Application SCR evaluation template

Name of activity, address and NGR	Tioxide Grimsby CHP Plant. Moody Lane, Grimsby, North-east Lincolnshire, DN31 2SW. NGR of the approximate centre of the site is TA 2540 1130. Environmental Permit Reference EPR/BK5053IW/S008.

Document reference, date and version of application SCR	Innogy Cogen Ltd IPPC Form 1 Part B. Application Site Report for 'Tioxide Grimsby Combined Heat and Power Plant Integrated Pollution Prevention Control Application for a Permit' (ref: HT/CHP/B Appendix A Issue 2) dated March 2001.

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.

The Operator provided a Site Condition Report (SCR) at the time the original application was made including a baseline intrusive report pre and post remedial works required prior to the construction of the CHP plant. Drawings were also provided by the Operator and reviewed and accepted by the Environment Agency at the application stage.

2.0 Condition of the land at permit issue

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?

a) – the Tioxide Grimsby CHP Plant was situated within the Huntsman Tioxide (HT) site which is used primarily for the production of titanium dioxide. The HT site is adjacent to the A180 approximately 2km north-west of Grimsby and has a long history of chemical manufacture. The installation was situated at sea level in 1.1Ha of floodplain south of the Humber Estuary behind flood defences.

The geology at the site comprises:
- **Made Ground** of variable depths and lithologies including some areas contaminated with hydrocarbons. These areas were excavated and chased out and replaced with crushed building rubble for construction purposes
- Superficial Deposits of **Marine and/or Estuarine Alluvium** comprising clays and silts
- Superficial Deposit of **Glacial Till** comprising clay with water bearing sandy horizons that may be in hydraulic continuity with the River Humber
- Upper Cretaceous Chalk bedrock at about 20m begl comprising successive formations of **Flamborough, Burnham, Welton and Ferriby Chalks**.

The Chalk is designated as a major aquifer with some protection from contaminant migration from the impermeable clay deposits overlying it. There are three licenced groundwater borehole abstractions on the HT site. The site is low lying and within the floodplain of the River Humber which is 400m to the north.

b) and c) – a conceptual site model (CSM) and potential pollution linkages were identified within the Phase 1 desk study and included the historic site land uses as well as a site reconnaissance to identify substances

2.0 Condition of the land at permit issue

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

and/or activities which may lead to land pollution. Before the site was developed for power production, it was occupied by industrial plant and was marshland prior to that.

The HT site was developed in the 1940s with the CHP being constructed on an area where former buildings and oil storage tanks were located. This historic land use had had an impact upon the underlying ground conditions at the site in particular leaking oil tanks. Oil contamination required between 1m and 1.5m depth of ground to be removed with the chasing out of exposed pockets of contamination. The voids were backfilled with building rubble to provide a platform for the CHP plant construction works.

d) - a targeted intrusive investigation was undertaken to support the original application as there was a requirement to provide a report on the condition of the site prior to the permitted activities commencing on site (baseline reference data). This data can be used as a point of reference against which later determinations can be made as to whether or not deterioration of the site has taken place through the operations covered by the IPPC permit.

3.0 Permitted activities

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	

a) The Environment Agency determined that the Installation comprised a Section 1.1 A(1)(a) scheduled activity - burning any fuel in an appliance with a rated thermal input of 50MW or more activity as listed in Part 1 of Schedule 1 of the IPPC Regulations at the time of the original application determination. The CHP plant comprised a gas turbine, a heat recovery steam generator, three steam boilers and a steam turbine.

b) Directly Associated Activities at the site included:

- water treatment (anion exchange and cation exchange resins) - to supply treated water
- site drainage and process effluent handling and storage systems – discharged to the HT effluent system
- oil storage tanks (distillate fuel, lubrication oils, mineral oils)
- chemical storage tanks and dosing system (carbohydrazide, amine, tri-sodium phosphate, sodium hydroxide, sulphuric acid).

3.0(a) Environmental Risk Assessment

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.

The Environment Agency reviewed the Operator's environmental risk assessment (H1) including the potential for environmental impact from emissions to air and water. The H1 was reviewed at the time of the original permit determination and accepted as satisfactory. An Improvement Programme was set within the original permit to ensure that the identified required improvements were undertaken over specified timescales at the installation.

3.0(b) Will the pollution prevention measures protect land and groundwater?

Are the activities likely to result in pollution of land?

Conditions were set within the permit to ensure all plant, equipment and technical operations were in good working condition. It was concluded that there was little likelihood of pollution arising from the operation of the installation provided that it was operated and maintained correctly. There were no direct discharges of hazardous substances or non-hazardous pollutants to groundwater from the site.

All on-site process discharges and site surface water runoff was collected in drainage systems and discharged into the HT on-site purpose built effluent treatment works (ETW). There were discharge limits and monitoring conditions set within the permit for the CHP plant discharge to the HT ETW and the ETW (not part of this permit) had a separate permit and discharge consent limit. An Improvement Programme was set within the original permit to ensure that the Environmental Management System (EMS) was officially certified, included fugitive emissions and included potential environmental improvements.
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?
Annual surveys of all bunded areas/tanks and impermeable surfaces were required and was included within the site EMS. The EMS also stated the requirements around storage and handling of wastes, accident prevention and control.

Application SCR decision summary	**Tick relevant decision**
Sufficient information has been supplied to describe the condition of the site at permit issue.	Yes.
Pollution of land and water is unlikely.	Yes.
Historical contamination is present - advise operator that collection of background data may be appropriate.	Yes.
Date and name of reviewer:	Liz Ebbs 18/08/2017

Operational phase SCR evaluation template

4.0 Changes to the activities	
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) "Hazardous pollutants" used or produced.	
The activity boundary and permitted activity within the surrender area remained as detailed within Environmental Permit EPR/BK5053IW until the cessation of electricity and steam generation at the site. Following closure of the HT facility and the cessation of any requirement for heat from Grimsby CHP, its operation was terminated indefinitely. RWE converted the asset to operate as a flexible Open Cycle Gas Turbine plant providing reserve power generation services to National Grid. Steam raising plant including the Steam Turbine was mothballed ready to support any emergent matched heat loads in the area. Hazardous pollutants included distillate fuel, lubrication oils, mineral oils, carbohydrazide, amine, tri-sodium phosphate, glycol, sodium hydroxide and sulphuric acid.	

5.0 Measures taken to protect land
Has the applicant provided evidence from records collated during the lifetime of the permit, to show that the pollution prevention measures have worked?
Records of any incidents, accidents and near misses were recorded, investigated and corrective and/or preventative actions taken where appropriate in accordance with the site ISO 14001 EMS. To ensure the continued effectiveness of pollution prevention measures to protect the land the Operator was required to implement and operate under a Site Protection and Monitoring Programme (SPMP). Later records were held on the MADISON system (an internal reporting system) which was used to record incidents and near misses and to ensure that investigations are carried out and corrective action is taken where necessary. Any minor events would have been subject to these processes and immediate and longer term corrective measures implemented. Annual management reviews were conducted as required within the accredited EMS and any such minor events would be reviewed and systemic improvements identified within the annual objectives and targets for the site.

6.0 Pollution incidents that may have impacted on land and their remediation
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)?
No recorded pollution incidents were logged during the stations regulation. Therefore, no remediation activities were required during the power stations operation.

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?
N/A.

8.0 Decommissioning and removal of pollution risk

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?

The following report has been submitted by the Operator as part of the full surrender application:

- 'Grimsby Permit Surrender – Site Condition Report, RWE Cogen UK Grimsby CHP' ref: RWE/GRY/Permit Surrender/Report v2.0 dated May 2017.

Following the cessation of the CHP operation in 2009, the following decommissioning activities were undertaken:

- redundant chemicals - either removed from site and returned to suppliers for reuse or disposed of as waste. The sulphuric acid and caustic soda tanks were flushed and neutralised and have remained empty since this time. Boiler dosing chemicals ethanolamine, methoxypropylamine, carbohydrazide and sodium hydroxide were removed from site and disposed of by the supplier along with their respective storage tanks and/or containers.

- distillate fuel oil - supply pipework was drained and flushed and washings removed from site as waste. The bulk storage tank owned by HT was decontaminated and has subsequently been demolished.

- water treatment plant - polished water tank and ion exchange bed resins were removed and disposed of as waste, tanks flushed and drained.

- boiler plant - blown down hot to remove all traces of process water before plant was mothballed.

- lubricants - a small quantity remained on site in bunded containment to support OCGT operation. These have now been removed from site as waste. The gas turbine and steam turbine lubricating oil and hydraulic oil systems have been fully drained of remaining oils prior to future demolition. No oil filled switchgear or transformers were located within the permitted boundary.

- sewerage - will continue to be tankered away from site from an above ground bunded storage tank

Permitted activities ceased in 2015 with only clerical and electrical infrastructure maintenance taking place on site. Decommissioning and the removal of potentially polluting substances from site has been completed, the plant remaining on site is to be maintained in a safe condition until demolition of the site commences. RWE plans to maintain a long term presence at the location and to maintain an EMS to manage risks associated with any future business activities.

As far back as August 2011, Tioxide (owners of the main site) continued their task to return the site to a condition whereby the permit can be surrendered. This involved a number of engineering works adjacent to the Npower site and within newly acquired land. The historic land use (titanium dioxide production) had had an impact upon the underlying ground conditions at the site. The clean-up of ilmenite ore is ongoing due to radioactivity (refer to decision document EPR/BK5053IW/S008).

9.0 Reference data and remediation (where relevant)

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

No remediation has been undertaken. No reference data has been collected and submitted as part of this surrender application even though baseline data for soils and groundwater was submitted with the original application.

10.0a and 10b Statement of site condition
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?
No pollution incidents were recorded during the operation of the plant and RWE operated a stringent EMS at the installation. As all of the site activities have ceased and the site decommissioning has been completed adequately, the Environment Agency consider the site to be returned in a satisfactory state. The Environment Agency undertook a final site inspection to confirm this in September 2017. RWE Cogen UK Limited have a radioactive substances permit (EPR/FB3295DK) for the remediation of naturally occurring radioactive materials (NORM) residues resulting from the historic titanium dioxide refining plant. The Environment Agency's Radioactive Technical Specialist was consulted to confirm if this permit surrender would have any affect on or be affected by the NORM remediation. No reply was returned.

Surrender SCR decision summary	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.	√
Date and name of reviewers: Liz Ebbs (NPS) – 18/10/2017. Jim Branson (GWCL) – 06/09/2017. Kirsty Hobbs (NPS) - 26/10/2017.	