

Application SCR evaluation template

Name of activity, address and NGR	Western Bacton Gas Terminal Paston Road, Bacton Norfolk, NR12 0JG TG 3282 3485
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Document reference of application SCR	EPR/VP3637SB
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Date and version of application SCR	Application Site Report for IPPC Application (Permit No. VP3637SB), 933228, August 2006).
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1.0 Site details

Has the applicant provided the following information as required by the application SCR template?

Site plans showing site layout, drainage, surfacing, receptors, sources of emissions/releases and monitoring points

Yes

2.0 Condition of the land at permit issue

To be completed by GWCL officers
(Receptor)

Has the applicant provided the following information as required by the application SCR template?

- a) Environmental setting including geology, hydrogeology and surface waters
- b) Pollution history including:
 - pollution incidents that may have affected land
 - historical land-uses and associated contaminants
 - visual/olfactory evidence of existing contamination
 - evidence of damage to existing pollution prevention measures
- c) Evidence of historic contamination (i.e. historical site investigation, assessment, remediation and verification reports (where available)
- d) Has the applicant chosen to collect baseline reference data?

Environmental setting

Geology

The British Geological Survey (BGS) Map (England and Wales Sheet 132 & 148, Solid and Drift Edition)

shows the geological succession beneath the Site is, as follows:

- Corton Formation (9 to 35 m in thickness);
- Crag Group (15 to 33 m in thickness);
- Eocene Thames Group;
- Ormesby Clay Formation; and
- Cretaceous White Chalk (> 300 m in thickness).

Hydrogeology

The superficial deposits at the Site are classed as a Secondary A Aquifer and the bedrock is classified as a Principal Aquifer. The Site is not located within a Groundwater Source Protection Zone. The nearest zone is located in Mundesley, over 1 km from the Site.

Surface waters

The nearest surface water feature is the North Sea, bordering the Site to the North. There are no fresh water surface features located within 1 km of the Site. A surface water drainage ditch is located approximately 400 m south of the Site. The next nearest fresh water features from the Site consist of the Mundesley River, located approximately 2.5 km northwest of the Site and the Antingham River, located 3.0 km south of the Site.

2.0 Condition of the land at permit issue

To be completed by GWCL officers
(Receptor)

Has the applicant provided the following information as required by the application SCR template?

The Site is not located within a risk area or safeguard zone for surface water Drinking Water Protected Area (DrWPA) risk area.

Pollution history

The following pollution history information has been taken from the original ASR (Appendix B Application Site Report for IPPC Application (Permit No. VP3637SB), 933228, August 2006):

- In 1973, a significant release of hydrocarbon occurred in the area of the Hewett Slugcatcher
- In the mid-1980s, a hydrocarbon leak occurred from export pipeline
- A major release of condensate occurred in 1993 when an underground pipe (reference P-4"-1A1a-706-502) ruptured in the area of the condensate storage tanks. The pipe ruptured due to corrosion after breakdown of the pipewrap. The pipe was repaired by Oilfield Testing Services in 1993
- Minor spills at inlet facilities during the removal of spheres from sphere facilities (Pig receivers and slugcatchers) as there was no containment or sumps until 1988. Since 1988, the drainage sumps have historically overflowed at times of heavy rainfall
- Blowdown of liquid hydrocarbons from the MEG separators has caused minor releases of Hydrocarbon
- Blowdown of liquid hydrocarbon from the suction scrubbers during routine maintenance, spillages of oil from overflowing storage tanks and degreasers and solvents washdowns during maintenance have likely resulted in releases to land
- Minor releases from the hot oil pumps and storage tanks
- Discharge of bottom water from the condensate tanks has led to minor releases of hydrocarbons
- Releases of oil have historically generally occurred from the oily water separator due to minor releases from skimming equipment and from overflows

Historical investigations prior to permit issue

A number of environmental investigations have been undertaken at the Site prior to the original IPPC Permit Application in 2006 as follows:

- Baseline Soil Survey, LAPS Gas Compression Facility, 8563, CRA, September 1997;
- Phase IIA Soil Survey, 8588, CRA, October 1998;
- PPCo Gas Terminal, Bacton, Norfolk - Pentane Bund Soil Investigation, 12324.06, CRA, June 1999; and
- Site Conditions Investigation at Phillips Petroleum Company Ltd, 016723, CRA, October 2001.

A summary of the above reports is provided the original ASR (Appendix B Application Site Report for IPPC Application (Permit No. VP3637SB), 933228, August 2006). The historical investigations show hydrocarbon contaminants are present in the ground at the Site.

Baseline soil and groundwater reference data

In November 2007, CRA issued the First Phase Report of the Site Protection and Monitoring Programme (SPMP). This document reported findings from the investigation undertaken as set out in the Design SPMP prepared by CRA in July 2007. The document presented the baseline soil and groundwater Reference Data collected for the Site. Adaptations to the design SPMP were fully explained in the report.

Three boreholes were advanced for the purpose of shallow and deep soil sampling and shallow groundwater monitoring (BH-T01, BH-T02 and BH-T04). Eighteen shallow hand auger boreholes were advanced for the purpose of shallow soil sampling. Soil and groundwater samples were analysed for all or a selection of glycols, volatile petroleum hydrocarbons (VPH), BTEX and mineral oil depending on their location.

The soil and groundwater Reference Data is set out in the following document:

- First Phase Report of the Site Protection and Monitoring Programme, 933351.08, CRA, July 2007
- The Reference Data investigations encountered soils and groundwater containing hydrocarbon contaminants, consistent with the known historical operations at the Site.

2.0 Condition of the land at permit issue To be completed by GWCL officers (Receptor)
Has the applicant provided the following information as required by the application SCR template?
Summary of condition of the land at permit issue The information gathered from historical investigations, knowledge of historical incidents and operations, and collection of Reference Data all show that the Site was causing pollution to the land prior to permit issue. The Reference Data were collected to set a baseline of the condition of the land at permit issue, but it should be noted that investigations were limited with regard to access to historical pollution sources as the Site was operational at the time of permit application.

3.0 Permitted activities (Source)	
Has the applicant provided the following information as required by the application SCR template?	Response (Specify what information is needed from the applicant, if any)
a) Permitted activities	
b) Non-permitted activities undertaken at the site	
N/A	

3.0(a) Environmental Risk Assessment (Source)
The H1 environmental risk assessment should identify elements that could impact on land and waters, cross- referenced back to documents and plans provided as part of the wider permit application.
N/A

3.0(b) Will the pollution prevention measures protect land and groundwater? (Conceptual model)	
Are the activities likely to result in pollution of land?	
N/A	
For dangerous and/or hazardous substances only, are the pollution prevention measures for the relevant activities to a standard that is likely to prevent pollution of land?	

Application SCR decision summary	Tick relevant decision
Sufficient information has been supplied to describe the condition of the site at permit issue	
Information is missing- the following information must be obtained from the applicant. (Advise the permitting team on what additional information is needed)	
Pollution of land and water is unlikely; or	
Pollution of land and water is likely (Advise the permitting team on what additional controls/checks may be necessary)	
Historical contamination is present- advise operator that	

collection of background data may be appropriate	
Date and name of reviewer:	

Operational phase SCR evaluation template

Sections 4.0 to 7.0 may be completed annually in line with normal record checks.

4.0 Changes to the activities (Source)	
Have there been any changes to the following during the operation of the site?	Response (Specify what information is needed from the applicant, if any)
a) Activity boundaries b) Permitted activities c) "Dangerous substances" used or produced	
N/A	

5.0 Measures taken to protect land To be completed by EM/PPC officers (Pathway)
Has the applicant provided evidence from records collated during the lifetime of the permit, to show that the pollution prevention measures have worked?
<p>Routine infrastructure checks & inspections were undertaken weekly, biweekly, monthly and annually at the installation to ensure that potentially polluting substances would be contained in the event of an uncontrolled release. Note that the inspection of the Annexe area ceased on 17 August 2011, as responsibility for maintaining the infrastructure was handed to Perenco. While the installation was still processing gas the checks & inspections comprised the following areas:</p> <ul style="list-style-type: none"> • Inlet reception facilities/slugcatcher area: PIG receiver bunds, slugcatcher pits, LAPS 3 phase separator and liquid accumulator bund, LAPS Sulzer pump bund, Hewett A sump pump pit, Hewett A access pit, and Condensate pump pits • LAPS MEG regeneration and storage facilities: MEG tank bund • Active compression facilities: Turbine oil tank bund • Hot Oil System: hot oil heaters and bund • Condensate storage area: tank bunds (north and south) • Wastewater treatment area: Evidence of leaks and overflow in separator pits • Boiler house area and utilities: bunds and concrete surface • Main waste storage area: drip trays under drums and IBCs • Chemical storage area: drip trays under drums and IBCs, concrete bund • LAPS compression facility area: drip trays under drums • Propane compression and recompression area: drip trays and floor inside the compressor house <p>Examples of weekly and bi-weekly inspections are provided in Appendix A of the Site Surrender Report. Since the Annexe area was leased to Perenco, the bi-weekly infrastructure inspections were documented in the Bacton Pollution Control – Infrastructure Checklist BMS-AF-I-1171. These checklists were submitted to the installation Environmental Advisor on completion, and any equipment or infrastructure requiring maintenance or repair were reported to the Operations & Maintenance Supervisor who ensured appropriate corrective action was taken and records collated. The inspection checks included:</p> <ul style="list-style-type: none"> • Tank 51 Bund (condensate storage south of control room): hardstanding condition, bund walls condition, seal condition of wall and hardstanding penetrations, vegetation/animal damage, accumulated liquids, labelling of contents, container/tank condition, general housekeeping • Chemical storage area: hardstanding condition, wall/kerbing condition, accumulated sludge in bund or sump, vegetation/animal damage, labelling of contents, containers condition, general housekeeping • Mobile IBC Bunds: condition of mobile bunds, accumulated liquids, condition and labelling of IBCs stored on bunds, general housekeeping • Bulk Diesel Storage: hardstanding condition, wall/kerbing condition, accumulated sludge in bund or sump, vegetation/animal damage, diesel tank condition <p>The inspection records were collected by the Control Room and were collated monthly by the installation Environmental Advisor.</p>

6.0 Pollution incidents that may have impacted on land and their remediation

To be completed by EM/PPC officers
(Sources)

Has the applicant provided evidence to show that any pollution incidents which have taken place during the life of the permit and which may have impacted on land or water have been investigated and remediated (where necessary)?

7.0 Soil gas and water quality monitoring (where relevant)

Where soil gas and/or water quality monitoring has been undertaken, does this demonstrate that there has been no change in the condition of the land? Has any change that has occurred been investigated and remediated?

The annual monitoring reports were submitted by Petrofac to the Environment Agency in January of each year. In summary, the SPMP did not identify any releases of substances at the Site. However, during an SPMP monitoring round, light non aqueous phase liquid (LNAPL) or free-phase hydrocarbon was found in BH-T04 and was investigated further in 2008 and deemed to be from a historical source of contamination.

Where minor spills to ground did occur (Zones 7 and 9) they were dealt with immediately with removal of impacted materials.

A release occurred on 5th August 2011, which consisted of up to 50 litres of mono ethylene glycol (MEG) released to the Southern North Sea. An incident investigation was undertaken, details of which are on the Petrofac Synergi System, reference number 9501. As part of the incident investigation, Eni commissioned RPS Energy to model the dispersion of the MEG in the Southern North Sea using the PROTEUS model (Pollution Risk Offshore Technical Evaluation System). The modelling identified that the concentration of MEG at any point in the observed plumes was not significant enough to cause any measurable negative impacts on the marine environment. This is described in the RPS Energy report: *MEG Discharge Dispersion Modelling*, Revision 01, 31 August 2011.

Surrender SCR Evaluation Template

If you haven't already completed previous sections 4.0 to 7.0, do so now before assessing the surrender.

8.0 Decommissioning and removal of pollution risk

To be completed by EM/PPC officers

Has the applicant demonstrated that decommissioning works have been undertaken and that all pollution risks associated with the site have been removed? Has any contamination of land that has occurred during these activities been investigated and remediated?

On 13th June 2013, Eni submitted a letter to the Environment Agency explaining the intention to cease gas refining and combustion activities and proceed with dismantling and removal of equipment at the Site (letter emailed to Mr. Rob Reynolds, reference ECMS 417626). In January 2015, Eni and Petrofac met with the Environment Agency to present the strategy for collection of surrender data.

The following tasks were completed prior to and during dismantling and decommissioning:

- All inventories and gross contamination were removed during preparation for dismantling
- All equipment, vessels, tanks, pipework etc. have been removed (with the exception of the AEG Compressor);
- Drainage systems were cleaned and CCTV checked post dismantling; and
- Bunds/sumps were cleaned.

An HSE Risk Inventory was produced for the different areas of the Site, see Appendix G. The inventory lists the substances within the equipment and the potential environmental impact such as release to ground.

The Site Closure Plan (CRA 933771 (1), May 2009) summarises the methodology and process for completion of the staged decommissioning and dismantling undertaken in 2014, including how relevant IPPC and internal / external procedures were to be satisfied. The Site Decommissioning Plan (CRA 934016-RPT-1, April 2011) provides comprehensive methodologies for the isolation of vessels, tanks and above ground pipe work; relevant pre-work cleaning and removal of pollution risk; and the process for dismantling.

Petrofac managed the draining and emptying of vessels before handing over to the demolition contractor (Masterton). A handover report was prepared for each area of the Site to document the state of equipment isolation and any residual contaminants remaining.

The main Petrofac CDM file for the project (RVA 323 November 2012, DCWO-BA-12069 Bacton Decommissioning & Dismantling of Site) contains the method statements and risk assessments for the decommissioning and dismantling tasks specific to certain areas of the Site, an example method statement and risk assessment is provided in Appendix I. These documents identified the need for spill kits to be present as a precaution and highlighted if there was a high risk of residual contaminants in the equipment. Pre- and post-demolition CCTV surveys were undertaken in June 2013 (Document PJ132976, Lanes for Drains) and October 2014 (Document PJ170608, WinCan Europe Ltd). These illustrated several blockages with debris or furring up to 50% of pipe diameter but did not show any evidence of damage that could have presented harm to ground. The oily water separators and sumps are now located on an area of the site leased to adjacent operator Perenco and fall under their environmental permit.

9.0 Reference data and remediation (where relevant)

To be completed by GWCL officers

Has the applicant provided details of any surrender reference data that they have collected and any remediation that they have undertaken?

(Reference data for soils must meet the requirements of policy 307_03 Chemical test data on contaminated soils – quantification requirements). If the surrender reference data shows that the condition of the land has changed as a result of the permitted activities, the applicant will need to undertake remediation to return the condition of the land back to that at permit issue. You should not require remediation of historic contamination or contamination arising from non-permitted activities as part of the permit surrender.

Soil and groundwater Reference Data was collected as set out in the following document:

- First Phase Report of the Site Protection and Monitoring Programme, 933351.08, CRA, July 2007

The collection of Surrender Data at the Site was considered to be necessary, as Reference Data collection and SPMP were requested by the Environment Agency at permit application. The requirement was also agreed at a meeting in March 2013, where Petrofac, Eni and the Environment Agency discussed the closure of the Site.

CRA produced a strategy for environmental permit surrender using Environment Agency guidance documents with the aim to determine whether the Site is in a satisfactory state. The strategy report was submitted to the Environment Agency for review and comment with the final report issued 2015. The strategy report reference is as follows:

- Environmental Permit Surrender – Strategy for Demonstrating Satisfactory State, 934328-RPT-1, CRA, March 2014

The investigation to collect surrender data was completed by CRA in July and August 2015. The methodology and findings of the investigation are described in the following report, which is included as Appendix J of the Surrender Report.

- Environmental Permit Surrender Assessment for Demonstrating Satisfactory State, 934328-RPT-4, CRA, September 2016

10.0a Statement of site condition

To be completed by EM/PPC officers

Has the applicant provided a statement, backed up with evidence, confirming that the permitted activities have ceased, decommissioning works are complete and that pollution risk has been removed and that the land and waters at the site are in a satisfactory state?

The permitted activities have ceased at the Site, and all dismantling and decommissioning works are complete, thus all pollution risk is considered to have been removed. The surrender investigation and assessment has proven the Site to be in a satisfactory state at the point of environmental permit surrender.

10.0b Statement of site condition

To be completed by GWCL officers

Has the applicant provided a statement, backed up with evidence, confirming that the permitted activities have ceased, decommissioning works are complete and that pollution risk has been removed and that the land and waters at the site are in a satisfactory state?

Yes

Surrender SCR decision summary To be completed by GWCL officers and returned to NPS	Tick relevant decision
Sufficient information has been supplied to show that pollution risk has been removed and that the site is in a satisfactory state – accept the application to surrender the permit; or	Yes
Insufficient information has been supplied to show that pollution risk has been removed or that the site is in a satisfactory state – do not accept the application to surrender the permit. The following information must to be obtained from the applicant before the permit is determined:	
Date and name of reviewer	Chris Morris 21/06/2017