



Holmwood Wellsite Environmental Risk Assessment Exploratory Operations

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REVISION RECORD

VERSION	DATE	DESCRIPTION
P0	8 th December 2016	Draft
REVISION 0	10 th February 2017	Original Issue
REVISION 1	04 th April 2017	Corrections to text.
REVISION 2		



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1. INTRODUCTION

Europa Oil & Gas Limited (Europa Oil & Gas) is a wholly owned subsidiary of Europa Oil & Gas (Holdings) Plc, with its head office in London. Europa Oil & Gas (Holdings) PLC is an AIM listed international petroleum exploration, development and production company with a portfolio of conventional and unconventional assets at various stages of development in the United Kingdom, Ireland and France. The experienced senior management team has extensive knowledge and experience of high profile national and international contracts with multi-million pound values.

Europa Oil & Gas is engaged in the exploration and production of petroleum onshore United Kingdom and holds 32.5% interest in Petroleum Exploration and Development Licence (PEDL) 143 within which it retains Operator status and proposes to drill the Holmwood exploratory borehole (H1).

In support of a permit application for exploratory operations at the Holmwood Wellsite, an Environmental Risk Assessment has been undertaken. The Environmental Risk Assessment has been carried out in accordance with [Environment Agency Guidance](#).

2. SCOPE

This Environmental Risk Assessment is applicable to the Holmwood wellsite and all exploratory operations permitted therein, in accordance with planning consent. It is provided in support of an application to the Environment Agency under the Environmental Permitting (England & Wales) Regulations 2016.

3. DEFINITIONS

Below is a list of definitions that are used on the Environmental Risk Assessment.

ID:	Identification number the hazard has been given to allow for easy referencing.
Source:	A source of pollutants from the activity taking place such as flaring. (Source can also be referred to as 'hazard').
Receptor:	Although the likelihood of pollution is low it may have an adverse effect on surrounding residents, wildlife and habitats; these are known as the pollutants receptors.
Pathway:	The pathway the pollutant is taking such as air or unsaturated zones.
Risk Management:	Mitigation measures that will be put in place to control the risks so far as reasonably practicable.
Probability of Exposure:	The chance of the hazard occurring taking into account mitigation measures.
Consequence:	A result of an event or action that has occurred.
Overall Risk:	A hazard that has been assessed and has been given a risk rating level post mitigation measures i.e. not significant, low, medium, high very high etc.
Not Significant:	The severity of risk together with the likelihood of the risk is not expected to cause harm to the environment.
Low:	The severity of risk together with the likelihood of the risk has low potential for causing harm to the environment.
Medium:	The severity of risk together with the likelihood of the risk has a moderate potential for causing harm to the environment.
High:	The severity of risk together with the likelihood of the risk has a high potential for causing harm to the environment.
PEDL:	Petroleum Exploration Development License.

4. METHODOLOGY

The structure of the Environmental Risk Assessment is consistent with the Environment Agency guidance using a source pathway receptor model and includes:

- Identifying the risk from the site;
- Assessing risks and checking they are acceptable;
- Justifying appropriate measures to control the risk (if needed); and
- Presenting the risk assessment.

The Environmental Risk Assessment has included the following items, which have been reviewed for applicability within the Holmwood-1 exploratory operations.

- Accidents & incidents that have potential to cause harm to the environment;
- Air emissions;
- Dust;
- Fugitive emissions;
- Global warming potential;
- Light;
- Noise;
- Odour;
- Releases to water; and
- Waste.

This Environmental Risk Assessment is qualitative and details the activities and events that may lead to environmental impact on one or more receptors.



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Receptors

Type	Search Radius	Name	Distance from Site	Name	Distance from Site	Name	Distance from Site
RAMSAR	10km	No Features Found	N/A				
Special Areas of Conservation (SAC)	10km	Mole Gap To Reigate Escarpment	6.30km				
Special Protection Areas (SPA)	10km	No Features Found	N/A				
Marine Protection Areas (MPA)	10km	No Features Found	N/A				
Sites of Special Scientific Interest (SSSI)	2km	Leith Hill	0.61km				
Scheduled Ancient Monuments	2km	Anstiebury Camp	0.62km				
National Nature Reserves	2km	No Features Found	N/A				
Local Nature Reserves	2km	No Features Found	N/A				
Local Residents ¹	2km	Lower Merriden	0.53km West	Dwelling at Betchets Green	1.36km East	Dwelling West of Cedar Cottage	1.76km East
		Anstiebury Farm	0.68km South	Dwelling on Anstie Lane	1.37km Southeast	The Lodge	1.76km East
		Dwelling at Redlands	0.69km East	Moorhurst Manor	1.41km Southeast	Copse Farm	1.77km Southeast
		Dwellings of Abinger Road/Wolvens Lane	0.69km South	South Holmwood	1.42km East	Presumed Dwelling Off A24	1.82km East
		Crockers Farm	0.70km South	Cherry Tree Cottage	1.45km East	Shootlands Farm	1.82km West
		Anstiebury Cottage	0.72km South	Warren Farm	1.46km West	Foxhill	1.83km North
		Collickmoor Farm	0.78km North	Redlands Farm	1.49km Northeast	Squires Farm	1.83km Northwest
		Anstie Grange	0.78km Southeast	Betchets Green Farm	1.50km East	Cedar Cottage	1.86km East
		Robin Gate Cottage	0.81km North	Redland Bank House	1.52km Northeast	Holmwood Corner	1.88km East
		Collickmoor Farm Cottages	0.83km North	Bushy Croft	1.54km East	Jersey Farm Cottage	1.88km Southeast
		Anstiehurst	0.95km South	Dwelling North of Moorhurst Lane	1.55km Southeast	Dwelling South of Moor Lodge	1.89km East
		Upper Merriden Cottage	1.00km West	Redland Bank Cottages	1.56km Northeast	Bearhurst	1.91km Southeast
		Dwelling at Little Redlands	1.10km East	Capel Leyse	1.61km Southeast	MIR-Tech	1.92km North
		Coldharbour	1.11km South	Mid Holmwood	1.62km Northeast	Moor Lodge	1.92km East
		Anstie Grange Farm	1.12km Southeast	The Bungalow	1.63km Northeast	Chadhurst Lodge	1.93km North
		Kitlands	1.16km South	Pond Cottage / Base Camp	1.63km West	Dwelling off Whiteberry Road	1.93km Northwest
		Kitlands Farm	1.21km South	Vigo Farm	1.66km East	Oakdene Cottages	1.94km East
		Folly Farm	1.24km East	Vicarage and Hall	1.68km East	Tillingbourne Cottage	1.94km Northwest
		Tilling Springs	1.25km West	Minnickfold	1.68km Southeast		
East Lodge	1.27km Southeast	Dwelling of Broomehall Road (North)	1.69km South				
East Lodge	1.35km East	Dwelling of Broomehall Road (South)	1.69km South				
Water Features	-	A Hydrogeological Risk Assessment has been provided within the Site Condition Report (EOG-EPRA-HW-SCR-006)					

¹ Local Receptors have been identified using [Magic Map Application](#)

Assessment of Odour Risks

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
001	<p>Release of odour when breaking containment on tanks and pipework used in transporting produced fluid from the wellbore to surface storage tanks.</p> <p>Note: Produced fluid includes wellbore fluids, wellbore liquids and formation fluids.</p>	<p>Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents</p>	<p>Air – Prevailing winds from south west (average statistics from the Met Office).</p>	<p>Tanks and pipework to be tested for leaks as required by written procedures.</p> <p>Breaking containment of tanks and pipework systems is to be kept to a minimum.</p> <p>Tanks and pipework to be cleaned / purged where possible prior to breaking containment.</p> <p>Regular maintenance and inspections are to be conducted as directed by written procedures.</p> <p>An Ecological report was conducted prior to operations to assess impact on local wildlife and habitat.</p> <p>Records will be kept of complaints and action taken to resolve complaints if required.</p> <p>If required, an Odour Management Plan to be in place, distributed and adhered to by site personnel.</p>	<p>Odorous emissions may be released during breaking containment of the tanks / pipework.</p> <p>Breaking containment of tanks / pipework will be kept to a minimum – at end of operations or essential maintenance work only.</p> <p>Breaking of containment expected to be at end of operations only.</p>	<p>Complaints of odours / smells in vicinity of local receptors.</p>	<p>Not significant if managed correctly.</p>
002	<p>Release of odour from produced fluids on the external surface of pipework / equipment at surface when used in transporting produced fluid from the wellbore to surface storage tanks.</p> <p>Note: Produced fluid includes wellbore fluids, wellbore liquids and formation fluids.</p>	<p>Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents</p>	<p>Air – Prevailing winds from south west (average statistics from the Met Office).</p>	<p>Tanks and pipework to be tested for leaks as required by written procedures.</p> <p>Pipework / equipment to be cleaned / purged where possible prior to pulling out of the hole.</p> <p>Regular maintenance and inspections are to be conducted as directed by written procedures.</p> <p>An Ecological report was conducted prior to operations to assess impact on local wildlife and habitat.</p> <p>Records will be kept of complaints and action taken to resolve complaints if required.</p> <p>If required an Odour Management Plan to be in place, distributed and adhered to by site personnel.</p>	<p>Odorous emissions may be released from pipework / equipment at surface after contact with produced fluids from within the wellbore.</p> <p>Pulling out of hole operations will be kept to a minimum or essential maintenance work only.</p>	<p>Complaints of odours / smells in vicinity of local receptors.</p>	<p>Not significant if managed correctly.</p>
003	<p>Release of odour from open top mud tanks when used in the transporting of well control fluid from the wellbore to surface.</p>	<p>Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents</p>	<p>Air – Prevailing winds from south west (average statistics from the Met Office).</p>	<p>Tanks and pipework to be tested for leaks as required by written procedures.</p> <p>Breaking containment of pipework systems is to be kept to a minimum.</p> <p>Tanks and pipework to be cleaned where possible prior to breaking containment.</p> <p>Regular maintenance and inspections are to be conducted as directed by written procedures.</p> <p>An Ecological report was conducted prior to operations to assess impact on local wildlife and habitat.</p> <p>Records will be kept of complaints and action taken to resolve complaints if required.</p> <p>If required an Odour Management Plan to be in place, distributed and adhered to by site personnel.</p>	<p>Odorous emissions may be released from open top mud tanks at surface from produced fluids.</p>	<p>Complaints of odours / smells in vicinity of local receptors.</p>	<p>Not significant if managed correctly.</p>

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
004	Release of odour from flaring of natural gas during testing.	Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents	Air – Prevailing winds from south west (average statistics from the Met Office).	<p>Flare equipment to be agreed by Environment Agency to ensure compliance prior to use.</p> <p>Monitoring of flare combustion temperature to be undertaken during periods of flaring.</p> <p>Cold venting of gases to atmosphere is prohibited.</p> <p>Flare equipment to be built according to manufacturer's and industry standards.</p> <p>Flare equipment to be tested for leaks prior to delivery / use as required by manufacturer / written procedures.</p> <p>Breaking containment of Flare equipment is to be kept to a minimum.</p> <p>Flare equipment to be cleaned / purged where possible prior to breaking containment.</p> <p>Regular maintenance and inspections are to be conducted as directed by written procedures.</p> <p>An Ecological report was conducted prior to operations to assess impact on local wildlife and habitat.</p> <p>Records will be kept of complaints and action taken to resolve complaints if required.</p> <p>If required an Odour Management Plan to be in place, distributed and adhered to by site personnel.</p>	<p>Odorous emissions are present when combustion of gases occurs.</p> <p>Odorous emissions may be released during flaring of natural gas.</p>	Complaints of odours / smells in vicinity of local receptors.	Not significant if managed correctly.
005	Storage / use / transfer and decanting of odorous products during operations.	Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents	Air – Prevailing winds from south west (average statistics from the Met Office).	<p>Products known to emit odour or products that may emit odour when reacting with other products will be substituted where possible, for alternative non-odorous products which are deemed safe and effective.</p> <p>Chemicals / oils are to be segregated.</p> <p>Quantities of odorous chemicals / oils are to be kept to a minimum where possible.</p> <p>Containers are to be sealed when not in use and are to be checked prior to / on delivery for signs of damage or leaks.</p> <p>Damaged / leaking containers are to be segregated and used as a priority where possible.</p> <p>Containers are to be checked periodically for signs of damage / leaks.</p> <p>During transfer / decanting of odorous chemicals / oils the following procedures are to be undertaken:</p> <ul style="list-style-type: none"> • Containers are to be sealed when not in use; • Spillage pads / containers are to be used to ensure any spillages are contained and can be remediated effectively and efficiently; • Avoid direct sunlight where possible; and • Reduce evaporation rate by eliminating air flow and surface area. <p>An Ecological report was conducted prior to operations to assess impact on local wildlife and habitat.</p> <p>Records will be kept of complaints and action taken to resolve complaints if required.</p> <p>If required an Odour Management Plan to be in place, distributed and adhered to by site personnel.</p>	<p>Odorous emissions may be released during transfer / decanting of chemicals / oils.</p> <p>Transfer / decanting of chemicals / oils will be kept to a minimum.</p>	Complaints of odours / smells in vicinity of local receptors.	Not significant if managed correctly.

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
006	Release of odour from storage of raw materials.	Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents	Air – Prevailing winds from south west (average statistics from the Met Office).	<p>Use of raw materials that are less likely to cause odour problems.</p> <p>Quantity of materials to be planned to ensure that orders of biodegradable materials will be limited and excess quantities kept to a minimum.</p> <p>Materials to be managed, stored and handled correctly by competent personnel.</p> <p>Inspections of materials / storage area to identify potential problems that may cause odorous emissions.</p> <p>An Ecological report was conducted prior to operations to assess impact on local wildlife and habitat.</p> <p>Records will be kept of complaints and action taken to resolve complaints if required.</p> <p>If required an Odour Management Plan to be in place, distributed and adhered to by site personnel.</p>	<p>Odorous emissions may be released from decaying materials.</p> <p>Raw materials used during the operation will be kept to a minimum.</p> <p>Due to the short time period for the operation it is expected that there is insufficient time for any raw materials to decompose / omit odours.</p>	Complaints of odours / smells in vicinity of local receptors.	Not significant.
007	Release of odour from site septic tanks and waste skips.	Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents	Air – Prevailing winds from south west (average statistics from the Met Office).	<p>Tanks and pipework to be tested for leaks prior to delivery as identified by manufacturer and industry standards.</p> <p>Breaking containment of tanks and pipework systems is to be kept to a minimum.</p> <p>Tanks and pipework to be cleaned where possible prior to breaking containment.</p> <p>Tanks and skips to be self-contained / enclosed to prevent emissions.</p> <p>Skips to be clearly marked to ensure that waste is kept segregated and cross contamination does not occur.</p> <p>Tanks checked prior to use to ensure complete integrity.</p> <p>Tanks and skips to be monitored and emptied daily / as required.</p> <p>Regular maintenance and inspections are to be conducted as directed by written procedures.</p> <p>An Ecological report was conducted prior to operations to assess impact on local wildlife and habitat.</p> <p>Records will be kept of complaints and action taken to resolve complaints if required.</p> <p>If required an Odour Management Plan to be in place, distributed and adhered to by site personnel.</p>	<p>Odorous emissions may be released during disassembling of the pipework and tanks.</p> <p>Breaking containment of tanks / pipework will be kept to a minimum – at end of operations or essential maintenance work only.</p> <p>Odorous emissions may be released from breakdown of refuse in skips if left over a period of time.</p> <p>Skips will be monitored and emptied frequently to remove the possibility of odorous emissions occurring.</p> <p>Septic tank pump-out will cause vent to atmosphere from suction tanker for short durations (<30mins). This is a temporary low velocity and low volume emission.</p>	Complaints of odours / smells in vicinity of local receptors.	Not significant.

Assessment of Noise and Vibration Risks

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
001	<p>Noise and vibration from transportation vehicles accessing and egressing site.</p> <p>Noise from vehicle engines and generators on site.</p> <p>Noise from vehicle reversing alarms.</p> <p>Noise from loading and unloading of vehicles.</p>	<p>Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents</p>	<p>Atmosphere and ground vibrations.</p>	<p>Noise limits set by the planning authority shall not be breached.</p> <p>Transport restrictions set by the planning authority shall not be breached.</p> <p>Vehicle loads and transportation to be planned to reduce quantity of deliveries / collections.</p> <p>Directional / white noise reversing alarms are to be fitted to site vehicles if required.</p> <p>Loading / unloading operations will be planned where possible during day light hours.</p> <p>Noise monitoring to be conducted prior to and during operations.</p> <p>Sound screens to be erected if required from sound survey results.</p> <p>Trained operators to load / unload vehicles using MHE plant equipment.</p> <p>Equipment when not in use to be switched off.</p> <p>An Ecological report was conducted prior to operations to assess impact on local wildlife and habitat.</p> <p>Records will be kept of complaints and action taken to resolve complaints if required.</p>	<p>Vehicle movements will be limited in compliance with planning authority conditions.</p>	<p>Complaints of noise in vicinity of local receptors.</p> <p>Duration of planned operations is temporary.</p> <p>Due to location, noise levels may increase for the duration of operations.</p>	<p>Low if management techniques are effective.</p>
002	<p>Noise from drilling operations.</p> <p>Includes noise levels from drilling rig, site plant equipment, generators and movement of equipment around site.</p> <p>Vibration from drilling operation and site vehicles.</p>	<p>Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents</p>	<p>Atmosphere and ground vibrations.</p>	<p>Noise limits set by the planning authority shall not be breached.</p> <p>Vehicles / equipment are to be serviced and maintained to manufacturer's / industry standards.</p> <p>Directional / white noise reversing alarms are to be fitted to site vehicles if required.</p> <p>Loading / unloading operations will be planned where possible during day light hours.</p> <p>Trained operators to load / unload vehicles using MHE plant equipment.</p> <p>Equipment when not in use to be switched off.</p> <p>Noise monitoring to be conducted during operations.</p> <p>Sound screens to be erected if required from sound survey results.</p> <p>An Ecological report was conducted prior to operations to assess impact on local wildlife and habitat.</p> <p>Records will be kept of complaints and action taken to resolve complaints if required.</p>	<p>Drilling and testing phase – 24-hour operation – noise and vibration may occasionally reach local inhabitants.</p>	<p>Complaints of noise in vicinity of local receptors.</p> <p>Duration of planned operations is temporary.</p> <p>Due to rural location, noise levels may increase for the duration of operations.</p>	<p>Low if management techniques are effective.</p>

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
003	Noise from flaring.	Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents	Atmosphere.	Flare unit to be constructed and tested in accordance with manufacturer's / industry standards. Regular maintenance and inspections are to be conducted as directed by written procedures. Flare unit to be monitored and controlled at all times. Perimeter safe zone established around flare unit. An Ecological report was conducted prior to operations to assess impact on local wildlife and habitat. Records will be kept of complaints and action taken to resolve complaints if required.	During operations noise will be produced from the flaring of gases. Noise generated will depend on the volume of subsurface gases released from the formation.	Complaints of noise in vicinity of local receptors.	Low.

Assessment of Fugitive Emissions Risks

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
001	Emissions to Air. Methane emissions from the wellbore and mud circulation.	Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents	Air – vapours carried on the wind.	The well is constructed to industry standards / best available techniques and reviewed by independent well examiner. Adequate mud weight / suspension fluid weight, well control equipment and procedures in place. Competent Site Supervisor who holds a certified in date well control certificate is to be present during operations. Use of competent drilling fluids / suspension fluids management personnel. Cementing best practices utilised. Training on environmental awareness and emergency procedures for site personnel. Emergency procedures tested prior to commencement of operations and on a regular basis thereafter. Safe working procedures are documented and widely known by site personnel.	Methane emissions from the wellbore could reach receptors but management reactions, well control and emergency shutdown procedures should prevent this from occurring. Methane emissions from the mud circulation system are monitored constantly and if detected on site procedures should prevent the release of methane.	Potential for methane to be dispersed beyond the site perimeter.	Low if management techniques, monitoring, well control and emergency shutdown procedures are followed.
002	Emissions to Air. VOC's from vehicles and site equipment exhaust systems. Fume emissions from chemicals used during operations.	Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents	Air – vapours carried on the wind.	Vehicle loads and transportation to be planned to reduce quantity of deliveries / collections. Vehicles are to be serviced and maintained to manufacturer's / industry standards. Regular maintenance and inspections are to be conducted as directed by written procedures. Training on environmental awareness for site personnel. Chemicals are to be stored correctly on site and containers sealed / closed when not in use. Competent personnel only to store / use chemicals. Equipment when not in use to be switched off. Adequate and suitable spillage kits to be available on site / transport vehicles. An Ecological report was conducted prior to operations to assess impact on local wildlife and habitat. Records will be kept of complaints and action taken to resolve complaints if required.	Emissions from vehicles and site equipment exhaust systems will occur throughout the operation. Emissions from chemicals will be minor and infrequent.	Complaints of odours / smells in vicinity of local receptors.	Low if management techniques, planning and procedures are followed.

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
003	Emissions to Air. VOC's from tanks / pipework.	Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents	Air – vapours carried on the wind.	Tanks and pipework to be tested for leaks as required by written procedures. Storage tank system linked to single co-joined vent line to one emission point, through flowmeter to quantify flows Breaking containment of tanks and pipework systems is to be kept to a minimum. Tanks and pipework to be cleaned where possible prior to breaking containment. Regular maintenance and inspections are to be conducted as directed by written procedures. An Ecological report was conducted prior to operations to assess impact on local wildlife and habitat. Records will be kept of complaints and action taken to resolve complaints if required.	Emissions may be released during breaking containment of the tanks / pipework. Breaking containment of tanks / pipework will be kept to a minimum – at end of operations or essential maintenance work only. Breaking of containment expected to be at end of operations only.	Potential for complaints although VOCs are non-odorous.	Low if management techniques, planning and procedures are followed.
004	Emissions to Air. Dust and mud generated by vehicles accessing / egressing and traversing the site.	Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents	Air – dust carried by the wind to local receptors.	Operations to be planned / designed to minimise transport and handling operations. Only one point of access from the public highway is to be constructed to manage vehicle access and control of mud deposits / dust suppression. Vehicles are to drive on approved roads and follow site traffic management system. Roads to / from the site are monitored for mud deposits. A road sweeping contractor will be arranged for road cleaning if required. Avoid certain activities that may present dust if high winds occur. Daily monitoring of wind / weather forecasts. Planting of grass, trees or hydro-seeding to assist in the suppression of dust generated from site bunds and open areas. An Ecological report was conducted prior to operations to assess impact on local wildlife and habitat. Records will be kept of complaints and action taken to resolve complaints if required.	Management actions and site procedures should prevent this happening.	Nuisance – dust on cars, clothing, properties etc. Nuisance – mud on local highway.	Low if management techniques, planning and procedures are followed.
005	Litter. Litter generated on site.	Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents	Air – litter carried by the wind to local receptors.	Litter fences to be erected around site. Provide adequate suitable refuse receptacles for both inside and outside working areas. Training on environmental awareness and site waste management for site personnel. Litter to be cleared at end of each day / shift. Skips to be monitored and removed / emptied when required by authorised contractor. Site inspection process.	Management actions and site procedures should prevent this happening.	Nuisance – Litter from site may be blown to local receptors. Complaints from local residents if appropriate techniques are not adopted and maintained.	Low if management techniques, planning and procedures are followed.

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
006	Emissions to Water. Run off from site operations.	Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents	Flow by gravity.	<p>An impermeable membrane over the whole of the site which will be correctly installed during the construction of the wellsite.</p> <p>The impermeable membrane ensures that contamination that may occur from accidents on the site surface does not percolate to the subsurface below the site.</p> <p>Water from surface run off is collected in the site perimeter ditch and can be used in site operations or tested for contamination prior to being removed from site for onward disposal to an authorised licenced facility, which may include permitted reinjection wells by an authorised licenced waste carrier.</p> <p>Any site perimeter ditches are monitored and procedures are in place to remove excess surface run off water as required.</p> <p>Checks of the impermeable membrane are conducted periodically to ensure that complete containment of the site perimeter ditch is maintained.</p> <p>An Ecological report was conducted prior to operations to assess impact on local wildlife and habitat.</p> <p>Records will be kept of complaints and action taken to resolve complaints if required.</p>	Unchecked, ditches could overflow and run-off could reach localised receptors but management actions should prevent this from happening.	Pollution of local surface or groundwater.	Low if management techniques, planning and procedures are followed.
007	Pests. Flies from refuse accumulated on site. Rats / mice from surrounding area. Wasps accumulating around materials used during operations.	Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents	Airborne / ground transportation.	<p>Refuse to be stored in enclosed skips / receptacles.</p> <p>Refuse to be monitored and removed when skips are full.</p> <p>Skips and refuse receptacles to be checked daily to ensure integrity.</p> <p>Food waste to be stored separately in enclosed skips and removed off site for disposal as required.</p> <p>Training on environmental awareness / housekeeping practices for site personnel.</p> <p>Sacks / containers to be monitored for leaks / spills. Identification of split sacks / damaged containers to be addressed immediately and contents repackaged / or used as a prioritised item.</p> <p>Daily monitoring of susceptible areas by Site Supervisor.</p> <p>Pest control techniques to be established and implemented by competent contract company, if required.</p> <p>Litter to be cleared at end of each day / shift.</p> <p>Complaints are to be recorded.</p>	<p>Wastes left unattended could result in problems off site.</p> <p>Sacks / containers damaged through handling / use can result in accumulation of pests and problems off site.</p>	Potential for spreading of disease and adverse health impacts on vulnerable people.	Low if management techniques, planning and procedures are followed.

Assessment of Visible Plume Risks							
ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
001	Emissions to Air. Plume emissions from flaring operation.	Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents	Dispersion by wind.	<p>Flare unit designed and constructed to industry standards / best available techniques.</p> <p>Flare unit and pipework to be operated and maintained to industry standards.</p> <p>Flare unit to be tested prior to operational use.</p> <p>A leak test will be undertaken for the flare and associated pipework prior to operations.</p> <p>Monitoring procedures established to include monitoring of the gas entering the flare.</p> <p>Flare unit will be monitored during its operation.</p> <p>Procedures established and communicated to operational personnel should the flow rate of gas exceed or fall below the flares flow range.</p> <p>Gas from the well is expected to be extracted using the natural pressure within the well.</p> <p>An Ecological report was conducted prior to operations to assess impact on local wildlife and habitat. Records will be kept of complaints and action taken to resolve complaints if required.</p>	Regular observations over periods of flaring.	<p>Nuisance – reduced visibility.</p> <p>Low</p> <p>Due to rural location of site, impact on main travel routes and sensitive receptors fairly low.</p>	Low if management techniques, planning, BAT and procedures are followed.

Assessment of Possible Source of Accidents

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
001	Transferring substances. (e.g. loading or unloading vessels).	Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents	Cracks or splits in poor impermeable membrane and through the ground. Air – vapours carried on the wind.	An impermeable membrane over the whole of the working pad area and under the site perimeter ditch correctly installed during construction of the wellsite. Site perimeter ditch monitored and procedures in place to test and remove excess surface run off water as required. Drip trays to be utilised. Transferring of substances is to be monitored by site personnel. Site / vehicle spillage kits to be readily available. Spillages to be remediated immediately. Trained operators to carry out loading / unloading operations. Specific areas identified for loading / unloading operations. Safe working procedures / toolbox talks to be conducted prior to operations commencing. Authorised personnel only to be in working area. Operation / task to be planned and communicated to site personnel. Training on environmental awareness for site personnel during site induction. Records will be kept of complaints and action taken to resolve complaints if required. Emergency response plan established / tested.	Unchecked, ditches could overflow and run-off could reach localised receptors but management actions should prevent this from happening.	Pollution of local surface or groundwater. Emissions to air.	Low if management techniques, planning and procedures are followed.
002	Plant or equipment failure.	Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents	Cracks or splits in poor impermeable membrane and through the ground. Air – vapours carried on the wind.	An impermeable membrane over the whole of the working pad area and under the site perimeter ditch correctly installed during construction of the wellsite. Site perimeter ditch monitored and procedures in place to test and remove excess surface run off water as required. Regular maintenance and inspections are to be conducted on plant and equipment as directed by the manufacturer / written procedures. Safety critical spares readily available. Competent trained personnel only to operate plant or equipment. Records will be kept of complaints and action taken to resolve complaints if required. Emergency response plan established / tested. Drip trays to be utilised. Transferring of substances is to be monitored by site personnel. Site / vehicle spillage kits to be readily available. Spillages to be remediated immediately. Trained operators to carry out loading / unloading operations.	Management actions and site procedures should prevent this happening.	Pollution of local surface or groundwater. Emissions to air.	Low if management techniques, planning and procedures are followed.

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
003	Overfilling vessels.	Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents	Cracks or splits in poor impermeable membrane and through the ground. Air – vapours carried on the wind.	Storage tanks in constructed bund area. All tanks fitted with high-level devices linked to operating system – shuts down relevant operation to prevent overfilling. Testing of system as part of operating procedures. Transferring of substances is to be monitored by site personnel. An impermeable membrane over the whole of the working pad area and under the site perimeter ditch correctly installed during construction of the wellsite. Checks of the impermeable membrane conducted periodically to ensure that complete containment of the site is maintained. Site perimeter ditch monitored and procedures in place to test and remove excess surface run off water as required. Site spillage kits to be readily available. Spillages to be remediated immediately. Trained operators to carry out filling operations. Specific areas identified for filling operations. Safe working procedures / toolbox talks to be conducted prior to operations commencing. Authorised personnel only to be in working area. Operation / task to be planned and communicated. Training on environmental awareness for site personnel during site induction. Records will be kept of complaints and action taken to resolve complaints if required. Emergency response plan established / tested.	Unchecked, ditches could overflow and run-off could reach localised receptors but management actions and bunding should prevent this from happening.	Pollution of local surface or groundwater. Emissions to air.	Low if management techniques, planning and procedures are followed.

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
004	Containment failure. (e.g. over pressure of vessels and pipework).	Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents	Cracks or splits in poor impermeable membrane and through the ground. Air – vapours carried on the wind.	<p>Pipework and valves installed to above maximum theoretical working pressure</p> <p>Integrity testing of tanks and pipework</p> <p>Pressure system checks</p> <p>An impermeable membrane over the whole of the working pad area and under the site perimeter ditch correctly installed during construction of the wellsite.</p> <p>Checks of the impermeable membrane conducted periodically to ensure that complete containment of the site is maintained.</p> <p>Site perimeter ditch monitored and procedures in place to test and remove excess surface run off water as required.</p> <p>Equipment / pipework to be tested prior to operational use.</p> <p>Checks of the impermeable membrane are conducted periodically to ensure that complete containment of the site is maintained.</p> <p>Regular maintenance and inspections are to be conducted as directed by written procedures.</p> <p>Competent trained personnel only to operate plant or equipment.</p> <p>Safe working procedures / toolbox talks to be conducted prior to operations commencing.</p> <p>Authorised personnel only to be in working area.</p> <p>Operation / task to be planned and communicated.</p> <p>Training on environmental awareness for site personnel during site induction.</p> <p>Records will be kept of complaints and action taken to resolve complaints if required.</p> <p>Emergency response plan established / tested.</p>	Management actions and procedures should prevent this happening.	Pollution of local surface or groundwater. Emissions to air.	Low if management techniques, planning and procedures are followed.

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
005	Making the wrong connection in drains or other systems.	Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents	Cracks or splits in poor impermeable membrane and through the ground. Air – vapours and carried on the wind.	An impermeable membrane over the whole of the working pad area and under the site perimeter ditch correctly installed during construction of the wellsite. Checks of the impermeable membrane conducted periodically to ensure that complete containment of the site is maintained. Site perimeter ditch monitored and procedures in place to test and remove excess surface run off water as required. Competent trained personnel only to connect pipework, equipment, engineering systems. Safe working procedures / toolbox talks to be conducted prior to operations commencing. Equipment / pipework to be tested prior to commencement of operations. Authorised personnel only to be in working area. Operation / task to be planned and communicated to all personnel involved in the operation. Permit to Work System to be utilised for work associated with pressure systems, work deemed high risk. Emergency response plan established / tested.	Management actions and procedures should prevent this happening.	Pollution of local surface or groundwater. Emissions to air.	Low if management techniques, planning and procedures are followed.
006	Poor storage arrangements of hazardous substances.	Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents	Cracks or splits in poor impermeable membrane and through the ground. Air – vapours and plumes carried on the wind.	An impermeable membrane over the whole of the working pad area and under the site perimeter ditch correctly installed during construction of the wellsite. Checks of the impermeable membrane conducted periodically to ensure that complete containment of the site is maintained. Site perimeter ditch monitored and procedures in place to test and remove excess surface run off water as required. Hazardous substances to be stored in dedicated areas. COSHH Assessments in place for hazardous items. Personnel to be trained in safe handling / use of hazardous items (COSHH Awareness etc.). COSHH items to be segregated in line with current regulations. Material Safety Data Sheets (MSDS) to be readily available for each hazardous item. Copy of MSDS and a list and location of hazardous substances to be made available to the Fire & Rescue Service and copy held on site as part of Emergency Response Plan. Emergency response plan established / tested.	Management actions and procedures should prevent this happening.	Pollution of local surface or groundwater. Emissions to air.	Low if management techniques, planning and procedures are followed.

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
007	Fires or failure to contain fire water.	Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents	Cracks or splits in poor impermeable membrane and through the ground. Air – vapours and plumes carried on the wind.	Fire risk assessment to be conducted by HSE Manager. Fire awareness training / site induction for personnel, plus Site Rules Waste management and housekeeping procedures established and communicated. No sources of ignition are allowed on working pad of the site unless authorised and permit to work is in place. Hazardous materials stored appropriately Smoking area is established outside of the working pad. Fire points, extinguishers and a fire water tank located around the site. Fire trained personnel to be available throughout the operation. Fire evacuation and test to be conducted prior to and during the operation. AFFF foam to be available on site for use in firefighting. Local Fire & Rescue Service to be notified of operations. A review / visit of the site may be undertaken by the Fire & Rescue Service and emergency response plans and actions discussed and agreed. Copy of MSDS and a list and location of hazardous substances, firefighting equipment, spillage kits water tank to be made available to the Fire & Rescue Service and copy held onsite as part of Emergency Response Plan. Containment of fire water / AFFF foam used in the event of firefighting measures will be contained within the site / perimeter ditch and removed by specialised contractor. Emergency response plan both on and off site established / tested. Emergency telephone number located on information board at site entrance. The site is not in a Flood Risk Area.	Management actions and procedures should prevent this happening.	Pollution of local surface or groundwater. Emissions to air.	Low if management techniques, planning and procedures are followed.

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
008	Incompatible substances coming into contact.	Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents	Cracks or splits in poor impermeable membrane and through the ground. Air – vapours and plumes carried on the wind.	An impermeable membrane over the whole of the working pad area and under the site perimeter ditch correctly installed during construction of the wellsite. Checks of the impermeable membrane conducted periodically to ensure that complete containment of the site is maintained. Site perimeter ditch monitored and procedures in place to test and remove excess surface run off water as required. Segregation of incompatible substances. Hazardous substances to be stored in appropriately on site in accordance with current regulations. COSHH Assessments in place for hazardous items. Personnel to be trained in safe handling / use of hazardous items (COSHH Awareness etc.). COSHH items to be segregated in line with current regulations. Material Safety Data Sheets (MSDS) to be readily available for each hazardous item. Copy of MSDS and a list and location of hazardous substances to be made available to the Fire & Rescue Service and copy held onsite as part of Emergency Response Plan. Emergency response plan established / tested.	Management actions and procedures should prevent this happening.	Pollution of local surface or groundwater. Emissions to air.	Low if management techniques, planning and procedures are followed.
009	Unwanted reactions and/or runaway reactions.	Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents	Cracks or splits in poor impermeable membrane and through the ground. Air – vapours and plumes carried on the wind.	An impermeable membrane over the whole of the working pad area and under the site perimeter ditch correctly installed during construction of the wellsite. Checks of the impermeable membrane conducted periodically to ensure that complete containment of the site is maintained. Site perimeter ditch monitored and procedures in place to test and remove excess surface run off water as required. Emergency shutdown procedures to be established and tested prior to and during operations. Competent trained personnel to conduct operations. Safe working procedures / toolbox talks to be conducted prior to operations commencing. Operation / task to be planned and communicated. Training on environmental awareness for site personnel during site induction. Emergency response plan established / tested.	Management actions and procedures, with use of QA and applicable standards will prevent this happening.	Pollution of local surface or groundwater. Emissions to air.	Low if management techniques, planning and procedures are followed.

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
010	Emission of an effluent before adequately checking its composition.	Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents	Cracks or splits in poor impermeable membrane and through the ground. Air – vapours and plumes carried on the wind.	An impermeable membrane over the whole of the working pad area and under the site perimeter ditch correctly installed during construction of the wellsite. Checks of the impermeable membrane conducted periodically to ensure that complete containment of the site is maintained. Site perimeter ditch monitored and procedures in place to test and remove excess surface run off water as required. Competent trained personnel to conduct operations. Safe working procedures / toolbox talks to be conducted prior to operations commencing. Operation / task to be planned and communicated. Substance to be tested prior to removal from site or at licenced waste facility by competent trained personnel. Emergency response plan established / tested.	Management actions and procedures will prevent this happening.	Pollution of local surface or groundwater. Emissions to air.	Low if management techniques, planning and procedures are followed.
011	Vandalism.	Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents	Various – acts of vandalism may cause fires, loss of containment from containers, damage to site equipment, etc.	An impermeable membrane over the whole of the working pad area and under the site perimeter ditch correctly installed during construction of the wellsite. Checks of the impermeable membrane conducted periodically to ensure that complete containment of the site is maintained. Site perimeter ditch monitored and procedures in place to test and remove excess surface run off water as required. Site security risk assessment to be conducted prior to operations commencing. Security fence to be established around site perimeter. Security officers from specialist security company to be contracted to provide 24 hour security during operations. Security procedures established and communicated to Site Security Officers to cover unauthorised access, vandalism, protestors, theft, emergency response actions etc. Site alarm system will include linkage to security response team Site personnel to be aware of possible unauthorised personnel on site and the actions to take if such personnel discovered. When not in use, equipment is to be shut down and isolated. Hazardous materials are to be stored in locked COSHH store, if applicable, when not in use. Emergency communications to be established between operational personnel and site security. Emergency response plan both on and off site established / tested.	Management actions and procedures should prevent this happening.	Pollution of local surface or groundwater. Emissions to air.	Low if management techniques, planning and procedures are followed.

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
012	Flooding.	Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents	Spreading of materials outside of site boundary. Damage to site equipment from the effects of flooding.	A hydrogeological risk assessment has been conducted by an independent company. The wellsite is not within a flood risk area.	None.	None.	None.
013	Spillage from haulage vehicles and plant equipment.	Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents	Via water surface drainage system. Cracks or splits in poor impermeable membrane and through the ground. Air – vapours and plumes carried on the wind.	An impermeable membrane over the whole of the working pad area and under the site perimeter ditch correctly installed during construction of the wellsite. Checks of the impermeable membrane conducted periodically to ensure that complete containment of the site is maintained. Site perimeter ditch monitored and procedures in place to test and remove excess surface run off water as required. Vehicles to be serviced and maintained to manufacturer's / industry standards. Regular maintenance and inspections are to be conducted as directed by written procedures. Drivers are to receive site rules Drip trays to be utilised. Site / vehicle spillage kits to be readily available. Spillages to be remediated immediately. Training on environmental awareness for site personnel during site induction. Record and investigate complaints, pollution incidents or breaches of permit conditions and the actions taken to rectify complaints and prevent further occurrences. Emergency response plan established / tested.	Management actions and procedures should prevent this happening.	Pollution of local surface or groundwater. Emissions to air.	Low if management techniques, planning and procedures are followed.
014	Accidents resulting from operations carried out without a structured management system in place.	Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents	Via water surface drainage system. Cracks or splits in poor impermeable membrane and through the ground. Air – vapours and plumes carried on the wind.	Structured management system in place, distributed and adhered to by personnel involved in operations.	Management actions and procedures should prevent this happening.	Pollution of local surface or groundwater. Emissions to air.	Low if management techniques, planning and procedures are followed.

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
015	Leaks from vehicle fluids resulting from vehicle accidents.	Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents	Via water surface drainage system. Cracks or splits in poor impermeable membrane and through the ground. Air – vapours and plumes carried on the wind.	An impermeable membrane over the whole of the working pad area and under the site perimeter ditch correctly installed during construction of the wellsite. Checks of the impermeable membrane conducted periodically to ensure that complete containment of the site is maintained. Site perimeter ditch monitored and procedures in place to test and remove excess surface run off water as required. Vehicles to be serviced and maintained to manufacturer's / industry standards. Regular maintenance and inspections to be conducted as directed by the manufacturer / written procedures. Drivers are to receive training / induction on driving techniques and site rules Drip trays to be utilised. Site / vehicle spillage kits to be readily available. Spillages to be remediated immediately using vacuum cleaners / pumps and not to be washed down where possible. Training on environmental awareness for site personnel. Personnel to receive site induction. Record and investigate complaints, pollution incidents or breaches of permit conditions and the actions taken to rectify complaints and prevent further occurrences. Emergency response plan established / tested	Management actions and procedures should prevent this happening.	Pollution of local surface or groundwater. Emissions to air.	Low if management techniques, planning and procedures are followed.

Discharges to Surface Water Assessment

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
001	Overflow of site perimeter ditches.	Watercourses	<p>Surface run-off / percolation into subsurface.</p> <p>Cracks or splits in poor impermeable membrane and through the ground.</p> <p>Field or roadside drainage ditches.</p> <p>Soaking into adjacent ground.</p>	<p>Water produced and/or used within the activity is re-used where possible within the operation for well control, cementing operations, and drilling operations.</p> <p>Waste water is contained within the site boundary via storage tanks.</p> <p>Surface run-off water is contained within the impermeable membrane and perimeter ditch catchment.</p> <p>Liner condition (where exposed to sunlight) is regularly inspected.</p> <p>Damming points are identified to prevent migration should overflow occur.</p>	Low – management controls and monitoring will prevent overspill.	Pollution of surface water, groundwater or land contamination.	Insignificant.

Assessment of Air Emission Risks							
ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
001	Greenhouse gas emissions from site power generation.	Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents	Air – Prevailing winds from south west (average statistics from the Met Office). Atmosphere.	Power generation is provided by drilling rig generators and / or standalone generators. Generators are operated on gas oil supplied from external bunded fuel tanks. During exploratory operations, the generators may be operated for 24 hours per day. This will be dependent upon power demand and operational activities. Generators are maintained and serviced in line with manufacturer's guidelines thus ensuring that they operate efficiently and minimising emissions, noise and vibration. Service and maintenance regimes are implemented and adhered to and all work is carried out by a competent trained electrician / mechanic. Generators supplied within the rig structure respond to power demand and the working load and output varies during the operations being conducted. When power is not required generators are switched off to reduce emissions, fuel usage, noise, vibration and wear and tear on the equipment.	Air quality not significantly affected. Make regular observations over the period of operation.	Impact on global warming but deemed insignificant.	Insignificant.
002	Greenhouse gas emissions from flaring of natural gas during operations.	Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents	Air – Prevailing winds from south west (average statistics from the Met Office). Atmosphere.	In the event that natural gas is encountered during exploratory operations, it will be flowed to surface through the wellbore into fluid separation equipment, from which the petroleum is separated from produced fluids (formation water). Once separated, the gas is diverted via pipework to a flare unit for incineration to reduce Greenhouse gasses.	Make regular observations over the period of operation.	Impact on global warming but deemed insignificant.	Insignificant.
003	Greenhouse gas emissions from vehicles and site equipment during well testing operations.	Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents	Air – Prevailing winds from south west (average statistics from the Met Office). Atmosphere.	Vehicle loads and transportation to be planned to reduce quantity of deliveries / collections. Vehicles are to be serviced and maintained to manufacturer's / industry standards. Regular maintenance and inspections are to be conducted as directed by written procedures. Vehicles when not in use to be switched off. Ambient air quality monitoring may be undertaken to establish Ambient air quality baseline and during flaring activities.	Emissions from vehicles and site equipment exhaust systems will occur throughout the operation.	Impact on global warming but deemed insignificant.	Insignificant.

Assessment of Disposal or Recovery of Waste Produced on Site Risks

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
001	Waste Clays and Sand	Licenced Waste Facility. Along traffic route.	Transportation from site by road to Licenced Waste Facility.	<p>Clays and sands are extracted from the borehole during the initial drilling of the borehole (conductor setting).</p> <p>A conventional waterwell drilling rig will be mobilised to the wellsite to drill the surface conductor.</p> <p>The drilling of the surface conductor is drilled conventionally using air. Once this section of the borehole is drilled, steel casing is run into the hole and cemented back to surface.</p> <p>The surface conductor casing serves as a support during drilling operations, to flowback returns during drilling and cementing of the surface casing and to prevent collapse of the loose soil near the surface.</p> <p>The purpose of the surface casing is to isolate freshwater zones within the borehole so that they cannot be contaminated during drilling and completion operations. Due to the environmental concerns of drilling through freshwater zones, strict regulations can include regulation of the casing depth and cement quality used.</p> <p>Clays and sand are deposited at surface in an open tank (10.45m x 3.05m x 3.05m) for storage and onward disposal to a licenced waste facility.</p> <p>Clays and sands cannot be reused during the drilling operation.</p> <p>Waste clays and sand are classed as non-hazardous. Transportation from site to the licenced waste facility is by a licenced waste carrier in road bulk haulage vehicles.</p> <p>A licenced waste contractor will be onsite during the operation to ensure that handling, storage, documentation and onward disposal of generated wastes is in compliance with current regulations.</p> <p>Vehicles used for transportation are to be serviced and maintained in accordance with manufacturers / legislation.</p> <p>Vehicles are to adhere to approved traffic routes as outlined by planning authority/client.</p> <p>An audit of the Licenced Waste Carrier is to be undertaken prior to operations commencing.</p> <p>A physical audit of the transport of waste is to be undertaken to ensure that the waste is transported to the approved final destination.</p>	Management actions and procedures should prevent this happening.	<p>Possible pollution of traffic route if vehicle involved in accident.</p> <p>Fly-tipping of wastes if not delivered to licenced facility.</p>	Low if management techniques, planning and procedures are followed.

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
002	Salt Saturated KCL Rock Cuttings	Licenced Waste Facility. Along traffic route.	Transportation from site by road to Licenced Waste Facility.	<p>The process of drilling through rock formation results in cuttings (rock chippings) being circulated to surface with the drilling muds, where they are separated and collected in steel open top tanks (10.45m x 3.05m x 3.05m) for subsequent offsite recycling or disposal to a licenced waste facility.</p> <p>The drilling mud used in the process, is a water based mud and the cuttings are classified as non-hazardous. The exploratory borehole is drilled and constructed using water based mud.</p> <p>Rock cuttings from water based drilling operations are classed as non-hazardous.</p> <p>Transportation from site to the licenced waste facility is by a licenced waste carrier in road bulk haulage vehicles.</p> <p>A licenced waste contractor will be onsite during the operation to ensure that handling, storage, documentation and onward disposal of generated wastes is in compliance with current regulations.</p> <p>Vehicles used for transportation are to be serviced and maintained in accordance with manufacturers / legislation.</p> <p>Vehicle spillage kits are to be carried during transportation of wastes.</p> <p>Vehicles are to adhere to approved traffic routes as outlined by planning authority /client.</p> <p>An audit of the nominated Licenced Waste Carrier is to be undertaken prior to operations commencing.</p> <p>A physical audit of the transportation of waste is to be undertaken to ensure that the waste is transported to the approved final destination.</p>	Management actions and procedures should prevent this happening.	<p>Possible pollution of traffic route if vehicle involved in accident.</p> <p>Fly-tipping of wastes if not delivered to licenced facility.</p>	Low if management techniques, planning and procedures are followed.

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
003	Chloride Containing Drilling Mud and Waste	Licenced Waste Facility. Along traffic route.	Transportation from site by road to Licenced Waste Facility.	<p>Drilling muds displaced both by the increased brine weight and cementing operation will return to surface where it will be stored in steel open top tanks (10.45m x 3.05m x 3.05m) for subsequent reuse or offsite disposal to a licenced waste facility.</p> <p>Suspension fluids used in the wellbore is brine. During well remediation operations the wellbore suspension fluid will be turned over to heavier weighted brine. Brine displaced both by the increased brine weight and cementing operation will return to surface where it will be stored in steel open top tanks (10.45m x 3.05m x 3.05m) for subsequent reuse or offsite disposal to a licenced waste facility.</p> <p>Transportation from site to the licenced waste facility is by a licenced waste carrier in road bulk haulage vehicles.</p> <p>A licenced waste contractor will be onsite during the operation to ensure that handling, storage, documentation and onward disposal of generated wastes is in compliance with current regulations.</p> <p>Vehicles used for transportation are to be serviced and maintained in accordance with manufacturers / legislation.</p> <p>Vehicle spillage kits are to be carried during transportation of wastes.</p> <p>Vehicles are to adhere to approved traffic routes as outlined by planning authority/client.</p> <p>An audit of the nominated Licenced Waste Carrier is to be undertaken prior to operations commencing.</p> <p>A physical audit of the transportation of waste is to be undertaken to ensure that the waste is transported to the approved final destination.</p>	Management actions and procedures should prevent this happening.	<p>Possible pollution of traffic route if vehicle involved in accident.</p> <p>Fly-tipping of wastes if not delivered to licenced facility.</p>	Low if management techniques, planning and procedures are followed.

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
004	Well Suspension Brine.	Licenced Waste Facility. Along traffic route.	Transportation from site by road to Licenced Waste Facility.	<p>Well suspension brine will return to surface where it will be stored in steel open top tanks for subsequent reuse or offsite disposal to a licenced waste facility.</p> <p>Transportation from site to the licenced waste facility is by a licenced waste carrier in road bulk haulage vehicles.</p> <p>A licenced waste contractor will be onsite during the operation to ensure that handling, storage, documentation and onward disposal of generated wastes is in compliance with current regulations.</p> <p>Vehicles used for transportation are to be serviced and maintained in accordance with manufacturers / legislation.</p> <p>Vehicle spillage kits are to be carried during transportation of wastes.</p> <p>Vehicles are to adhere to approved traffic routes as outlined by the site traffic management plan.</p> <p>An audit of the nominated Licenced Waste Carrier may be undertaken prior to operations commencing.</p> <p>A physical audit of the transportation of waste may be undertaken to ensure that the waste is transported to the approved final destination.</p> <p>All tanks, skips and storage containers will be checked for integrity by the Site Supervisor or HSE Manager.</p>	Management actions and procedures should prevent this happening.	<p>Possible pollution of traffic route if vehicle involved in accident.</p> <p>Fly-Tipping of wastes if not delivered to licenced facility.</p>	Low if management techniques, planning and procedures are followed.

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
005	Oil Based Rock Cuttings.	Licensed Waste Facility. Along traffic route.	Transportation from site by road to Licensed Waste Facility.	<p>Wastes transported within the drilling mud are removed at surface and the drilling mud is reused and replaced back into the wellbore using a closed loop system.</p> <p>The closed loop system reduces the amount of drilling mud used during the operation.</p> <p>Drilling muds (when redundant) and waste are removed from the borehole and stored in an open tank (10.45m x 3.05m x 3.05m) at surface and removed from site by a licenced waste carrier to a licenced waste facility.</p> <p>Transportation from site to the licenced waste facility is by a licenced waste carrier in road bulk haulage vehicles.</p> <p>A licenced waste contractor will be onsite during the operation to ensure that handling, storage, documentation and onward disposal of generated wastes is in compliance with current regulations.</p> <p>Vehicles used for transportation are to be serviced and maintained in accordance with manufacturers / legislation.</p> <p>Vehicle spillage kits are to be carried during transportation of wastes.</p> <p>Vehicles are to adhere to approved traffic routes as outlined by planning authority /client.</p> <p>An audit of the Licenced Waste Carrier may be undertaken prior to operations commencing.</p> <p>A physical audit of the transport of waste may be undertaken to ensure that the waste is transported to the approved final destination.</p>	Management actions and procedures should prevent this happening.	<p>Possible pollution of traffic route if vehicle involved in accident.</p> <p>Fly-Tipping of wastes if not delivered to licenced facility.</p>	Low if management techniques, planning and procedures are followed.

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
006	Oil Based Drilling Muds	Licenced Waste Facility. Along traffic route.	Transportation from site by road to Licenced Facility.	<p>Transportation from site to the licenced waste facility is by a licenced waste carrier in road bulk haulage vehicles.</p> <p>A licenced waste contractor will be onsite during the operation to ensure that handling, storage, documentation and onward disposal of generated wastes is in compliance with current regulations.</p> <p>Vehicles used for transportation are to be serviced and maintained in accordance with manufacturers / legislation.</p> <p>Vehicle spillage kits are to be carried during transportation of wastes.</p> <p>Vehicles are to adhere to approved traffic routes as outlined by planning authority / client.</p> <p>An audit of the nominated Licenced Waste Carrier may be undertaken prior to operations commencing.</p> <p>A physical audit of the transportation of waste may be undertaken to ensure that the waste is transported to the approved final destination.</p>	Management actions and procedures should prevent this happening.	<p>Possible pollution of traffic route if vehicle involved in accident.</p> <p>Fly-Tipping of wastes if not delivered to licenced facility.</p>	Low if management techniques, planning and procedures are followed.
007	Formation Water	Licenced Waste Facility. Along traffic route.	Transportation from site by road to Licenced Facility.	<p>Transportation from site to the licenced waste facility is by a licenced waste carrier in road bulk haulage vehicles.</p> <p>A licenced waste contractor will be onsite during the operation to ensure that handling, storage, documentation and onward disposal of generated wastes is in compliance with current regulations.</p> <p>Vehicles used for transportation are to be serviced and maintained in accordance with manufacturers / legislation.</p> <p>Vehicle spillage kits are to be carried during transportation of wastes.</p> <p>Vehicles are to adhere to approved traffic routes as outlined by planning authority / client.</p> <p>An audit of the nominated Licenced Waste Carrier may be undertaken prior to operations commencing.</p> <p>A physical audit of the transportation of waste may be undertaken to ensure that the waste is transported to the approved final destination.</p>	Management actions and procedures should prevent this happening.	<p>Possible pollution of traffic route if vehicle involved in accident.</p> <p>Fly-Tipping of wastes if not delivered to licenced facility.</p>	Low if management techniques, planning and procedures are followed.
008	Natural Gas	Special Areas of Conservation (SAC) Sites of Special Scientific Interest (SSSI) Scheduled Ancient Monuments Local Residents	Air – Prevailing winds from south west (average statistics from the Met Office). Atmosphere.	<p>In the event that natural gas is encountered during exploratory operations, it will be flowed to surface through the wellbore into fluid separation equipment, from which the petroleum is separated from produced fluids (formation water).</p> <p>Once separated, the gas is diverted via pipework to a flare for incineration.</p>	<p>Air quality not significantly affected from modelling assessment.</p> <p>Make regular observations over the period of operation.</p>	Impact on global warming but deemed insignificant.	Insignificant.

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
009	Cement from Cementing Operations.	Licensed Waste Facility. Along traffic route.	Transportation from site by road to Licensed Facility.	<p>Cement returns are anticipated at surface during drilling operations, maintenance and abandonment operations.</p> <p>It is not possible to reuse cement that returns to surface and, therefore, the cement will be stored on site in a skip (3.75m x 1.75m x 1.26m) for subsequent offsite disposal to a licensed waste facility.</p> <p>Cement waste is classed as non-hazardous.</p> <p>Transportation from site to the licensed waste facility is by a licensed waste carrier in road bulk haulage vehicles.</p> <p>A licensed waste contractor will be onsite during the operation to ensure that handling, storage, documentation and onward disposal of generated wastes is in compliance with current regulations.</p> <p>Vehicles used for transportation are to be serviced and maintained in accordance with manufacturers / legislation.</p> <p>Vehicle spillage kits are to be carried during transportation of wastes.</p> <p>Vehicles are to adhere to approved traffic routes as outlined by planning authority / client.</p> <p>An audit of the nominated Licensed Waste Carrier may be undertaken prior to operations commencing.</p> <p>A physical audit of the transportation of waste may be undertaken to ensure that the waste is transported to the approved final destination.</p>	Management actions and procedures should prevent this happening.	<p>Possible pollution of traffic route if vehicle involved in accident.</p> <p>Fly-Tipping of wastes if not delivered to licensed facility.</p>	Low if management techniques, planning and procedures are followed.

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
010	Spent Acid	Licensed Waste Facility. Along traffic route.	Transportation from site by road to Licensed Facility.	<p>Acid is used during well clean up (treatment) operations. The acid is used to expand existing channels within the rock formation to aid petroleum products to flow to surface.</p> <p>Acid used during well clean up (treatment) operations will be reverse circulated to surface where it is stored in tanks (1m³ IBC's) for subsequent offsite disposal to a licenced waste facility.</p> <p>Transportation from site to the licenced waste facility is by a licenced waste carrier in road bulk haulage vehicles.</p> <p>A licenced waste contractor will be onsite during the operation to ensure that handling, storage, documentation and onward disposal of generated wastes is in compliance with current regulations.</p> <p>Vehicles used for transportation are to be serviced and maintained in accordance with manufacturers / legislation.</p> <p>Vehicle spillage kits are to be carried during transportation of wastes.</p> <p>Vehicles are to adhere to approved traffic routes as outlined by planning authority / client.</p> <p>An audit of the nominated Licenced Waste Carrier may be undertaken prior to operations commencing.</p> <p>A physical audit of the transportation of waste may be undertaken to ensure that the waste is transported to the approved final destination.</p>	Management actions and procedures should prevent this happening.	<p>Possible pollution of traffic route if vehicle involved in accident.</p> <p>Fly-Tipping of wastes if not delivered to licenced facility.</p>	Low if management techniques, planning and procedures are followed.

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
011	Run-off Water from Site Surface.	Licensed Waste Facility. Along traffic route.	Transportation from site by road to Licensed Facility.	<p>The wellsite design incorporates an impermeable membrane, which does not permit surface water to penetrate the underlying subsoil's. Surface water percolates through the site stone and migrates along the surface of the impermeable membrane and into a containment ditch for subsequent reuse or offsite disposal to a licensed waste facility, which may include permitted reinjection wells.</p> <p>Surface water is mainly rainfall (precipitation), however, the impermeable membrane exists to protect against pollution from oil spillages and, therefore, has the potential to contain oils.</p> <p>Arrangements are made for the water within the ditch to be discharged to surface water a road haulage tanker for subsequent offsite disposal via a licensed waste facility during periods of operations, which may include permitted reinjection wells.</p> <p>If signs of contamination are present within the water, attempts at site will be made to remove the contamination (i.e. use of hydro-sorb pads to remove oil contamination) and tests will be conducted at site or the licensed waste facility to identify the best route to be undertaken for recycling.</p> <p>A licensed waste contractor will be onsite during the operation to ensure that handling, storage, documentation and onward disposal of generated wastes is in compliance with current regulations.</p> <p>Vehicles used for transportation are to be serviced and maintained in accordance with manufacturers / legislation.</p> <p>Vehicle spillage kits are to be carried during transportation of wastes.</p> <p>Vehicles are to adhere to approved traffic routes as outlined by planning authority / client.</p> <p>An audit of the nominated Licensed Waste Carrier is to be undertaken prior to operations commencing.</p> <p>A physical audit of the transportation of waste is to be undertaken to ensure that the waste is transported to the approved final destination.</p>	Management actions and procedures should prevent this happening.	<p>Possible pollution of traffic route if vehicle involved in accident.</p> <p>Fly-Tipping of wastes if not delivered to licensed facility.</p>	Low if management techniques, planning and procedures are followed.

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
012	Accommodation Waste Water and Sewage.	Licensed Waste Facility. Along traffic route.	Transportation from site by road to Licensed Facility.	<p>Waste water and foul waste is generated on site in the accommodation units. Waste water and foul waste is collected using independent under cabin storage tanks where it is stored for subsequent offsite disposal to a licenced waste facility.</p> <p>Levels of waste within the tanks are monitored daily and arrangements are made for the removal and off-site disposal of waste when the level of waste is near capacity of the tanks.</p> <p>A licenced waste contractor will be onsite during certain operations to ensure that handling, storage, documentation and onward disposal of generated wastes is in compliance with current regulations.</p> <p>Transportation from site to the licenced waste facility is by a licenced waste carrier in road bulk haulage vehicles.</p> <p>Vehicles used for transportation are to be serviced and maintained in accordance with manufacturers / legislation.</p> <p>Vehicle spillage kits are to be carried during transportation of wastes.</p> <p>Vehicles are to adhere to approved traffic routes as outlined by planning authority / client.</p> <p>An audit of the nominated Licenced Waste Carrier may be undertaken prior to operations commencing.</p> <p>A physical audit of the transportation of waste may be undertaken to ensure that the waste is transported to the approved final destination.</p>	Management actions and procedures will prevent this happening.	<p>Possible pollution of traffic route if vehicle involved in accident.</p> <p>Fly-Tipping of wastes if not delivered to licenced facility.</p>	Low if management techniques, planning and procedures are followed.

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
013	Fuel Oil Spill from Power Generation.	Licensed Waste Facility. Along traffic route.	Transportation from site by road to Licensed Facility.	<p>Although the site is sealed using an impermeable membrane, oil and oily waste is stored and handled as though it were not. This gives an additional layer of protection.</p> <p>The expected quantity of waste fuel oil is expected to be approximately 0.1 tonne.</p> <p>A licenced waste contractor will be onsite during the drilling operation to ensure that handling, storage, documentation and onward disposal of generated wastes is in compliance with current regulations.</p> <p>Transportation from site to the licenced waste facility is by a licenced waste carrier in road bulk haulage vehicles.</p> <p>Vehicles used for transportation are to be serviced and maintained in accordance with manufacturers / legislation.</p> <p>Vehicle spillage kits are to be carried during transportation of wastes.</p> <p>Vehicles are to adhere to approved traffic routes as outlined by planning authority / client.</p> <p>An audit of the nominated Licenced Waste Carrier may be undertaken prior to operations commencing.</p> <p>A physical audit of the transportation of waste may be undertaken to ensure that the waste is transported to the approved final destination.</p>	Management actions and procedures should prevent this happening.	<p>Possible pollution of traffic route if vehicle involved in accident.</p> <p>Fly-Tipping of wastes if not delivered to licenced facility.</p>	Low if management techniques, planning and procedures are followed.

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
014	Engine, Gear and Lubricating Oils from Mobile Plant.	Licensed Waste Facility. Along traffic route.	Transportation from site by road to Licensed Facility.	<p>Low volumes of engine oils, gear oils and lubricating oils are used to service the rig and associated equipment. Oils will be stored on bunded trays. Waste oils will be collected and stored on site within bunded trays for subsequent offsite recycling or disposal via a licenced waste facility.</p> <p>Although the site is sealed using an impermeable membrane, oil and oily waste is stored and handled as though it were not. This gives an additional layer of protection.</p> <p>A licenced waste contractor will be onsite during the drilling operation to ensure that handling, storage, documentation and onward disposal of generated wastes is in compliance with current regulations.</p> <p>Transportation from site to the licenced waste facility is by a licenced waste carrier in road bulk haulage vehicles.</p> <p>Vehicles used for transportation are to be serviced and maintained in accordance with manufacturers / legislation.</p> <p>Vehicle spillage kits are to be carried during transportation of wastes.</p> <p>Vehicles are to adhere to approved traffic routes as outlined by planning authority / client.</p> <p>An audit of the nominated Licenced Waste Carrier may be undertaken prior to operations commencing.</p> <p>A physical audit of the transportation of waste may be undertaken to ensure that the waste is transported to the approved final destination.</p>	Management actions and procedures should prevent this happening.	<p>Possible pollution of traffic route if vehicle involved in accident.</p> <p>Fly-Tipping of wastes if not delivered to licenced facility.</p>	Low if management techniques, planning and procedures are followed.

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
015	Hydraulic Oils from Mobile Plant.	Licensed Waste Facility. Along traffic route.	Transportation from site by road to Licensed Facility.	<p>Low volumes of Hydraulic oils are used to service the rig and associated equipment. Oils will be stored on bunded trays. Waste oils will be collected and stored on site within bunded trays for subsequent offsite recycling or disposal via a licenced waste facility.</p> <p>The expected quantity of waste hydraulic oils is expected to be approximately 1 tonne.</p> <p>Although the site is sealed using an impermeable membrane, oil and oily waste is stored and handled as though it were not. This gives an additional layer of protection.</p> <p>A licenced waste contractor will be onsite during the operation to ensure that handling, storage, documentation and onward disposal of generated wastes is in compliance with current regulations.</p> <p>Transportation from site to the licenced waste facility is by a licenced waste carrier in road bulk haulage vehicles.</p> <p>Vehicles used for transportation are to be serviced and maintained in accordance with manufacturers / legislation.</p> <p>Vehicle spillage kits are to be carried during transportation of wastes.</p> <p>Vehicles are to adhere to approved traffic routes as outlined by planning authority / client.</p> <p>An audit of the nominated Licenced Waste Carrier may be undertaken prior to operations commencing.</p> <p>A physical audit of the transportation of waste may be undertaken to ensure that the waste is transported to the approved final destination.</p>	Management actions and procedures should prevent this happening.	<p>Possible pollution of traffic route if vehicle involved in accident.</p> <p>Fly-Tipping of wastes if not delivered to licenced facility.</p>	Low if management techniques, planning and procedures are followed.

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
016	Oil Rags / Absorbents from Mobile Plant Maintenance.	Licensed Waste Facility. Along traffic route.	Transportation from site by road to Licensed Facility.	<p>Oil rags and absorbent materials used during plant maintenance and for spillages within the site will be stored on site in steel drums (209 litres) prior to disposal offsite by a licenced waste contractor.</p> <p>Oil rags and absorbent materials will be removed from site at the end of operations or when quantities held permit a practical economic and environmental operation.</p> <p>The expected quantity of waste oil rags and absorbents is expected to be approximately 1 tonne.</p> <p>A licenced waste contractor will be onsite during the operation to ensure that handling, storage, documentation and onward disposal of generated wastes is in compliance with current regulations.</p> <p>Transportation from site to the licenced waste facility is by a licenced waste carrier in road bulk haulage vehicles.</p> <p>Vehicles used for transportation are to be serviced and maintained in accordance with manufacturers / legislation.</p> <p>Vehicle spillage kits are to be carried during transportation of wastes.</p> <p>Vehicles are to adhere to approved traffic routes as outlined by planning authority / client.</p> <p>An audit of the nominated Licenced Waste Carrier is to be undertaken prior to operations commencing.</p> <p>A physical audit of the transportation of waste is to be undertaken to ensure that the waste is transported to the approved final destination.</p>	Management actions and procedures will prevent exposure.	<p>Possible pollution of traffic route if vehicle involved in accident.</p> <p>Fly-Tipping of wastes if not delivered to licenced facility.</p>	Low if management techniques, planning and procedures are followed.

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
017	Waste Filters from Mobile Plant Maintenance.	Licensed Waste Facility. Along traffic route.	Transportation from site by road to Licensed Facility.	<p>Waste oil filters from mobile plant maintenance will be stored on site in steel drums (209 litres) prior to disposal offsite by a licenced waste contractor.</p> <p>Waste oil filters will be removed from site at the end of operations or when quantities held permit a practical economic and environmental operation.</p> <p>A licenced waste contractor will be onsite during the operation to ensure that handling, storage, documentation and onward disposal of generated wastes is in compliance with current regulations.</p> <p>Transportation from site to the licenced waste facility is by a licenced waste carrier in road bulk haulage vehicles.</p> <p>Vehicles used for transportation are to be serviced and maintained in accordance with manufacturers / legislation.</p> <p>Vehicle spillage kits are to be carried during transportation of wastes.</p> <p>Vehicles are to adhere to approved traffic routes as outlined by planning authority / client.</p> <p>An audit of the nominated Licenced Waste Carrier is to be undertaken prior to operations commencing.</p> <p>A physical audit of the transportation of waste is to be undertaken to ensure that the waste is transported to the approved final destination.</p>	Management actions and procedures will prevent exposure.	<p>Possible pollution of traffic route if vehicle involved in accident.</p> <p>Fly-Tipping of wastes if not delivered to licenced facility.</p>	Low if management techniques, planning and procedures are followed.

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
018	Paper and Cardboard from Office Routines.	Licenced Waste Facility. Along traffic route.	Transportation from site by road to Licenced Facility.	<p>Waste generated from the office accommodation units will be paper and cardboard and will be segregated and stored on site in skips for subsequent offsite recycling via a licenced waste facility.</p> <p>Use of enclosed skips will ensure that waste can be contained within the site boundary.</p> <p>The expected quantity of waste paper and cardboard is expected to be approximately 1 tonne.</p> <p>Transportation from site to the licenced waste facility is by a licenced waste carrier in road bulk haulage vehicles.</p> <p>Vehicles used for transportation are to be serviced and maintained in accordance with manufacturers / legislation.</p> <p>Vehicles are to adhere to approved traffic routes as outlined by planning authority / client.</p> <p>An audit of the nominated Licenced Waste Carrier may be undertaken prior to operations commencing.</p> <p>A physical audit of the transportation of waste maybe undertaken to ensure that the waste is transported to the approved final destination.</p>	Management actions and procedures will prevent exposure.	<p>Possible pollution of traffic route if vehicle involved in accident.</p> <p>Fly-Tipping of wastes if not delivered to licenced facility.</p>	Low if management techniques, planning and procedures are followed.
019	Canteen Waste.	Licenced Waste Facility. Along traffic route.	Transportation from site by road to Licenced Facility.	<p>Canteen waste generated on site will be stored on site in closed skips for subsequent offsite disposal to a licenced waste facility.</p> <p>Canteen waste will comprise of food packaging, food waste, plastic containers, paper, cardboard etc.</p> <p>Use of enclosed skips will ensure that waste can be contained within the site boundary.</p> <p>Transportation from site to the licenced waste facility is by a licenced waste carrier in road bulk haulage vehicles.</p> <p>Vehicles used for transportation are to be serviced and maintained in accordance with manufacturers / legislation.</p> <p>Vehicle spillage kits are to be carried during transportation of wastes.</p> <p>Vehicles are to adhere to approved traffic routes as outlined by planning authority / client.</p> <p>An audit of the nominated Licenced Waste Carrier may be undertaken prior to operations commencing.</p> <p>A physical audit of the transportation of waste may be undertaken to ensure that the waste is transported to the approved final destination.</p>	Management actions and procedures will prevent exposure.	<p>Possible pollution of traffic route if vehicle involved in accident.</p> <p>Fly-Tipping of wastes if not delivered to licenced facility.</p>	Low if management techniques, planning and procedures are followed.

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
020	Packaging from Delivered Products.	Licenced Waste Facility. Along traffic route.	Transportation from site by road to Licenced Facility.	<p>Wood used in the packaging of equipment, including pallets and dunnage, will be stored on site for subsequent reuse or offsite recycling via a licenced waste facility.</p> <p>Where possible, packaging used for transportation of goods will be returned to the manufacturing supplier with the delivery vehicle.</p> <p>Waste generated from packaging will be segregated and stored on site skips for subsequent offsite recycling via a licenced waste facility.</p> <p>Transportation from site to the licenced waste facility is by a licenced waste carrier in road bulk haulage vehicles.</p> <p>Vehicles used for transportation are to be serviced and maintained in accordance with manufacturers / legislation.</p> <p>Vehicles are to adhere to approved traffic routes as outlined by planning authority / client.</p> <p>An audit of the nominated Licenced Waste Carrier may be undertaken prior to operations commencing.</p> <p>A physical audit of the transportation of waste may be undertaken to ensure that the waste is transported to the approved final destination.</p>	Management actions and procedures will prevent exposure.	<p>Possible pollution of traffic route if vehicle involved in accident.</p> <p>Fly-Tipping of wastes if not delivered to licenced facility.</p>	Low if management techniques, planning and procedures are followed.
021	Metal from Engineering Works.	Licenced Waste Facility. Along traffic route.	Transportation from site by road to Licenced Facility.	<p>Waste metal generated on site through minor engineering works and packaging will be stored on site for subsequent reuse or offsite recycling via a licenced waste facility.</p> <p>Transportation from site to the licenced waste facility is by a licenced waste carrier in road bulk haulage vehicles.</p> <p>Vehicles used for transportation are to be serviced and maintained in accordance with manufacturers / legislation.</p> <p>Vehicle spillage kits are to be carried during transportation of wastes.</p> <p>Vehicles are to adhere to approved traffic routes as outlined by planning authority / client.</p> <p>An audit of the nominated Licenced Waste Carrier may be undertaken prior to operations commencing.</p> <p>A physical audit of the transportation of waste may be undertaken to ensure that the waste is transported to the approved final destination.</p>	Management actions and procedures will prevent exposure.	<p>Possible pollution of traffic route if vehicle involved in accident.</p> <p>Fly-Tipping of wastes if not delivered to licenced facility.</p>	Low if management techniques, planning and procedures are followed.

Disposal or Recovery of Waste Produced on Site

Waste Stream No.	Description of Waste Stream	Amount produced tonne / year	Nature of Waste	Disposal or recovery option	Impact Score
001	Waste Clays and Sand	10	Non-haz (2)	R3 (2)	40
002	Salt Saturated and KCL Rock Cuttings	20	Non-haz (2)	R3 (2)	80
003	Chloride Containing Drilling Muds and Waste	20	Non-haz (2)	R3 (2)	80
004	Well Suspension Brine	25	Non-haz (2)	R3 (2)	100
005	Oil Based Rock Cuttings	125	Hazardous (10)	R3 (2)	2500
006	Oil Based Mud	125	Hazardous (10)	R3 (2)	2500
007	Formation Water	20	Non-haz (2)	D4 (15)	600
008	Natural Gas	<10Tonnes Per Day (28 Days)	Hazardous (10)	D10 (10)	28,000
009	Cement from Cementing Operations.	25	Non-haz (2)	R5 (3)	150
010	Spent Hydrochloric Acid from Acid Wash and Squeeze Operations.	50	Non-haz (2)	R6 (4)	400
011a	Run-off Water from Site Surface.	80	Hazardous (10)	D4 (15)	12,000
001b	Run-off Water from Site Surface.	5	Non-haz (2)	D4 (15)	150
012	Accommodation Waste Water and Sewage.	100	Hazardous (10)	D4 (15)	15,000
013	Fuel Oil Spill from Power Generation.	0.1	Hazardous (10)	R9 (4)	4
014	Engine, Gear and Lubricating Oils from Mobile Plant.	2	Hazardous (10)	R9 (4)	80
015	Hydraulic Oils from Mobile Plant.	1	Hazardous (10)	R9 (4)	40
016	Oil Rags / Absorbents from Mobile Plant Maintenance.	1	Hazardous (10)	R9 (4) + R4 (4)	40
017	Waste Filters from Mobile Plant Maintenance	0.25	Hazardous (10)	R9 (4) + R4 (4)	10
018	Paper and Cardboard from Office routines.	3	Non-haz (2)	R5 (3)	18
019	Canteen Waste.	6	Non-haz (2)	R5 (3)	36
020	Packaging from Delivered Products.	6	Non-haz (2)	R5 (3)	36
021	Metal from Engineering Works.	8	Non-haz (2)	R4 (3)	48

Total = 61,912

Global Warming Potential

Serial No.	Activity	Substance	Chemical Formula	Atmospheric lifetime (yrs)	Global Warming Potential (GWP)	Direct / Indirect Release	Released Mass Per Operation (Tonnes)	Global Warming Potential of Emissions (Released Mass x GWP)
001	Power Generation	Carbon Dioxide	CO ₂	Variable	1	Direct	141	141
002	Flaring	Carbon Dioxide	CO ₂	Variable	1	Direct	69.713	69.713
003	Flaring	Methane	CH ₄	12.3	21	Direct	0.448	9.408
004	Flaring	Nitrous Oxide	NO ₂	120	310	Direct	0.002	0.62

Energy Sources, Conversion Efficiency and Emission Factors

Serial No.	Energy Source	Location of Emission	Delivered to Primary Conversion Factor	CO ₂ Factor (t/mwh, primary)
001	Gas Oil	Direct	1	0.250

Energy Emission Factors

Serial No.	Fuel	MWh	Delivered to Primary Conversion Factor	t/MWh	Carbon Dioxide Emissions (MWh x Delivered to Primary Conversion Factor x t/MWh)
001	Gas Oil	564.480	1	0.250	564.480 X 1 x 0.250 = 141,120 Kg of Carbon Dioxide emissions.

Assessment of Global Warming Risks

ID	Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
001	Greenhouse gas emissions from site power generation.	Atmosphere.	Air.	<p>Power generation is provided on site by drilling rig generators and / or standalone generators.</p> <p>Generators are powered / operated using gas oil supplied from external banded fuel tanks located within the site boundary.</p> <p>During drilling operations, the generators are usually operated 24 hours per day, thus ensuring power supply is not interrupted and the safety systems required on site ensure that the integrity and safety of the wellbore is maintained.</p> <p>Generators are maintained and serviced in line with manufacturer's guidelines thus ensuring that they operate efficiently and minimising emissions, noise and vibration.</p> <p>Service and maintenance regimes are implemented and adhered to and all work is carried out by a competent trained electrician.</p> <p>Generators supplied within the rig structure respond to power demand and do not run at full working load during the operations.</p> <p>When power is not required generators are switched off / on standby to reduce emissions, fuel usage, noise, vibration and wear and tear on the equipment.</p>	Greenhouse gas emissions are released during operation of site generators.	Global warming and effects associated with it.	Not significant.
002	Greenhouse gas emissions from flaring of natural gas during operations.	Atmosphere.	Air.	<p>In the event that natural gas is encountered during exploratory operations, it will be flowed to surface through the wellbore into fluid separation equipment, from which the petroleum is separated from produced fluids (formation water).</p> <p>Once separated, the gas is diverted via pipework to a flare for incineration.</p>	<p>Air quality not significantly affected from modelling assessment.</p> <p>Make regular observations over the period of operation.</p>	Impact on global warming but deemed insignificant from modelling assessment.	Not significant.
003	Greenhouse gas emissions from vehicles and site equipment during drilling.	Atmosphere.	Air – Prevailing winds from south west (average statistics from the Met Office).	<p>Vehicle loads and transportation to be planned to reduce quantity of deliveries / collections.</p> <p>Vehicles are to be serviced and maintained to manufacturer's / industry standards.</p> <p>Regular maintenance and inspections are to be conducted as directed by written procedures.</p> <p>Drivers are to receive training / induction on driving techniques and site rules.</p> <p>Vehicles when not in use to be switched off.</p> <p>Ambient air quality monitoring will be undertaken to establish Ambient air quality baseline and during flaring activities.</p>	Emissions from vehicles and site equipment exhaust systems will occur throughout the operation.	Impact on global warming but deemed insignificant.	Insignificant.

Generic risk assessment for proposed standard rules set number SR2015 No 2

Standard Facility:	Crude oil handling and storage at onshore oil and gas exploration and production sites
Location:	Holmwood
Risk assessment carried out by:	Environment Agency
Date:	20-Oct-16

The scope of the permit and associated rules is defined by the following risk criteria:

- Parameter 1 Permitted activities - storage and handling of crude oil arising from onshore oil and gas exploration and production activities
- Parameter 2 the activities must not be carried out in a groundwater source protection zone 1 or 2, or if a source protection zone has not been defined then within 250 metres of any well, spring or borehole used for the supply of water for human consumption. This must include private water supplies
- Parameter 3 The activities must not be carried out within 500 metres of a European Site or a Site of Special Scientific Interest (SSSI).
- Parameter 4 The activities must not be carried out within 200 metres of the nearest sensitive receiver
- Parameter 5 These rules do not apply to the storage of greater than 500 tonnes of crude oil
- Parameter 6 These rules do not apply to the storage of crude oil with a hydrogen sulphide content greater than 10ppm
- Abbreviations: SR - Standard Rule

Data and information				Judgement				Action (by permitting)	
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment).
Local human population. Local Residents: Lower Merriden 0.53km West Anstiebury Farm 0.68km South Dwelling at Redlands 0.69km East Dwellings of Abinger Road/Wolvens Lane 0.69km South Crockers Farm 0.70km South Anstiebury Cottage 0.72km South Collickmoor Farm 0.78km North Anstie Grange 0.78km Southeast Robin Gate Cottage 0.81km North Collickmoor Farm Cottages 0.83km North Anstiehurst 0.95km South Upper Merriden Cottage 1.00km West Dwelling at Little Redlands 1.10km East Coldharbour 1.11km South Anstie Grange Farm 1.12km Southeast Kitlands 1.16km South Kitlands Farm 1.21km South Folly Farm 1.24km East Tilling Springs 1.25km West East Lodge 1.27km Southeast East Lodge 1.35km East Dwelling at Betchets Green 1.36km East Dwelling on Anstie Lane 1.37km Southeast Moorhurst Manor 1.41km Southeast South Holmwood 1.42km East Cherry Tree Cottage 1.45km East Warren Farm 1.46km West Redlands Farm 1.49km Northeast Betchets Green Farm 1.50km East Redland Bank House 1.52km Northeast Bushy Croft 1.54km East Dwelling North of Moorhurst Lane 1.55km Southeast Redland Bank Cottages 1.56km Northeast Capel Leyse 1.61km Southeast Mid Holmwood 1.62km Northeast The Bungalow 1.63km Northeast Pond Cottage / Base Camp 1.63km West Vigo Farm 1.66km East Vicarage and Hall 1.68km East Minnickfold 1.68km Southeast Dwelling of Broomehall Road (North) 1.69km South Dwelling of Broomehall Road (South) 1.69km South	Odour.	Nuisance, stress.	Air transport then inhalation.	Low	Medium	Medium	Local residents can become sensitised to odours and the impact upon them can be greater than on someone who experiences occasional exposure. Odour associated with crude oil is normally from the aromatic hydrocarbons and sulphurous compounds, particularly hydrogen sulphide.	Include a condition requiring the operator to maintain an odour management plan (condition 2.5.2). Place a restriction on the proximity of the activities to the nearest sensitive receptor (condition 2.2.2(d)). Restrict the applicability of the standard rules to storage of crude oil with a hydrogen sulphide content of < 10ppm.	Low
	Noise and vibration.	Nuisance, loss of amenity, loss of sleep.	Noise through the air and vibration through the ground.	Low	Medium	Medium	Local residents often sensitive to noise, particularly if exposure is frequent and intermittent. Permitted activity here is related to storage of crude oil so unlikely to be any vibration issues.	Include a condition requiring the operator to develop and implement a noise and vibration management plan if required by the Environment Agency (condition 2.6.2)). Place a restriction on the proximity of the activities of 200m to the nearest sensitive receptor (condition 2.2.2(d)).	Low

Data and information				Judgement				Action (by permitting)	
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment).
Dwelling west of Cedar Cottage 1.76km East The Lodge 1.76km East Copse Farm 1.77km Southeast Presumed Dwelling Off A24 1.82km East Shootlands Farm 1.82km West Foxhill 1.83km North Squires Farm 1.83km Northwest Cedar Cottage 1.86km East Holmwood Corner 1.88km East Jersey Farm Cottage 1.88km Southeast Dwelling South of Moor Lodge 1.89km East Bearhurst 1.91km Southeast MIR-Tech 1.92km North Moor Lodge 1.92km East Chadhurst Lodge 1.93km North Dwelling off Whiteberry Road 1.93km Northwest Oakdene Cottages 1.94km East Tillingbourne Cottage 1.94km Northwest	Minor spillage (a few litres) of crude oil.	Short term minor contamination of water and associated shoreline, low potential for harm to marine life.	Direct run-off from site across ground surface, via surface water drains, ditches etc.	Medium	Low	Medium	A spillage of a small quantity of crude oil is unlikely to leave the site and would cause minor impact on a receiving water.	Include a management condition requiring the operator to implement a management system that identifies and minimises risks of pollution, from operations and maintenance activities (condition 1.1.1).	Low
All Surface waters close to and downstream of site. Watercourses: Pipp Brook 0.60km Southwest	Large spillage (several m3) of crude oil from failure of a storage tank or pipe rupture.	Medium term contamination of water, potential for harm to marine life such as localised fish kill. Crude oil has an acute toxic hazard in the range 2->100 mg/l. Under the EU regulation on classification, labelling and packaging of substances and mixtures; most crude oils are classified as 'dangerous to the environment'; chronic aquatic toxicity category 2 and carries the hazard statement H411 'toxic to aquatic life with long lasting affects';	Direct run-off from site across ground surface, via surface water drains, ditches etc.	Low	High	Medium	Good design and maintenance of pipework and tanks, including secondary containment, minimises the risk of failure The HSE published land planning equipment failure rates indicate that for atmospheric tanks, less than 4000m3 in capacity, the failure rate is 1 in 10000 every yr. Secondary containment further reduces the risk of severe loss of containment by a further 80%. These failure rates assume that the containment provisions are well maintained.	Limit the quantity of crude oil that can be stored under standard rules to 500T. Include a condition requiring provision of secondary containment for vessels containing liquids and a management condition as described above (condition 2.4.3, Table 2.3 & 1.1.1). To minimise the risk of direct discharge to surface water through runoff include a condition that restricts the activity being carried out within 50m of a watercourse, under standard rules.	Low
Groundwater.	Large spillage (several m3) of crude oil, from failure of a storage tank or pipe rupture	Chronic effects: contamination of groundwater, requiring treatment of water or closure of borehole. Under the EU regulation on classification, labelling and packaging of substances and mixtures; most crude oils are classified as 'dangerous to the environment'; chronic aquatic toxicity category 2 and carry the hazard statement H411 'toxic to aquatic life with long lasting affects';	Transport through soil/groundwater then extraction at borehole.	Low	Medium	Low	Good design and maintenance of pipework and tanks, including secondary containment, minimises the risk of failure. Even if a large spillage were to occur, only a portion of the spilled material would reach the groundwater, therefore the consequence is lower than for the impact on a surface water. The HSE published land planning equipment failure rates indicate that for atmospheric tanks, less than 4000m3 in capacity, the failure rate is 1 in 10000 every yr. Secondary containment further reduces the risk of severe loss of containment by a further 80%. These failure rates assume that the containment provisions are well maintained.	Limit the quantity of crude oil that can be stored under standard rules to 500T. Include a condition requiring provision of secondary containment for vessels containing liquids and a management condition as described above. Operating techniques also set out the standards for crude oil storage (condition 2.4.3, Table 2.3 & condition 1.1.1). Include a restriction that the activity cannot be carried out within 250m of a GWPZ or a NALD registered borehole or well, under standard rules. This distance is consistent with the screening distances set for other standard rules in the ENP screening distances matrix.	Low

Data and information				Judgement				Action (by permitting)	
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Justification for magnitude	Risk management	Residual risk
What is at risk? What do I wish to protect?	What is the agent or process with potential to cause harm?	What are the harmful consequences if things go wrong?	How might the receptor come into contact with the source?	How likely is this contact?	How severe will the consequences be if this occurs?	What is the overall magnitude of the risk?	On what did I base my judgement?	How can I best manage the risk to reduce the magnitude?	What is the magnitude of the risk after management? (This residual risk will be controlled by Compliance Assessment).
Protected nature conservation sites - European sites and SSSIs. RAMSAR 10km No Features Found Special Areas of Conservation (SAC) 10km Mole Gap To Reigate Escarpment 6.30km Special Protection Areas (SPA) 10km No Features Found Marine Protection Areas (MPA) 10km No Features Found Sites of Special Scientific Interest (SSSI) 2km Leith Hill 0.61km Scheduled Ancient Monuments 2km Anstiebury Camp 0.62km National Nature Reserves 2km No Features Found Local Nature Reserves 2km No Features Found	Large spillage (several m3) of crude oil, from failure of a storage tank or pipe rupture.	Harm to protected site through toxic contamination, or damage to feeding grounds.	By transmission of crude oil through runoff from a spillage, or transport via groundwater.	Low	Medium	Medium	Storage of crude oil is of a relatively small industrial scale and also is limited in capacity therefore the potential for large releases of pollutants is low.	Include a condition that does not allow the standard rules to be applied if the activity is within 500m of a European conservation site or SSSI site. This is consistent with the screening distance specified in the ENP Screening Distance matrix for other similar standard rules activities. Limit storage capacity to 500T.	Very low

High	4	8	12	16
Medium	3	6	9	12
Low	2	4	6	8

This GRA is set out in a table which describes the risks, risk management measure and regulatory tools that have been assessed in determining the mitigated residual risks. A preliminary risk prioritisation approach has been taken in evaluating the potential impacts, classifying the hazards to the environment and people against the probability of the hazard occurring as set out below.

Likelihood or probability has been classed as follows:

- Very Low - Rarely encountered, never reported or highly unlikely within sector
- Low - Infrequent, occasional, very few occurrences within sector
- Medium - Occurs several times per year within sector
- High - Repeated occurrences at a location

Consequence of the impact of a hazard to environmental and people has been classed as follows:

- Very Low - Slight environmental effect but doesn't exceed a regulatory standard
- Low - Minor environmental effect which may reach a regulatory standard, localised to point of release with no significant impact on the environment or for health
- Medium - Moderate, localised effect on ecosystems and people in the vicinity of an incident or release
- High - Major environmental incident resulting in damage to ecosystems and or harm to health

Risk matrix

	Probability very low	Probability low	Probability medium	Probability high
Consequence very low	Low	Low	Low	Low
Consequence low	Low	Low	Medium	Medium
Consequence medium	Low	Medium	Medium	High
Consequence high	Medium	Medium	High	High