requirements for environmental monitoring

Table 2.12 Specific Measures for Environmental Monitoring

Consideration	Measures implemented
<p>The Operator should consider the need for environmental monitoring to assess the effects of emissions to controlled water, groundwater, air or land, or emissions of noise or odour.</p>	<p>Except for observations for dust, noise and odour, there are no specific requirements for monitoring at this site and none will be carried out.</p> <p>The facility's activities do not pose a risk to any sensitive receptors. The site is surfaced with impermeable drainage systems and there is no pathway to groundwater. Site infrastructure will prevent any emissions to surface water.</p> <p>There are no discharge consents and no point source emissions that require monitoring.</p> <p>Each tank will have a pressure relief valve for health and safety, but these only operate during delivery and will not be a continuous emission point.</p> <p>There are no stacks or other emissions points to air at the facility and so no monitoring is proposed.</p> <p>All wastes are dispatched from the site to an appropriately permitted site for treatment or disposal.</p> <p>There will be no emissions to land or groundwater (besides negligible emissions from pressure relief valves), therefore no monitoring will be carried out.</p>

2.13 Measures for Noise and Vibration

Table 2.13 Specific Measures for Noise And Vibration

Consideration	Measures implemented
<p>The Operator should employ basic good practice measures for the control of noise, including adequate maintenance of any parts of plant or equipment whose deterioration may give rise to increases in noise.</p> <p>The Operator should employ such other noise control techniques necessary to ensure that the noise from the installation does not give rise to reasonable cause for annoyance.</p> <p>The Operator should employ such noise control techniques as are considered appropriate to minimise problems to an acceptable level within the BAT criteria.</p>	<p>The only plant that is in use at the site are pumps for movement of wastes. This means that the potential for noise and vibration is very low.</p> <p>Modern and well-maintained plant will be employed at the site which will minimise any noise.</p> <p>Site staff and management will monitor for noise and vibration during the operation of the site and if any complaints or issues are discovered, they will be investigated and remedial action taken.</p> <p>The site is already in use as a resupply base and so the presence of ships and plant exist already. This means that the site will not cause any additional noise or vibration.</p>

2.14 Measures Relating to Facility Management

Table 2.14 Specific Measures Relating to Facility Management

Consideration	Measures implemented
<p>Effective operational and maintenance systems should be employed on all aspects of the process whose failure could impact on the environment covering environmental impacts, maintenance, monitoring and training.</p> <p>Training systems should be in place for all relevant staff which cover aspects of the site.</p> <p>Where industry standards or codes of practice for training exist (e.g. WAMITAB) they should be complied with.</p>	<p>A full Environmental Management System is in place at the site and proposed operations will fully integrated.</p> <p>This system uses annual reviews and continuous improvement to ensure that it is fit for purpose.</p> <p>Training of staff and contractors on the requirements of the permit and Environmental Management System will also be carried out, as well as regular updates. Training will be refreshed as appropriate.</p> <p>A Technically Competent Manager and other trained site management will attend the site for at least the minimum required time to ensure that it is operated according to recognised industry standards.</p>

Table 2.14 Specific Measures Relating to Facility Management

Consideration	Measures implemented
<p>There should be an accident plan which:</p> <ul style="list-style-type: none"> • identifies the likelihood and consequence of accidents • identifies actions to prevent accidents and mitigate any consequences <p>There should be written procedures for handling, investigating, communicating and reporting actual or potential non-compliance with operating procedures or emission limits.</p> <p>The company should adopt an environmental policy and conduct audits.</p>	<p>An accident plan will form part of the Environmental Management System and will be in place at the site to deal with any incidents. This plan will be communicated to all staff and it will be reviewed in line with the ISO14001 and EMS requirements.</p> <p>The Environmental Management System will manage the handling and investigating of any complaints or accidents, both actual and potential and reviewing procedures following these.</p> <p>An Environmental Policy is in place with the site operator.</p>
<p>The company should conduct audits, at least annually, to check that all activities are being carried out in conformity with the requirements of BAT, relevant legislation and EA guidance. Preferably, these should be independent. The company should report annually on environmental performance, objectives and targets, and future planned improvements.</p>	<p>Audits of site activities and compliance will be carried out and any change in operations or plant will be reviewed and procedures updated in the Environmental Management System and an annual report will be completed.</p>
<p>An appropriate accident plan should be in place that covers the relevant points in S5.06.</p>	<p>An appropriate accident plan will be implemented through the site's environmental management system. The Accident and Amenity Risk Assessment provide with the permit application includes relevant points from S5.06.</p>
<p>Additional Appropriate Measures for Non-hazardous and Inert Waste</p>	
<p>The design, installation and maintenance of infrastructure, plant and equipment must be carried out by competent people</p>	<p>Site infrastructure has been and will continue to be designed, installed and maintained by competent, appropriately qualified persons (including Construction Quality Assurance, where appropriate).</p>
<p>Staff carrying out waste acceptance checks, including sampling and analysis of waste, must be appropriately trained and competent.</p>	<p>Training systems in place will ensure that all staff carrying out waste pre-acceptance and acceptance checks, including the site chemist, will be appropriately trained and competent to:</p> <ul style="list-style-type: none"> • classify and characterise the incoming waste types, • identify whether it conforms with the environmental permit and pre-acceptance information , • manage any loads that do not conform to waste acceptance criteria • determine end of waste products
<p>Have a suitably trained facility employee available at all times who will act as an emergency coordinator and will take lead responsibility for implementing the accident management plan.</p>	<p>The TCM will act as the emergency co-ordinator and will take lead responsibility for implementing the accident management plan. When the TCM is not in attendance, the role will be deputised to an appropriately trained site operative who will notify the TCM as soon as practicable.</p>

Table 2.14 Specific Measures Relating to Facility Management

Consideration	Measures implemented
Train employees so they can perform their duties effectively and safely and know how to respond to an emergency.	All site staff will be trained to understand the procedures in the case of an emergency, and their responsibilities.

2.15 Site Closure

Table 2.15 Specific Measures for Site Closure

Consideration	Measures implemented
Should any instances arise which have, or might have, impacted on the state of the site, the Operator should record them along with any further investigation or ameliorating work carried out.	<p>The facility and its activities will be run in compliance with the Environmental Permit. The use of an ISO14001 Environmental Management System will also ensure environmental protection at the facility through its operations.</p> <p>The site will have sealed impermeable drainage and secondary containment. This, along with trained staff and rigid procedures will ensure that the site's operations do not cause pollution or harm. The condition of the site and any occurrences will be documented in the Site Diary and a site condition report through the life of the facility. There will be leak detection on underground pipes and also secondary containment on storage tanks with level gauges, high level alarms and other measures to prevent spillage.</p> <p>At the end of the life of the facility, the wastes will be removed from the tanks to an appropriately permitted facility and all tanks and pipework will be cleaned. The tanks will be left in situ along with the bunding and other infrastructure for further use beyond the life of the facility.</p> <p>The site closure plan will reflect the environmental protection measures and state of the site through its life. It will hold up to date plans, drawings and measures relating to the site.</p> <p>All materials that could give rise to pollution will be removed to appropriate sites. Given the use of sealed impermeable surfaces, then no testing is anticipated to be required. However, should there be instances of pollution or other occurrences, then these assumptions will be reviewed appropriately.</p> <p>The site will as far as practicable, be returned to a state similar to that before the permit was issued and activities commenced.</p>

3 BAT CONCLUSIONS FOR WASTE TREATMENT

3.1.1 While being stored in the onsite tanks, wastes will passively undergo gravity separation, allowing the solid portion of the material to settle out of the liquid through gravity alone. This passive treatment allows the solid and liquid fractions to be drawn off separately and be sent to appropriate treatment and/or disposal more efficiently.

3.1.2 As a listed activity under Schedule 1 of EPR 2016, this treatment method must be undertaken using Best Available Techniques. Table 3.1 summarises how ASCO will comply with the revised BAT Conclusions for Waste Treatment released by the European Union in 2018.

Table 3.1 Assessment Against BAT Conclusions

BAT No.	Indicative BAT Standard	Compliance with indicative BAT Requirements
BAT 1.	Implement and adhere to an environmental management system.	ASCO operate all of their sites in accordance with an Environmental Management System accredited to ISO14001. See Table 2.17 for further information.
BAT 2a.	Set up and implement waste characterisation and pre-acceptance procedures.	ASCO will ensure they have received pre-acceptance information and characterisation for all wastes prior to their acceptance at the facility. See table 2.1 for further information on waste pre-acceptance and characterisation.
BAT 2b.	Set up and implement waste acceptance procedures.	ASCO will implement waste acceptance procedures to ensure that wastes arriving are as expected and that only permitted waste is accepted at the site. A clear rejection procedure is in place for any waste that does not meet the waste acceptance requirements. Additional information is provided in Table 2.2.
BAT 2c.	Set up and implement a waste tracking system and inventory.	A document management system will be used to track and retain all sampling, verification and other documentation that are required for this site and wastes. These will be retained for two years as a minimum.
BAT 2d.	Set up and implement an output quality management system.	ASCO will implement an output quality management system ensuring all muds and liquids will be sampled and tested at an ASCO laboratory to ensure the appropriate recovery/ treatment route is selected.
BAT 2e.	Ensure waste segregation.	Wastes will be stored separately within the tanks according to their properties. See Table 2.3 for further details.
BAT 2f.	Ensure waste compatibility.	There will be no incompatible wastes stored together on site. Hazardous wastes will not be mixed with non-hazardous wastes. See Table 2.3 for further details.
BAT 2g.	Sort incoming solid waste.	Not Applicable

Table 3.1 Assessment Against BAT Conclusions

BAT No.	Indicative BAT Standard	Compliance with indicative BAT Requirements
BAT 3.	Establish and maintain an inventory of waste water and waste gas streams.	Only clean rainwater will be discharged from the facility via the interceptor. Record will be maintained of all other waste waters tankered away for appropriate disposal at a suitably permitted site. Emissions to air are limited to air escaping from pressure relief valves for the displacement of air during filling only.
BAT 4a.	Optimise storage location.	Wastes will be stored within dedicated tanks in a secure compound and provided with an impermeable bund to prevent any risk to sensitive receptors. Tanks are a short distance from where waste will be received to ensure minimal handling. Further information is provided in Table 4.1.
BAT4b.	Adequate storage capacity.	Available storage capacities will be monitored for each tank with level-monitoring and high-level alarms. Wastes will not be accepted unless there is sufficient capacity in the appropriate tank for that waste type. See Table 2.3 for further details.
BAT 4c.	Safe storage operation.	Site tanks are appropriate for the secure storage of the permitted waste types and will be subject to regular maintenance. Additional information is provided in Table 2.3.
BAT4d.	Separate storage area for handling of packaged hazardous waste.	Not applicable.
BAT 5.	Implement handling and transfer procedures.	Waste will be subject to stringent waste acceptance procedures before being directly transferred to site tanks via directly piping from ship or road tanker. All waste deliveries will be supervised by a competent member of staff to detect any spills. Tanks will be clearly labelled with their contents to prevent mixing of incompatible waste types. Additional information is provided in Table 2.3.
BAT 6.	Monitor key process parameters for relevant emissions to water.	The facility is constructed with impermeable surfacing and a bund to provide secondary containment for the tanks. There will be no direct runoff or discharges to surface waters or groundwaters. An interceptor system is provided for clean surface water runoff from the tanker outloading area.
BAT 7.	Monitor emissions to water in accordance with the associated Table of monitoring requirements.	There are no direct emissions to groundwater or surface water. Liquid waste will be sampled prior to offtake to an appropriate treatment facility to ensure acceptance criteria is met.
BAT 8.	Monitor channelled emissions to air for NH3, VOCs and odour where they may be present.	Daily olfactory monitoring will be undertaken on the vicinity of the tanks.

Table 3.1 Assessment Against BAT Conclusions

BAT No.	Indicative BAT Standard	Compliance with indicative BAT Requirements
BAT 9.	Monitor diffuse emissions of organic compounds to air from the regeneration of spent solvents.	Not applicable.
BAT 10.	Monitor odour where an odour nuisance at sensitive receptors is expected.	No odour nuisance is expected. The closest residential receptors are 240m away. Daily olfactory monitoring will be carried out.
BAT 11.	Monitor consumption of water, energy and raw materials.	ASCO will record and monitor the consumption of raw materials, energy and water. Consumption will be reviewed at least every 2 years to identify if more efficient measures can be implemented.
BAT 12.	Implement and review an Odour Management Plan.	Wastes accepted at the site are not inherently odorous and emissions to air from the process will be limited to emissions from pressure relief valves during deliveries only. Olfactory monitoring will be undertaken daily. Any detected instances of odour, including complaints received, will be investigated and their cause remediated wherever necessary.
BAT 13.	Reduce odour by: <ul style="list-style-type: none"> • Minimising residence times • Using chemical treatment • Optimising aerobic treatment. 	Wastes accepted at the site are not inherently odorous and will be stored in enclosed tanks. Wastes will be removed from site in a timely manner, allowing enough time for gravity separation to take place.
BAT 14.	Use appropriate techniques to reduce diffuse emissions of dust, organic compounds and odour.	Dust will not be generated as only wet waste is accepted. Olfactory monitoring will be undertaken daily and any instances of odour will be appropriately remediated.
BAT 15, 16.	Applies to use of flares and reduction of resulting emissions	Not Applicable
BAT 17.	Implement and review a noise and vibration management plan.	A dedicated noise and vibration management plan is not considered necessary as the potential for noise and vibration pollution is very low. Site staff and management will monitor for noise and vibration during the operation of the site and if any complaints or issues are discovered, they will be investigated and remedial action taken. Additional information is provided in Table 2.16
BAT 18.	Use appropriate measures to reduce noise.	Noise is not expected to be an issue for this site. All equipment will be inspected and maintained to minimise noise.
BAT 19.	Use appropriate measures to reduce emissions of waste water including segregation of water streams and adequate drainage.	All tanks are located within an impermeable bund which meets the C736 standard. There will be no direct runoff or discharges to surface waters or groundwaters. Leak detection will be installed for all sub-surface pipework. An interceptor system is provided for clean surface water runoff from the

Table 3.1 Assessment Against BAT Conclusions

BAT No.	Indicative BAT Standard	Compliance with indicative BAT Requirements
		tanker outloading area. Table 2.4 provides further information.
BAT 20.	Use appropriate measures to treat waste water.	Any waters being sent off site for treatment will be sampled and tested at an ASCO lab to ensure the appropriate recovery/ treatment route is selected.
BAT 21.	Limit environmental consequences of accidents by <ul style="list-style-type: none"> • including protection measures • managing accidental emissions • incident/accident registration and assessment. 	<p>The process will be fully bunded and will be provided with impermeable pavement so that any leak or spillage is contained, as shown in Drawing BM12124_002.</p> <p>Sufficient site security will be provided to protect against vandalism or similar.</p> <p>Any spillages will be cleaned as soon as possible.</p> <p>All plant, equipment and infrastructure will be inspected and maintained.</p> <p>All incidents and the subsequent mitigation will be recorded, and this information will be reviewed to identify trends and put appropriate remedial measures in place.</p> <p>Further details of measures for accident and abnormal operations are provided in Table 2.14.</p>
BAT 22.	Substitute raw materials with waste where appropriate.	Not applicable. Few raw materials will be used and wastes do not provide a suitable alternative.
BAT 23.	Implement and energy efficiency plan and energy balance record.	Procedures will be in place under the Environmental Management System (EMS) so that energy use will be reviewed and savings will be made where possible.
BAT 24.	Maximise reuse of packaging.	Not applicable
BAT 25, 26, 27, 28.	Applies to mechanical treatment of waste.	Not applicable
BAT 29, 30	Applies to treatment of WEEE.	Not applicable
BAT 31.	Applies to pre-treatment of waste for incineration.	Not applicable
BAT 32.	Applies to treatment of WEEE containing mercury.	Not applicable
BAT 33, 34, 35, 36, 37, 38, 39	Applies to biological treatment	Not applicable

Commented [A1]: Same as previous

Table 3.1 Assessment Against BAT Conclusions

BAT No.	Indicative BAT Standard	Compliance with indicative BAT Requirements
BAT 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51	Applies to various physico-chemical treatment methods: <ul style="list-style-type: none"> • solid and/or pasty waste • re-refining oil waste, • waste with calorific value • treatment of spent activated carbon, waste catalysts and excavated contaminated soil • Decontamination of Equipment Containing PCBs 	Not applicable to aqueous wastes
BAT 52	Monitor inputs for the treatment of water-based waste.	Waste arriving on site will be subject to stringent waste pre-acceptance and acceptance procedures, as required by BAT 2.
BAT 5	Reduce emissions of HCl, NH ₃ and organic compounds to air using one of the following techniques: adsorption....	Emissions to air are expected to be insignificant. However, should an odour problem be detected arrangements will be made odour mitigation to be carried out.

4 WASTE STORAGE, SEGREGATION AND HANDLING APPROPRIATE MEASURES

4.1.1 This section considers how ASCO's Ship to Shore Facility will meet Environment Agency guidance¹ on Chemical Waste: appropriate measures for waste storage, segregation and handling at regulated facilities with an environmental permit for treating or transferring chemical waste.

Table 4.1: Waste Storage, Segregation and Handling Appropriate Measures

Consideration	Measures Implemented
You must store waste in locations that minimise the handling of waste. Waste handling must be carried out by competent staff using appropriate equipment.	<p>Wastes will be stored within dedicated tanks at the facility, a short distance from where it will be received to ensure minimal handling.</p> <p>All deliveries into the facility's tanks will be fully supervised by a trained member of staff. The facility's Technically Competent Manager will be contactable 24/7 should they be required.</p>
Where possible, you should locate storage areas away from watercourses and sensitive perimeters (for example, those close to public rights of way, housing or schools). You must store all waste within the secure area of your facility to prevent unauthorised access and vandalism.	<p>The nature of the ship to shore facility means that storage areas need to be located near to the River Yare. However, secondary and tertiary containment is provided.</p> <p>The storage tanks are located on a secure existing facility. The site is staffed and there is secondary and tertiary containment of the tanks should vandalism occur.</p>
<p>Where relevant, you must confirm to HSE standards and in particular to:</p> <p>HSG51 Storage of flammable liquids in containers,</p> <p>HSG71 Chemical warehousing: storage of packaged dangerous substances,</p> <p>HSG76: Warehousing and storage: a guide to health and safety,</p> <p>HSG140 Storage of flammable liquids in tanks,</p> <p>CS21 Storage and handling of organic peroxides.</p>	No flammable liquids or organic peroxides will be stored at the facility, and there will be no warehousing type storage.
You must clearly document the maximum storage capacity of your site and the designated storage areas. You must not exceed these maximum capacities. You should define capacity in terms of, for example, maximum tank or vessel capacities, tonnage and numbers of skips, pallets or containers. You must regularly monitor the quantity of stored waste on site and designated areas and check against the allowed maximum capacities.	<p>Full details of the capacity of the designated storage areas are provided in the Operating Techniques report accompanying the permit application.</p> <p>Fill level monitoring and high-level alarms will be fitted to tanks to ensure that their contents and fill level are known. Available storage capacities will be monitored for each tank. Wastes will not be accepted unless there is sufficient capacity in the appropriate tank for that waste type.</p>

¹ <https://www.gov.uk/guidance/chemical-waste-appropriate-measures-for-permitted-facilities/4-waste-storage-segregation-and-handling-appropriate-measures>

Table 4.1: Waste Storage, Segregation and Handling Appropriate Measures

Consideration	Measures Implemented
<p>You must clearly mark hazardous waste storage areas and provide signs showing the maximum quantity and hazardous properties of wastes that can be stored there.</p>	<p>Wastes will be clearly identified and their storage labelled or otherwise identified so that staff are able to easily identify the contents of each tank.</p>
<p>Storage area drainage infrastructure must:</p> <ul style="list-style-type: none"> • contain all possible contaminated run-off, • prevent incompatible wastes coming into contact with each other, • make sure that fire cannot spread. 	<p>Wastes will be stored within dedicated tanks at the facility. Secondary containment is provided through a sealed bund constructed to BS8500 providing a storage capacity greater than 110% of the largest tank and at least 25% of the total capacity of all storage tanks. Tertiary containment is provided through a drainage system across the wider site, fitted with automated shut off valves which engage if hydrocarbon are detected in the runoff from site.</p> <p>There are no risks of fire at the site as the waste is not combustible. No fuels are required for the site operations.</p>
<p>Secondary and tertiary containment systems must conform to CIRIA guidance C736 Containment systems for the prevention of pollution.</p>	<p>A CIRIA risk assessment has been undertaken as part of the permit application and is attached as Appendix 1.</p>
<p>You must store containerised wastes that are sensitive to air, light, heat, moisture or extreme ambient temperatures under cover protected from such ambient conditions. Covered areas must have good ventilation. This applies to any such container:</p> <p>held in general storage, reception storage (pending acceptance) or quarantine,</p> <p>being emptied, repackaged or otherwise managed.</p> <p>For example, waste held in fibre or cardboard primary or secondary packaging should be stored under cover in a dry area and not exposed to rain or moisture. It must be kept off floors to prevent damage by damp.</p>	<p>Wastes will be stored within dedicated tanks at the facility. There will be no containerised wastes, sensitive to ambient conditions, stored at the facility.</p>
<p>You must store wastes in sealed metal containers under cover if they have the potential for self-heating or self-reactivity. You must monitor the containers for heat build-up. Such wastes include rags and filter materials contaminated with metal swarf, low boiling point oils or low flash point solvents.</p>	<p>No materials with the potential for self-heating or self-reactivity will be stored on site.</p>

Table 4.1: Waste Storage, Segregation and Handling Appropriate Measures

Consideration	Measures Implemented
<p>Wherever practicable you should store all other wastes under cover. Covered areas must have good ventilation. This applies to any such container:</p> <ul style="list-style-type: none"> held in general storage, reception storage (pending acceptance) or quarantine being emptied, repackaged or otherwise managed Under cover storage provides better protection for containers than open air storage and minimises the generation of contaminated water. Covered storage also: <ul style="list-style-type: none"> lowers temperature fluctuations that can cause pressure build up in containers, reduces the degradation of containers through weathering. 	<p>Wastes will be stored within dedicated tanks at the facility.</p> <p>There are no covered areas within the facility.</p>
<p>You must not store hazardous waste in open-topped containers. Empty open-topped containers should be kept in a building or undercover to prevent rainwater ingress.</p>	<p>Hazardous wastes will be stored within dedicated sealed tanks at the facility.</p>
<p>You must not store or hold wastes on site in vehicles or vehicle trailers unless you are receiving them or preparing them for imminent transfer (meaning that you will remove them from site within 24 hours, or 72 hours if over a weekend).</p>	<p>Wastes will be stored within dedicated tanks at the facility.</p> <p>Waste deliveries will be made by ship and road tanker whilst all wastes will be removed from site by road tanker. These will be carried out in a timely manner and so wastes will not be held in vehicles for extended periods of time.</p>
<p>You should pay particular attention to avoid the build-up of static electricity when you are storing or handling flammable wastes and materials. You should use leak detection systems and alarms (for example VOC alarms) and automatic fire suppression equipment based on a recorded risk assessment.</p>	<p>No flammable wastes or fuels will be stored on site.</p>
<p>You must provide adequate bunding of all storage areas, and containment and treatment of any water run-off.</p>	<p>A sealed bund around all five tanks has been constructed to BS8500 providing a storage capacity greater than 110% of the largest tank and at least 25% of the total capacity of all storage tanks.</p>
<p>You must not accumulate waste. You must treat wastes, or remove them from the site, as soon as possible. Generally you should do this within one month of receipt but all wastes must be removed within 6 months of receipt. This applies even when the waste might be used as a reactant. Where a shorter time period is given in a permit condition you must comply with the permit for that waste. Where a waste is stored for longer than allowed you must inform the Environment Agency.</p>	<p>Wastes will generally be removed from site within a few days after receipt because the facility is being established to provide for a more efficient system than is currently in place whereby ships are unloading directly into road tankers on the quayside, which is dependent on the tide and can be during the night. The operational principle will be that road tankers will be used to transport wastes from site when a sufficient quantity of a waste has been received to ensure cost effective transport costs. Regardless, wastes will not be stored on site for more than 6 months.</p>

Table 4.1: Waste Storage, Segregation and Handling Appropriate Measures

Consideration	Measures Implemented
All stored containers must keep the labelling they had at acceptance. If the label is damaged or no longer legible you should replace the label with that same information.	<p>The site staff will ensure that appropriate duty of care paperwork is exchanged and that the waste is correctly identified before it is allowed to be offloaded to the facility.</p> <p>The Technically Competent Manager for the site will ensure that the contents of the waste tanks are clearly labelled as to their contents, and that damaged labels are replaced appropriately.</p>
You must handle and store containers so that the label is easily visible and continues to be legible.	The Technically Competent Manager for the site will ensure that all labelling continues to be visible and legible.
You should keep solid waste dry and avoid the dilution of hazardous waste.	<p>No solid wastes will be stored at the site.</p> <p>Hazardous wastes will not be diluted with non-hazardous wastes as they will be stored separately.</p>
You must keep clean rainwater and clean cooling water separate from wastes and waste waters.	<p>A cooling water system will not be necessary and will not be used on site.</p> <p>Rainwater accumulating in the bund will be tested for contamination before being pumped out. Clean rainwater will be discharged to the River Yare, and any contaminated water will be sent to a permitted treatment facility.</p>
You must keep incompatible wastes segregated so that they cannot come into contact with one another. You must store flammable wastes apart from other wastes to prevent fire spreading between them and other materials. You must use sealed drainage systems to prevent leaks and spillages contaminating other wastes.	<p>Wastes will be stored separately within tanks according to their properties. There will be no incompatible wastes stored on site. Hazardous wastes will not be mixed with non-hazardous wastes.</p> <p>Tertiary containment is provided through the site's drainage system, fitted with automated shut-off valves.</p>
There must be pedestrian and vehicular access (for example, forklift) at all times to the whole storage area so that you can retrieve containers without removing others that may be blocking access – other than removing those in the same row.	All tanks are located within a bund (tank farm). Pedestrian access is provided through fixed ladders whilst any vehicular access will only be possible from outside of the bund walls. Wastes will only be stored within dedicated tanks at the facility rather than containers.
You must store all waste containers in a way that allows easy inspection. You must maintain safe access, with a gap of at least 0.7m between rows of bulk containers or palletised wastes.	No waste containers or palletised wastes will be stored at the site.
You must move drums and other mobile containers between different locations (or loaded for removal off site) following written procedures. You must then amend your waste tracking system to record these changes.	No drums or mobile containers will be stored at the site.

Table 4.1: Waste Storage, Segregation and Handling Appropriate Measures

Consideration	Measures Implemented
You must stack bags and boxes of waste no more than 1m high on a pallet. You must not stack pallets more than 2 high.	No bags and boxes of waste will be stored at the site.
You must stack containers specifically designed for stacking, and no more than 2.2m high on a pallet.	No containers or pallets will be stored at the site.
You must store all other containers on pallets. You must not stack these pallets more than 2 high, except for empty containers which can be stacked 3 high.	No containers or pallets will be stored at the site.
Stacked bags, boxes and containers must be stable. They must be secured with, for example, banding or shrink-wrap, if required. The packages must not extend beyond (over-hang) the sides of the pallet. Any shrink-wrap used must be clear or transparent so that you can identify waste types, damaged containers, leaks or spillages and incorrectly stacked containers. You must be careful not to damage any packages during stacking.	No bags, boxes or containers of waste will be stored at the site.
All waste containers must remain fit for purpose. You must check any containers (and pallets they may be stored on) daily and record non-conformances. Non-compliant containers and pallets must be made safe. You must immediately and appropriately manage any unsound, poorly labelled or unlabelled containers (for example, by relabelling, over drumming and transferring the container's contents). You must risk assess, approve and record the use of containers, tanks and vessels: beyond their specified design life, where you use them for a purpose, or substances, other than the ones they were designed for.	No containers or pallets will be stored at the site. All storage facilities will be subject to a regular, preventative maintenance schedule detailed in the Environmental Management System. The site staff are trained and fully conversant with the requirements of the inspection regimes and reporting of any faults.
You must not handle waste or its packaging in a way that might damage its integrity, unless it is appropriate to destroy a waste or its packaging, for example by shredding. You must not, for example, walk on or throw waste or waste packages.	All waste deliveries will be made by ship whilst all wastes will be removed from site by road tanker. Waste receipt and unloading will be supervised and utilise pipework and non-return valves to prevent leaks and spills. All deliveries and offloading will take place within sealed containment.
You should, where applicable and based on a recorded risk assessment, make inert the atmosphere of tanks containing organic liquid waste with a flashpoint less than 21°C. This can be done, for example, by using nitrogen gas.	No organic liquid waste with a flashpoint less than 21°C will be stored on site.
You must store asbestos waste double bagged or wrapped, in sealed, closed and locked containers. You must not store asbestos waste loose. You must not put asbestos wastes into bays or transfer it between different skips or containers. You must not use mechanical equipment, for example loading shovels, chutes and conveyors to move asbestos waste.	No asbestos will be stored on site.

Table 4.1: Waste Storage, Segregation and Handling Appropriate Measures

Consideration	Measures Implemented
You must not stack wheeled containers on top of one another. Do not stack empty wheeled containers into one another more than 2.2m high.	No wheeled containers will be stored on site.
All containers that need them should have a lid or bung, and the lid or bung must be closed except when the container is being sampled, having waste added into it or having waste removed from it.	No lidded containers will be present on site. All tanks will be enclosed.
You must not stack skips containing waste. Skips containing hazardous waste must be enclosed when not being loaded or unloaded. You should store loose bulk hazardous wastes under cover.	No skips will be stored at the site.
You can use racking systems to store waste but you must consider segregation, ability to inspect, separation and fire suppression measures. Racking systems must be designed and constructed in accordance with HSG76 Warehousing and storage.	No racking systems will be in operation at the facility.
You must: contain wash waters within an impermeable area and either discharge them to foul sewer or dispose of them appropriately off site, prevent run-off into external areas or to surface water drains.	Wash waters will only be generated when tanks are being cleaned as part of the maintenance programme. Wash waters from tank cleaning will be pumped into IBCs within the bund. The facility is constructed with impermeable surfacing and a bund to provide secondary containment for the tanks and any other polluting liquids or wastes. There will be no direct runoff or discharges to surface waters or groundwaters.
You must manage waste in a way that prevents pests or vermin. You must have specific measures and procedures in place to deal with wastes that are identified as causing pests or vermin.	All deliveries and offloading of wastes will take place through sealed pipework and wastes will be stored within dedicated sealed tanks at the facility. Permitted wastes do not present a risk of attracting pests or vermin.
You must inspect storage areas, containers and infrastructure daily. You must deal with any issues immediately. You must keep written records of the inspections. You must rectify and log any spillages of waste.	All storage infrastructure will be subject to a regular, preventative maintenance schedule detailed in the Environmental Management System. The site staff are trained and fully conversant with the requirements of the inspection regimes and reporting of any faults. Whilst spillages are very unlikely, in the event of one occurring, then this will be cleaned up using on site spill kits and then disposed of appropriately. Details will be entered into the site diary.
You must train forklift drivers in the handling of palletised goods, to minimise forklift truck damage to the integrity of containers and infrastructure.	No forklift trucks will be in operation at the site.

Table 4.1: Waste Storage, Segregation and Handling Appropriate Measures

Consideration	Measures Implemented
<p>You must not carry out activities that represent a clear fire risk within any storage area. Examples include:</p> <ul style="list-style-type: none"> • Grinding, • welding or brazing of metalwork, • smoking, • parking normal road vehicles, except while unloading or loading, • recharging batteries 	<p>No activities which pose a clear fire risk will take place within the storage area at the facility.</p>
Bulk storage	
<p>Where relevant, bulk storage systems must conform to CIRIA guidance, and in particular to:</p> <p>C535 Above ground proprietary prefabricated oil storage tank systems,</p> <p>C598 Chemical storage tank systems - good practice</p> <p>C736 Containment systems for the prevention of pollution</p>	<p>Proprietary prefabricated oil storage tank systems comply with CIRIA C535</p> <p>A CIRIA 736 risk assessment has been undertaken as part of the permit application and is included as Appendix 1.</p>
<p>You must use tanks and associated equipment that are suitably designed, constructed and maintained. You must do a risk assessment to validate the design and operation of bulk storage systems. Before you use new tanks and equipment you must check they are working correctly. You must periodically examine and test that your tanks meet the standards set out in EEMUA Publication 231: The mechanical integrity of plant containing hazardous substances.</p>	<p>Before the ship to shore facility becomes operational a risk assessment will be undertaken to validate the design and operation of the bulk storage system. Tanks and equipment will be tested before use and they will be periodically examined and tested.</p> <p>Tanks will meet the standards set out in EEMUA Publication 231: The mechanical integrity of plant containing hazardous substances.</p>
<p>You should vent bulk storage tanks and silos through suitable abatement.</p>	<p>Each tank will have a pressure relief valve for health and safety, but these only operate occasionally and will not be a continuous emission point and no abatement is required.</p>
<p>You must locate bulk storage vessels on an impermeable surface which is resistant to the material being stored. The surface must have self-contained drainage to prevent any spillage entering the storage systems or escaping off site. Impermeable surfaces must have sealed construction joints.</p>	<p>All tanks are located on an area of impermeable drainage with secondary and tertiary containment.</p>

Table 4.1: Waste Storage, Segregation and Handling Appropriate Measures

Consideration	Measures Implemented
<p>You must provide bunds for all tanks containing liquids (whether waste or otherwise) which could be harmful to the environment if spilled. Bunds must meet the CIRIA C535 or C736 standard and:</p> <ul style="list-style-type: none"> be impermeable, stable and resistant to the stored materials, have no outlet (that is, no drains or taps), and drain to a blind collection point, have pipework routed within bunded areas with no penetration of contained surfaces, be designed to catch leaks from tanks or fittings, have a capacity calculated following the relevant CIRIA guidance, have regular visual inspections – you must pump out or remove any contents under manual control after you have checked for contamination, be fitted with a high level probe and an alarm (as appropriate) if not frequently inspected, have programmed engineering inspections (extending to water testing if structural integrity is in doubt), be emptied of rainwater regularly to maintain the containment capacity 	<p>All tanks and associated pipework will be located within a single bund with a capacity of c. 392m³ that provides sufficient capacity for 110% of the largest tank (c.177m³) and at least 25% of the total volume of all tanks (137.5m³).</p> <p>The bund meets the CIRIA C736 standard. A CIRIA C736 risk assessment has been undertaken as part of the permit application and is attached as Appendix 1.</p> <p>The bund stable, constructed with impermeable material resistant to the permitted waste types accepted on site.</p> <p>The bund will have no outlets and pipework will be routed so as not to penetrate or compromise the integrity of the bund.</p> <p>The bund is regularly inspected for its condition and for accumulation of any liquid, assuring containment capacity is maintained. Rainwater will be subject to appropriate testing before being pumped out.</p>
<p>You must control sludge build up and foam in tanks, for example by regularly sucking out the sludge and using anti foaming agents.</p>	<p>Tanks and pipework will be flushed and washed out with water following the storage of wastes to prevent the build-up of any sludge.</p> <p>By its nature, waste received on site is not expected to foam.</p>
<p>You should equip storage and treatment tanks with an automatic level monitoring system and an associated alarm or trip system. These systems must be sufficiently robust (for example, be able to work if sludge and foam are present) and regularly maintained. You must fit tanks with suitable overfill protection.</p>	<p>Fill level monitoring and high-level alarms will be fitted to tanks to ensure that their contents and fill level are known.</p> <p>Available storage capacities will be monitored for each tank. Wastes will not be accepted unless there is sufficient capacity in the appropriate tank for that waste type.</p>
<p>You must be able to close all connections to vessels, tanks and secondary containment via suitable valves. You must fit a valve close to the tank if you have bottom outlets, and have at least 2 isolation points in case of valve failure.</p>	<p>Non-return valves and secondary containment will be in place to ensure that spillages are not released to the environment.</p>
<p>You must direct overflow pipes to a contained drainage system (for example the relevant secondary containment) or to another vessel where suitable control measures are in place.</p>	<p>All tanks will be located within a secondary containment system comprising an impermeable bund, in addition to tertiary containment provided by the wider site's drainage system.</p>

Table 4.1: Waste Storage, Segregation and Handling Appropriate Measures

Consideration	Measures Implemented
<p>Tanks, pipework and fittings must be examined by a competent person, following a written scheme. The scope and frequency of examination must also be determined by a competent person. You must work out how often to carry out these internal examinations using a risk assessment approach. This should be based on:</p> <p>tank service, maintenance history, known and potential damage mechanisms and their rates of attack.</p>	<p>All storage facilities (including tanks, pipework and fittings) will be subject to a regular, preventative maintenance schedule detailed in the Environmental Management System. The site staff are trained and fully conversant with the requirements of the inspection regimes and reporting of any faults.</p>
<p>You must have systems in place to make sure that loading, unloading and storage are safe, considering any associated risks. This can include:</p> <p>having piping and instrumentation diagrams, using ticketing systems, using key locked coupling systems, having colour coded points, fittings and hoses, using specific coupling or hose sizes for certain waste transfers.</p>	<p>Waste receipt and outloading will be supervised and utilise pipework and non-return valves to prevent leaks and spills. All deliveries and offloading will take place within sealed containment.</p>
<p>As a general rule, you must not use open topped tanks, containers, vessels or pits to store or treat hazardous or liquid wastes.</p>	<p>All wastes will be stored within dedicated sealed tanks at the facility.</p>
Transfer of waste into and from tankers	
<p>All pipes, hoses, connections, couplings and transfer lines must be fit for purpose and resistant to the wastes being stored. You must use a suitable pipework coding system (for example, RAL European standard colour coding).</p>	<p>All pipes and valves will be able to withstand pressures that may be present. Pumps and pipework will be regularly inspected for leaks and damage.</p> <p>All pipework will be colour coded or labelled to identify its use. Valves will be clearly labelled or identified.</p>
<p>Site staff must supervise loading and unloading activities, either directly or via CCTV.</p>	<p>All deliveries into the facility's tanks will be fully supervised by a trained member of staff. The facility's Technically Competent Manager will be in attendance at a frequency appropriate to oversee site activities .</p>

Table 4.1: Waste Storage, Segregation and Handling Appropriate Measures

Consideration	Measures Implemented
<p>You must make sure that transfers into and from tankers only take place after you have completed any relevant verification and compatibility testing, and then only with the approval of an appropriate chemist or manager. The approver must specify:</p> <p>which batch or load of material is to be transferred,</p> <p>the receiving storage vessel,</p> <p>the equipment required, including spillage control and recovery equipment,</p> <p>any special provisions relevant to that batch or load including minimising odour and other fugitive emissions.</p>	<p>Wastes will be sampled on arrival to ensure that it is as described and that it conforms to the characterisation and written descriptions of the expected wastes.</p> <p>Samples may also be taken on board each ship during or after loading from the drilling platform and will undergo verification and compliance testing. This information will be made available to the waste facility on arrival at Great Yarmouth.</p>
<p>You must have in place systems to prevent 'tanker drive off' (a vehicle pulling away whilst still coupled).</p>	<p>All deliveries of waste will be supervised by a suitably trained site operative who will ensure that the tanker is decoupled from the facility pipework once the operation is complete.</p>
<p>You must make sure that the transfer of waste from tankers is only carried out by competent staff. You must give them enough time, so they are not under pressure to work more quickly than is deemed acceptable.</p>	<p>Waste receipt and unloading will be supervised and utilise pipework and non-return valves to prevent leaks and spills.</p> <p>All deliveries into the facility's tanks will be fully supervised by a trained member of staff. The facility's Technically Competent Manager will be in attendance at a frequency appropriate to oversee site activities.</p>
<p>You must have measures in place to make sure that couplings are a correct fit. This will prevent couplings from loosening or becoming detached. You should provide, maintain and clean your own couplings and hoses to guarantee their integrity and fitness. You should also:</p> <p>make sure you take special care so that a coupling is able to withstand the maximum shut valve pressure of the transfer pump,</p> <p>maintain a sound coupling at each end of the transfer hose, even when a gravity feed system is in place, and protect the transfer hose,</p> <p>control potential leaks from coupling devices by using simple systems such as drip trays.</p>	<p>All pipes and valves have been specified to fit and prevent any leakage, in addition they will withstand pressures that may be present. Pumps and pipework will be regularly inspected for leaks and damage.</p>
<p>You must make sure that transfers into and from tankers only take place in bunded areas designed to contain a worst case spillage. You must have emergency storage for leaking vehicles to minimise any acute incidents caused by a seal on a tanker failing.</p>	<p>Secondary containment is provided in all parts of the site where waste will be transferred. All transfers will be supervised. Any leaks identified will result in transfer operations ceasing immediately. All spilt waste liquids will be contained by the secondary containment provided by the site drainage system.</p>
<p>You should have systems and procedures in place to make sure that wastes due to be transferred comply with the carriage of dangerous goods when they are packaged and transported.</p>	<p>Waste materials will be dispatched off site in accordance with all relevant legislation. Waste will be transported by registered Waste Carriers to ensure that materials are transported safely for treatment and/or disposal.</p>

Table 4.1: Waste Storage, Segregation and Handling Appropriate Measures

Consideration	Measures Implemented
<p>You must make sure that the transfer of waste from a tanker to a drum or vice versa is done in a dedicated area. A minimum of 2 trained and competent staff, working to formal written instructions, must perform the transfer. They must check any pipes and valves before and during the transfer. You must fit dip pipes with a shut-off valve to control the dispensing into containers and prevent overfilling.</p>	<p>All waste transfers will be fully supervised by 2 trained members of staff. The facility's Technically Competent Manager will be in attendance at the site should they be required.</p> <p>Pumps and pipework will be regularly inspected for leaks and damage.</p>
<p>You must make a record of any spillages. You must retain spillages within the bunded areas and collect them promptly using, for example, pumps or absorbents.</p>	<p>Whilst spillages are very unlikely, in the event of one occurring, then this will be cleaned up using on site spill kits and then disposed of appropriately. Details will be entered into the site diary.</p>
<p>You must make sure that tankers are not used as blending or reaction vessels as this is not their designed purpose.</p>	<p>No mixing or blending of wastes will take place at the facility.</p>
<p>You must take operational and design precautions when mixing or blending wastes, depending on the composition and consistency of the wastes (for example when vacuuming dusty or powdery wastes).</p>	<p>No mixing or blending of wastes will take place at the facility.</p>
<p>Where you use rotary-type pumps, they must be equipped with a pressure control system and safety valve.</p>	<p>Waste receipt and outloading will be supervised and utilise pipework with non-return valves to prevent leaks and spills. Tanks will be fitted with pressure-relief valves.</p>
<p>You must pump sludges. Do not pour them.</p>	<p>Sludges accepted under the permit will be pumped from the delivering ship to the facility's storage tanks. Stored sludges will then be pumped from the tank to the outbound tanker vehicle.</p> <p>No wastes will be poured on site.</p>
<p>When loading and offloading odorous, flammable or volatile liquids between bulk storage tanks and tankers, you must use vapour balance lines to transfer the displaced vapours from the receiving vessel to the vessel you are pumping from.</p>	<p>No odorous, flammable or volatile liquids will be handled at the facility.</p>
<p>You must follow safe operating procedures designed to reduce the risk of explosion and fugitive emissions when you transfer waste from powder tankers into silos. You must use trained and competent personnel.</p>	<p>No powdered materials will be handled at the facility.</p>
<p>You must carry out routine maintenance to prevent failure of the plant or equipment. This may include the failure of a pump seal or the blockage of a filter pot commonly used at transfer points.</p>	<p>Routine visual inspections of all pipes, surfacing, tanks and secondary containment will be undertaken. These will be delivered through the Environmental Management System in addition to a preventative maintenance schedule.</p>

Table 4.1: Waste Storage, Segregation and Handling Appropriate Measures

Consideration	Measures Implemented
<p>You must continue using the waste tracking system that began at the pre-acceptance stage for the whole time waste is kept at the site.</p>	<p>The document management system will be used to track and retain all sampling, verification and other documentation that are required for this site and wastes. These will be retained for two years as a minimum.</p>
Aerosol storage	
<p>You must store aerosol canisters under cover in secure, well-ventilated containers, and within caged storage areas. You must also store them in a well-vented place that is not subject to extreme temperatures or direct sunlight. You must not store canisters in open containers to prevent the risk of them spreading fires by 'missiling' or 'ejection'.</p>	<p>No aerosol canisters will be stored at the facility.</p>
<p>You must segregate aerosol canisters from other flammable wastes and potential sources of ignition. Preferably put them in a separate building, or use a fire resistant enclosure or fire wall. You must not hold any combustible material within the storage area, other than the canister's packaging, containers and the pallets on which they stand.</p>	<p>No aerosol canisters will be stored at the facility.</p>
<p>You must provide suitable containment measures (for example drip trays) for aerosol canisters held in containers which cannot collect and hold free liquids released from the canisters. Or you should transfer them to secure containers that are able to hold free liquid.</p>	<p>No aerosol canisters will be stored at the facility.</p>
<p>During storage, lids on containers holding aerosol canisters must remain securely closed at all times when not being filled, emptied or internally inspected. When not in use, the doors or hatches of cages must remain closed and locked.</p>	<p>No aerosol canisters will be stored at the facility.</p>
<p>You must not overfill containers used to store canisters. Overfilling can result in canisters being actuated and discharging their contents, either: under the weight of the canisters above them, when the container lid is closed, when containers are stacked.</p>	<p>No aerosol canisters will be stored at the facility.</p>
<p>Cages used to store aerosol canister containers must be robust, fire resistant and of an appropriate mesh size (based upon the size of the canisters being stored). This is to constrain the canisters and prevent any ejection. Where the cage is not constructed with a mesh roof, the mesh wall panels must extend into the roof space of the storage area to make sure that the structure is completely enclosed.</p>	<p>No aerosol canisters will be stored at the facility.</p>

Table 4.1: Waste Storage, Segregation and Handling Appropriate Measures

Consideration	Measures Implemented
<p>You should store aluminium canisters separately from steel canisters (especially rusting canisters). This will:</p> <p>prevent thermite sparks during storage, handling and treatment,</p> <p>allow the different metals to be more easily recovered.</p>	<p>No aerosol canisters will be stored at the facility.</p>
<p>Sorting, repackaging and bulking</p>	
<p>Sorting is the placing together of containers with other waste containers of the same type, without emptying the contents from the container. You must have a permit that specifically allows you to carry out storage activities (coded D15 or R13).</p>	<p>No sorting of waste will take place on site. Wastes will simply be received at site by transfer into the appropriate tank and will be pumped into road tankers for removal from site.</p> <p>The permit will allow for R13 and D15 coded activities.</p>
<p>Repackaging is the removal of waste from a container, or into a container. This may involve bulking it with other wastes of the same type from other containers. You must have a permit that specifically allows you to carry out repackaging activities (coded D14 or R12).</p>	<p>Repackaging will not take place at the facility.</p>
<p>Bulking of waste that is not regarded as repackaging includes:</p> <p>discharging from a tanker to bulk storage of wastes of the same type,</p> <p>tank to tank transfer where both tanks contain wastes of the same type.</p> <p>These activities are storage (coded D15 or R13).</p>	<p>Bulking of waste, in the form of discharging from a tanker to bulk storage of wastes of the same type, will take place at the facility. The D15 and R13 codes are specifically included in the permit application.</p>
<p>You must only bulk or repackage wastes together if they are materially the same. They must not react when they are bulked and they must not change the waste's composition.</p>	<p>Wastes will be stored separately within dedicated tanks according to their properties.</p> <p>There will be no incompatible wastes stored on site. Hazardous wastes will not be mixed with non-hazardous wastes. The Technically Competent Manager for the site will ensure that this happens.</p>
<p>If a waste is mixed with other similar wastes, where the resulting mixture does not have significantly different characteristics from the mixed wastes (for example blending compatible combustible or flammable wastes as a fuel), this activity is mixing or blending (coded D13 or R12). Any other mixing that changes a waste is treatment.</p>	<p>Hazardous wastes will not be mixed with non-hazardous wastes at the facility.</p>
<p>You must have a permit that specifically allows you to mix hazardous waste with any:</p> <p>non-hazardous waste,</p> <p>hazardous waste in a different category,</p> <p>non-waste.</p>	<p>Hazardous wastes will not be mixed with non-hazardous wastes at the facility.</p>

Table 4.1: Waste Storage, Segregation and Handling Appropriate Measures

Consideration	Measures Implemented
<p>You must not mix, bulk or repackage: wastes which could be recovered with other wastes if this means that the waste must now be sent for disposal or a lower form of recovery liquid wastes or infectious wastes with other wastes for the purpose of landfilling oils where this could affect their regeneration or recycling wastes containing Persistent Organic Pollutants (POPs) with another material solely to generate a mixture below the defined low POPs content waste to deliberately dilute it</p>	<p>Wastes will be stored separately within dedicated tanks according to their properties. Hazardous wastes will not be mixed with non-hazardous wastes at the facility.</p>
<p>You must transfer wastes from containers into other storage vessels using a dip pipe, not by pouring.</p>	<p>Wastes will not be transferred from containers into other storage vessels at the facility.</p>
<p>Repackaging or mixing must only take place in a dedicated area or store which has the plant and equipment needed to deal with the specific risks of that process. For example, this could include abatement or local exhaust ventilation.</p>	<p>Repackaging and mixing of wastes will not take place at the facility.</p>
<p>Except for small packages with a volume less than 5 litres, or damaged containers, you must move containers using mechanical means. For example, use a forklift truck with a rotating drum handling fitting, or using pumps for liquids.</p>	<p>No containers will be stored at the facility.</p>
<p>You must label containers of repackaged or mixed wastes so that you can identify their contents and origin through the tracking system. After repackaging, you must move the bulked materials and emptied containers to an appropriate segregated storage area.</p>	<p>Repackaging and mixing of wastes will not take place at the facility.</p>
<p>You must have a risk assessment and carry out appropriate compatibility testing to make sure that bulked wastes will not react with each other, or with the container into which they are being placed.</p>	<p>Wastes will be stored separately within dedicated tanks according to their properties. Risk assessments will be undertaken to ensure that bulked wastes will not react with each other or the container.</p>
Laboratory smalls	
<p>Where possible, you should sort and segregate laboratory smalls at source so that you do not need to reopen or re-sort containers.</p>	<p>No laboratory smalls will be handled at the facility.</p>
<p>If you sort laboratory smalls for compatibility reasons you must carry this out in a dedicated area of a building, with self-contained drainage.</p>	<p>No laboratory smalls will be sorted at the facility.</p>
<p>You must write and follow procedures for the segregation, sorting and repackaging of laboratory smalls.</p>	<p>No laboratory smalls will be sorted or segregated at the facility.</p>

5 CONCLUSION

- 5.1.1 The assessment demonstrates that the proposed methods and management techniques that will be employed at the ship to shore facility are considered to be BAT. The techniques selected will provide a high level of protection to the environment and is considered the best available in the context of the facility.
- 5.1.2 The facility will be operated in accordance with a written management system with and the environmental management system will be accredited to ISO14001. A maintenance programme will be in place to ensure that all equipment and pollution prevention infrastructure operates effectively. Staff will receive training to ensure that they are competent in their role and can manage the plant under both normal and abnormal operating conditions.

DRAWINGS

APPENDIX 1

C736 Risk Assessment Report

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