Application SCR evaluation template

Name of activity, address and NGR	Evonik Goldschmidt UK Ltd (formerly Goldschmidt UK Ltd): BM4198IC Main Road Flimby Maryport Cumbria CA15 8RP National Grid Reference – NY 0163 3306

Document reference of application SCR, date and version of SCRs	Application Site Report, reference DEG01, July 2003 prepared by E4environmental Ltd. PPC Permit No. BM4198IC (decision document dated 13th January 2004 and Application Site Report Evaluation Checklist dated 14th January 2004) Design Site Protection and Monitoring Programme, dated 27th March 2004 prepared by Goldschmidt. Updated Design Site Protection and Monitoring Programme, dated 4th April 2006 prepared by Goldschmidt.

Document references relevant to SCRs	The following documents were submitted on 29th September 2015 in support of the application to surrender the permit:
	
	• Site Condition Report Template: not dated;
	• Operational Description Report, prepared by Brian McAvoy, not dated;
	• Site Closure Plan, reference EV SCP 2015, dated 2015 prepared by Brian McAvoy;
	• Letter detailing the Environmental Investigation Strategy, dated 20th April 2015 and prepared by FWS Geological and Geo-environmental Consultants;
	• Contamination Site Investigation, reference 1917OR02 Rev.2, dated September 2015 and prepared by FWS Geological and Geo-environmental Consultants;
	• Email from Operator confirming removal of diesel tanks without incident (dated 4th Feb 2016)
	• Drainage reports prepared by Unblock Cumbria Ltd: dated
	  - 1st June 2010;
	  - 20th May 2015 (and video); and
	  - 25th June 2015 (and video).
	• Letter from Unblock Cumbria Ltd re drainage survey, dated 1st July 2015.

Sections 1.0-3.0 were completed in 2015/16 using information from the 2004 permit application and the subsequent Design Site Protection and Monitoring Programme submitted in 2004.

1.0 Site details (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)**
Site plans showing site layout, drainage, surfacing, receptors, sources of emissions/releases and monitoring points	All information, submitted in support of application EPR/BM4198IC, was assessed by the Environment Agency and accepted as satisfactory.

2.0 Condition of the land at permit issue (Receptor)	
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) 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?	The Application Site Report contained details of: a) the environmental setting: geology, hydrogeology and hydrology (~2m made ground, overlying till/Boulder Clay/Second Terrace overlying Coal Measures; minor aquifer, groundwater present ~ 1-4m; Canker Brook 190m south west); b) Pollution history: - site history (Greenfield until the late 1960s and chemical site from 1972 onwards); - no site walkover was undertaken; c) Information on historic contamination was provided in the form of data from a previous site investigation from 1997 undertaken by Fluor Daniel GTI; d) The applicant relied on the 1997 site investigation to provide baseline reference data. The Application Site Report divided the site into 4 areas: • AV01/AOC1/Zone 1: process area; • AV02/AOC2/Zone 2: bulk storage area; • AV03/AOC3/Zone 3: drum storage area; and • AV04/AOC4 support activities. NB: AV04/AOC4 is located outside the permit boundary. Areas of potential contamination are described in section 2.2. The present drum storage area was unsealed for the majority of the plant history until 1996 when a concrete pavement was constructed. Drums have also been stored in the south of the site. A former above ground diesel tank was located in SE part of AOC3 and a loss of diesel has occurred from this tank. Nine boreholes were installed across the site as part of the 1997 investigation. Those within the permit boundary are detailed below: AV01/AOC1/Zone 1: MW2 – production building AV02/AOC2/Zone 2: MW3 – western end of main bulk storage area MW5 – southern end of main bulk storage area MW8 – northern end of dimethylsulphate compound storage MW9 – eastern bound of the site

2.0 Condition of the land at permit issue (Receptor)	
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)**
	AV03/AOC3/Zone 3: MW4 – downstream of north storage compound MW6 – eastern edge of north storage compound MW7 – below the centre storage compound NB: MW1 was lost during a ground makeover in the late 1990s. The following substances were identified as present at the site through the analysis of soil samples: toluene, tetrahydrofuran, diethylhexylphthalate, n,n trimethylbenzenesulphonamide, dedecanoic acid, methylpropyloctadecanote.

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	The site is regulated under the activity: • S4.1 A(1)(a) – producing organic chemicals such as: ii) organic compounds containing oxygen, such as alcohols, aldehydes, ketones, carboxylic acids, esters, ethers, peroxides, phenols, epoxy resins; iv) organic compounds containing nitrogen, such as amines, amides, nitrous-, nitro- or azo-compounds, nitrates, nitriles, nitrogen heterocyclics, cyanates, isocyanates, di-isocyanates and di-isocyanate prepolymers xi) surface-active agents. The facility also includes the following directly associated activities: • Storage and handling of solid and liquid raw materials • Burning gas to generate heat for use in listed activities • Storage and handling of solid and liquid wastes • Collection and treatment of liquid effluent

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.	The Environment Agency reviewed the applicant's environmental risk assessment and assessment of the effectiveness of pollution prevention measures. The information submitted as part of the Application Site Report was deemed to be inadequate and further supporting information was required. It was proposed that this could be submitted following the issue of the permit as part of the detailed Site Protection and Monitoring Programme.

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

Are the activities likely to result in pollution of land?

The officer reviewing the Application Site Report identified a number of data gaps as detailed in the review document dated 14th January 2004, and required the following information to be submitted:

1. A completed Table 2A of the H7 guidance to assess the likelihood of pollution and for determining areas that represent a reasonable possibility of pollution for the collection of reference data.
2. Identify on a drawing of a suitable scale the zones identifying areas of reasonable possibility of pollution as contained in Box 3 of the H7 Guidance.
3. Collation and interpretation of data in the form of a conceptual site model as contained in Step 6 of the H7 Guidance for use in the interpretation and determination of zones for the collection of reference data.
4. Use of H7 Guidance template for the design of a Site Protection and Monitoring Programme (SPMP) requiring reference data. Reference data already collected may be submitted if it is appropriate.
5. Proposals to conduct integrity testing in the SPMP will need to satisfy :

- Testing or monitoring to ensure continued compliance with performance standards e.g. maintain relevant standards of construction and/or BS standards.
- Certification or quality assurance by competent person or body; or
- Type testing of equipment to a recognised standard and produced under a quality assurance system complying with ISO 9000.

The reviewing officer concluded that the submitted information did not adequately demonstrate if there were measures in place that would prevent the emission of substances to land. Consequently, they concluded that the activities could cause pollution of the ground and recommended that the permit include the requirement to collect reference data as part of the Site Protection and Monitoring Programme (SPMP).

Improvement Condition 3 requested that the operator investigate the source of high levels of mercury identified in the effluent. At permit issue it was uncertain if the source of this was the water supply, caustic soda or another unknown source.

A Design SPMP dated 27th March 2004 (prepared by Goldschmidt) was submitted to the Environment Agency in March 2004.

The Design SPMP proposed to undertaken a groundwater monitoring round utilising the boreholes installed in the 1997 investigation. Samples were to be collected as follows:

AV01/AOC1/Zone 1: MW2;
AV02/AOC2/Zone 2: MW3, MW5, MW8 & MW9; and
AV03/AOC3/Zone 3: MW4, MW6 and MW7.

Groundwater samples were to be analysed using the in-house laboratory for methanol, ethanol, isopropanol, dimethylaminopropylamine (DMAPA), triethanolamine, diethylenetriamine, fatty acids and petroleum hydrocarbons. The proposed limits of detection were in the range 10-50mg/l.

Section 3.1.3 of the Design SPMP states that no soil samples were to be analysed because the majority of the site is covered in reinforced concrete roadways, bunds and hardstandings and sampling would comprise their integrity. In addition, the 1997 report did not identify significant soil pollution.

Appendix E1 of the Design SPMP indicated that groundwater monitoring will be undertaken annually.

Sections 3.17, 4.1.2 and 4.2.5 relating to the infrastructure monitoring were not included in the original Design SPMP by agreement with the inspector of the site and these sections were forwarded on the 19th April 2004.

Appendix E2 detailing the infrastructure monitoring protocols was also missing from the original submission and this was forwarded on the 15th June 2004.

A review of the Design SPMP was undertaken by an area Contaminated Land officer. A meeting was held on the 2nd September to discuss the Design SPMP with Goldschmidt site personnel. Following the meeting a letter

summarising the discussions was produced (2nd September 2004). The contents of this letter are detailed below:

1. Section 3.1.3 of the SPMP indicates that no further site investigation with regard to sampling and analysis of the soils will be undertaken. You indicate that you wish to use the information from a previous site investigation undertaken in July 1997 as your reference data. Further soil sampling will be required unless the applicant can prove, without question, that no further pollution of the ground has occurred since the previous site investigation took place. Information with regard to the recent drainage survey that you undertook will help with this matter. Please fully justify the above and detail all measures that have been undertaken to minimise potential pollution.

2. Tables 2A and 2B were missing from the Application Site Report (ASR). Without completion of these tables The Agency cannot cross reference the ASR with the chemical analysis required within the SPMP or fully assess the likelihood of pollution occurring.

3. A conceptual model describing the fate and transport of pollutants in the sub-surface for each potentially polluting activity of the installation was not included in the ASR. The importance of a thorough and robust conceptual site model detailing all potential sources, pathways and receptors cannot be stressed enough and will help to highlight high risk areas of concern.

4. The proposed groundwater-monitoring program (Section 3.14) is inadequate. All the groundwater monitoring boreholes available on site (8 BH's) should be sampled and the groundwater analysed on a quarterly basis. The results of chemical analysis should be sent to the Agency on a quarterly basis. The groundwater monitoring will help to ensure pollution prevention measures are effective and provide a warning of the failure of pollution prevention measures.

5. The groundwater chemical analysis should be undertaken by a MCERTS or UKAS accredited laboratory. The limits of detection should consider the various standards that they will be compared against i.e. Environmental Quality Standards. The analytical techniques used should be described adequately in the report. Sampling should include duplicate analysis and analytical blanks.

6. Section 3.1.5 of the SPMP indicates that no soil gas and vapour monitoring will be undertaken. Please justify this.

7. Section 3.1.7 of the SPMP- Infrastructure Monitoring Program needs to demonstrate that the infrastructure is integrity tested on a regular basis and maintained by a suitably competent person. In addition it should be demonstrated that the infrastructure is designed and installed to the required standards. No information with regard to emergency and accident procedures was contained within the SPMP. Much of this information may be contained within your Environmental Management System for ISO: 14001.

8. Further information with regard to data assessment procedures is required.

9. A yearly report should be produced detailing all of monitoring undertaken on site.

Information was submitted to the Environment Agency on 6th January 2006 relating to improvement condition 3. The report indicates that the source of mercury in the effluent was sodium hydroxide which was used in the manufacture of betaines and, to a lesser extent, sulphosuccinate products. The manufacture of betaines ceased in 2002 consequently removing the main source of mercury.

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?

The submitted information did not provide adequate information in relation to the prevention measures in place at the site as discussed above.

Application SCR decision summary To be completed by GWCL officer and returned to NPS		**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 with the conditions set within the permit	No	
Historical contamination is present- advise operator that collection of background data may be appropriate	Yes	
Date and name of reviewer (signature of authorising officer on permit)	G P McLaughlin 27th January 2004	

Permit boundary:

Operational phase SCR evaluation template

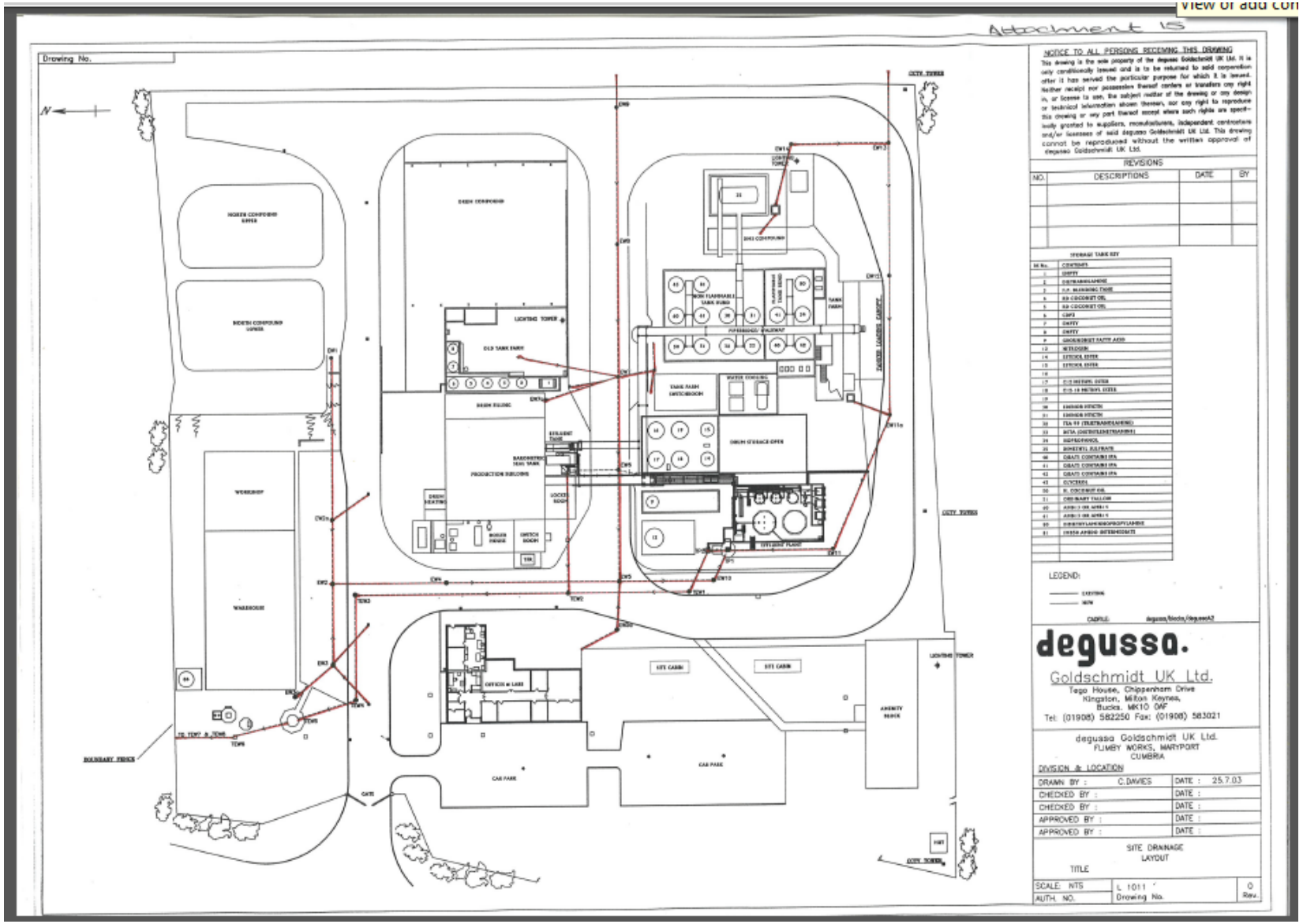
4.0 Changes to the activities (Source)	
Have there been any changes to the following during the operation of the site?	**Response (Specify what information is needed from the applicant, if any)**
a) Activity boundaries b) Permitted activities c) "Dangerous substances" used or produced	The permit was varied to allow additional similar reactions to proceed on site which had not been included in the scope of the original application and also to move production of one product from two reaction vessels to a different reactor which had a different vent release system to atmosphere. The variation also allowed production of specific products to be manufactured in different vessels with similar chemistry i.e. the reaction of an organic acid with a base to form a salt. The variation was issued on 13th February 2007. No new substances have been used in addition to those identified in the original IPPC application and no new potential pathways to ground were introduced. The permit boundary has also not changed.

5.0 Measures taken to protect land (Pathway)	
Has the applicant provided evidence from records collated during the lifetime of the permit, to show that the pollution prevention measures have worked?	Section 3.1.3 of the updated Design SPMP dated 4th April 2006 stated that a drainage survey was undertaken in 2003 which showed "no signs of ingress of chemicals stored on the site" and the condition of the drainage pipes were "very good, with no cracks, breaks or misaligned pipes". In addition, "there have been no recorded spillage incidents that have resulted in pollution of the land beneath hard standings". The Operational Description Report (submitted as part of the surrender application) provides information on the infrastructure monitoring undertaken at the site. The report provides details of the primary, secondary and tertiary containment present at the site, including design information and inspection frequency. Copies of a number of inspection reports are contained in the appendices. The report also indicates that the site was operated under an Environment Management System since 1999. In June 2003 the site was audited by the British Standards Institute and was recommended for registration to ISO14001. The site operated under the ISO14001 requirements until its closure. The report indicates that the pollution prevention measures in place at the site have worked. A number of drainage surveys were submitted following a request for further information a review of these indicated a number of areas of concern. Only significant issues on the effluent waste (EW) line and the treated effluent waste (TEW) drainage lines have been identified below. Displaced joints and cracks were not identified by the drainage survey company as being significant.

5.0 Measures taken to protect land (Pathway)	
	2010 survey • Holes in the effluent line between manhole EW2a to manhole EW1 (01 to 04 o'clock and 09 to 02 o'clock); • Infiltration gushing into the pipe between manhole EW6 to manhole EW5 (04 o'clock); and • Displaced joints identified between manholes EW5 to EW9, EW13 to EW11a and EW2a to EW1. May 2015 survey: • Infiltration seeping between manhole EW12 to manhole EW11a: (02 to 06o'clock); • Infiltration dripping between manhole TEW7 to manhole TEW5a: (12o'clock); • Broken pipe located between manhole EW2a to manhole EW1 (01 to 06 o'clock); • Hole in pipe located between manhole EW4 to manhole EW5 (10 to 01 o'clock); • Infiltration gushing between manhole EW6 to manhole EW5: (05 0'clock); • Cracks identified between manholes EW8 to EW7 (08 o'clock), EW14 to EW13 (03 o'clock) and TEW9 to TEW8 (02 to 05 o'clock); and • Displaced joint between manholes EW13 to EW12 and open joint between manholes TEW2 to TEW3. June 2015 • Holes in pipe between manhole EW1 and manhole EW2a (02 to 05 o'clock); • Gushing infiltration between manhole EW6 and manhole EW5 (05 o'clock); • Infiltration between manhole EW12 and manhole EW11a (no information on location); • Longitudinal crack between manhole EW8 and manhole EW7; (07 o'clock) and • Displaced joint between manholes EW13 to EW12 and open joint between manholes TEW2 to TEW3. A letter from the drainage survey companies compares the results of the May and June 2015 surveys identifying one significant difference between the outcomes of the two surveys: the holes identified between manholes EW4 and EW5. The associated videos of the survey were re-reviewed and compared and the company states that there are no holes between these manholes and it was misinterpretation of a blackened pipe surface obscured by slimy deposits from the effluent. In addition, the letter indicates that the infiltration between manhole EW5 and manhole EW6 could be due to a fire hydrant leaking in this area or groundwater. The company recommends that this area merits further investigation to determine if this is the case. In summary the main areas of concern are: • Holes/broken pipe and a displaced joint between manholes EW1 and EW2a: this line drains a roadway at the site, the north compound and the area outside the workshop; • Infiltration gushing in between manholes EW5 and EW6: this line is down gradient of manholes EW1 and EW2a and also carries effluent collected from the warehouse area, offices

5.0 Measures taken to protect land (Pathway)	
	and additional roadways; • Displaced joints between manholes EW5 and EW9: this line collects effluent collected from the road way and the two tank farm areas; • Cracks between manholes EW7 and EW8: this section of the line collects effluent from the road way; • Infiltration seeping in between manholes EW11a and EW12, displaced joints between manholes EW11a and EW13 and cracks between manholes EW13 and EW14: this line is located in the tanker off loading area; and • Cracks between manholes TEW2 and TEW3, infiltration seeping in between manholes TEW5a and TEW7 and cracks between manholes TEW8 and TEW9: this line carries treated effluent off site to connect in to the main sewer. See overleaf for a drainage plan of the site. See Section 9.0 for further discussion of the CCTV survey results in relation to the permit surrender.

Drainage plan:



6.0 Pollution incidents that may have impacted on land and their remediation (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)?	Section 2.3 of the Operational Description report summarises all the 'loss of contaminant' events that have occurred at the site since 2005. Of these only 3 were uncontained. These uncontained losses were onto concrete roadways and all were cleaned up as soon as they happened. The report concludes that "there is no evidence of any loss of containment event that could have resulted in the contamination of land within the Site Boundary". CAR form BM4198IC/0186987 (9th August 2013) indicates that a drain survey at the site undertaken "some time ago" identified a couple of defects where clay pipes have become misaligned. Discussions with the operator on 10th August 2015 indicate that there was ingress into the pipework rather than egress. It was recommended that this should be documented in the Surrender Report. During the review of the surrender application and supporting information a request for further information relating the drainage surveys was sent the operator. Their response is discussed in Section 5.0 above (summary of the findings of drainage surveys) and Section 9.0 below (in relation to the application for permit surrender).

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?	Groundwater sampling was undertaken in June 2004 and the results were forwarded to the Environment Agency in a letter dated 25th August 2014. These were subsequently submitted in the First Phase Report prepared by Goldschmidt dated 29th November 2005. Boreholes MW8 and MW9 were dry during the June monitoring round and further attempts were made to collect a sample during July and August but the boreholes were still dry. The groundwater sampling did not identify any determinands[1] above the limit of detection of 0.1mg/l or 0.3mg/l. The Design SPMP was updated on 4th April 2006 and a copy was forwarded to the Environment Agency on 10th April 2006. The updated report included completed Table 2A and 2B. These tables list all the activities undertaken at the site and the associated pollution prevention measures. An assessment is then made as to whether there is a "little likelihood" or "reasonable possibility" (in line with the 2003 H7 guidance) of pollution to the ground occurring based on past pollution incidents, existence/adequacy of pollution prevention measures, adequacy of integrity testing and adequacy of management systems. Two areas were identified as posing a "reasonable possibility of pollution": 1) diesel storage for the fork lift truck

[1] All samples were analysed for methanol, ethanol, isopropanol, hydrocarbons, DMAPA (dimethylaminopropylamine) and cationic active.

7.0 Soil gas and water quality monitoring (where relevant)	
	There was a loss of diesel in 1997 from an elevated diesel tank, however, the tank was subsequently replaced by an internally bunded storage tank. The table indicates that the bund is inspected daily and weekly in accordance with the infrastructure monitoring programme. 2) the transfer of isopropyl alcohol to bulk storage There was a large spill in 1997 due to a hose vibrating loose. The spill was contained within the bund and the flammable loading area sump. Subsequent, groundwater sampling at the time did not indicate contamination and the hose connections were replaced with a different type of connector. Although spills had previously occurred in two locations at the site improvement works had been put in place to remove the likelihood of this occurring again. Consequently, it is likely that had this information been submitted at the permit application stage then the requirements for reference data would not have been included as a permit condition.

Surrender SCR Evaluation Template

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	The plant was decommissioned according to a documented procedure. The inspecting officer verified that the procedures were adequate and several site inspection visits indicated that the procedures appear to have been followed. The plant itself (vessels, pipework, storage tanks, bunds etc.) was subsequently professionally cleaned and certified as such by an independent cleaning company. It has now been demolished with no reports of contaminant releases. There have been no reports of pollution to ground during the life of the permit. All on site documentation has been retained by Evonik and stored at their Milton Keynes site.

10.0 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 applicant is not solely relying on records obtained during the operational phase of the activity, having collected surrender reference data. However, the majority of the activities undertaken at the site were assessed as 'little likelihood" of pollution in line with the H7 guidance appropriate at the time. The two activities that were identified as "reasonable possibility" of pollution due to historic spills had undergone improvement works to reduce the risk of pollution following the incidents. These improvements were undertaken prior to the permit being issued.

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.	**Pre-surrender discussions** Proposals for an investigation to collect soil and groundwater data were prepared by FWS Geological and Geo-environmental consultants, reference 19170Ro1Rev1 dated 30th April 2015 and forwarded to the Environment Agency for comment. The proposals were very comprehensive and not restricted to assessing issues relating to the permit. The proposed site investigation comprised the drilling of 18 mini boreholes to collect soil samples in the following areas: AV01/ AOC1/Zone 1: process area: BH10 and BH11: production building BH16: down gradient of production building and the boiler house and associated tanks AV02/AOC2/Zone 2: bulk storage area: BH3, 4, 5, 6, 12, 13 and 14: south of the site from tank storage compounds BH9 and 10: storage tank and old tank farm BH7: tanker loading bay AV03/AOC3/Zone 3: drum storage area: BH1, 2 and 8: historical diesel spillage (BH8 also emergency storage tank) BH15: above ground fuel tank within the building BH17 and BH18: down gradient of the site and the sewage

9.0 Reference data and remediation (where relevant)

To be completed by GWCL officers

drainage sump

Groundwater sampling was proposed from 8 of the original monitoring wells (MW2-MW8).

The Environment Agency raised no objections to the proposed works.

In July 2015 the operator raised a query regarding the analytical standards used for the soil and groundwater samples analysed by DETS. A review by the Contaminated Land officer identified that the soil analysis undertaken was not accredited for VOCs and some SVOCs and the groundwater analysis for boron, ionic balance, some VOCs (trichlorofluoromethane and trichloroethylene) and all the SVOCs was not accredited.

The Contaminated Land officer emailed the company on 20th July 2015 regarding the implications of the non-accredited results. Following this a meeting was held on 10th August 2015 and the following was agreed:

- Tables 2a&b were to be reviewed and areas of reasonable possibility of pollution to be discussed and any improvements to these detailed,
- Precision and bias information could be submitted for non-accredited results but a discussion was to be held with the laboratory to determine why some results weren't accredited and further groundwater sampling maybe required.
- The drain survey undertaken in "sometime ago" and referred to on the CAR form BM4198IC/0186987 (9th August 2013) was discussed. The operator indicated that there was ingress into the pipework rather than egress and it was recommended that this should be documented in the Surrender Report.

Permit surrender application

A Site Closure Plan prepared by Brian McAvoy and a 'Contamination Site Investigation' Report prepared by FWS Geological and Geo-environmental consultations contain information relating to the condition of the land at permit surrender. The findings of these documents are discussed below:

The Site Closure Plan provides details on the cleaning procedures utilised at the site during decommissioning.

The Contamination Site Investigation Report documents the site investigation undertaken at the site to collect surrender reference data and includes reference to the baseline data.

The site investigation followed the proposals detailed in the letter of 30th April 2015. A number of the boreholes encountered refusals due to cobbles in the natural ground and had to be terminated early and BH15 was abandoned due to a concrete slab (see plan below for sampling locations).

During the excavation of the boreholes there were a number of visual and olfactory signs of contamination (see Section 5.1). Soil samples of these were collected and analysed.

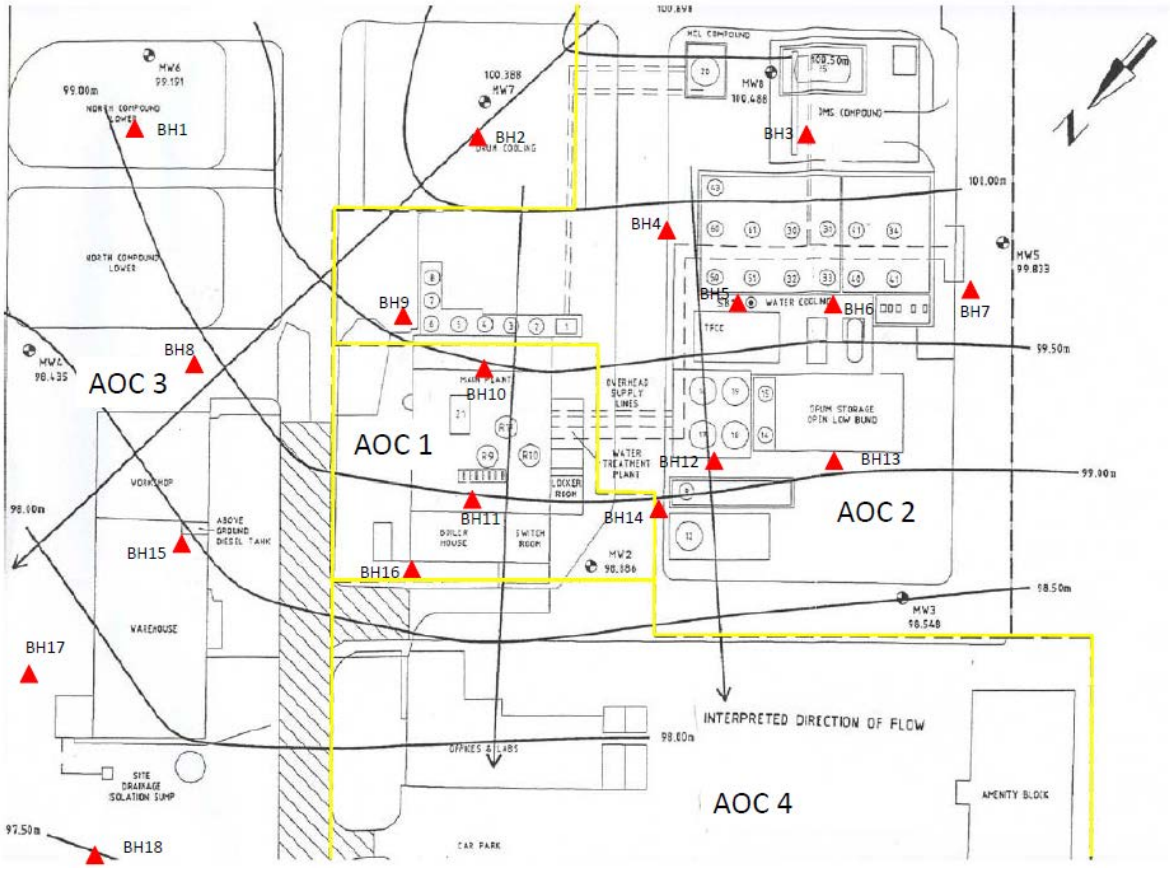
Two rounds of groundwater sampling were undertaken using the original monitoring wells, as follows:

9.0 Reference data and remediation (where relevant) To be completed by GWCL officers	
	- MW2, 3, 5, 6, 7 and 9 in May 2015; - MW2, 3, 5, 6, and 7 in August 2015. MW4 was found to be dry on both occasions, MW8 could not be located on either visits and MW9 could not be located on the second monitoring round in August. In addition, groundwater samples were collected from BH10 as black staining was identified on the soils at 3mbgl and BH12 where a slight iridescence was observed on the water during the site works and analysed for VOCs. Groundwater samples collected in August 2015 were analysed by Alcontrol Laboratories for SVOCs and National Laboratory Services for isopropanol. The report compares the baseline and surrender soil quality for each of the 3 zones (AV01/ AOC1/Zone 1: process area, AV02/AOC2/Zone 2: bulk storage area and AV03/AOC3/Zone 3: drum storage area) using the minimum, maximum and average values. All soil analysis undertaken in 1997 were used in this assessment, i.e. samples results for samples collected from the installed boreholes (BH) and the soil bores (SB). At the application stage only soil samples collected from the BHs were detailed. The following increases between baseline and surrender (maximum values) are detailed in the report: AV01/ AOC1/Zone 1: process area Chromium: 9mg/kg cf 23mg/kg Zinc: 41mg/kg cf 57mg/kg TPH: <1mg/kg cf 14mg/kg AV02/AOC2/Zone 2: bulk storage area Total SVOC: 2.7mg/kg cf 7.2mg/kg AV03/AOC3/Zone 3: drum storage area Arsenic: 13mg/kg cf 16mg/kg Boron: <1mg/kg cf 100mg/kg Chromium: 11mg/kg cf 27mg/kg Lead: 22mg/kg cf 32mg/kg Zinc: 38mg/kg cf 66mg/kg Total VOC: <0.001mg/kg cf 0.01mg/kg None of these are significant differences and could be accounted for by laboratory precision and bias. It should be noted that some of the soil analysis was not undertaken to MCERTS standards but the laboratory has provided information on the analytical methodologies which are contained in Appendix 6 of the Contamination Site Investigation Report. The report also compares historic (1997) and surrender groundwater quality data. The Site Protection and Monitoring Programme proposed to collect groundwater samples following the issue of the permit so it is unclear why the Contamination Site Investigation Report refers to groundwater data collected in 1997. No significant contamination of the groundwater was identified in the 2015 sampling as detailed in the comparison tables.

9.0 Reference data and remediation (where relevant) To be completed by GWCL officers	
	It should be noted that some of the contaminants of concern, i.e. DMAPA and isopropanol have been analysed for but the results are not discussed in the report. (The results are included in Appendix 5[2]). Neither of these substances were identified above the laboratory limit of detection. It should be noted that the limit of detection is higher than that used to quantify the baseline monitoring in 2004. The diesel tank was still in place following the collection of the surrender data, however, the Operator has confirmed by email (4th February 2016) that this was removed without incident and no contamination was observed. **Additional information submitted in relation to the drainage surveys** A review of the three drainage surveys undertaken at the site indicate the following main areas of concern: • Holes/broken pipe and a displaced joint between manholes EW1 and EW2a: this line drains a roadway at the site, the north compound and the workshop; • Infiltration gushing in between manholes EW5 and EW6: this line is down gradient of manholes EW1 and EW2a and also carries effluent collected from the warehouse area, offices and additional roadways; • Displaced joints between manholes EW5 and EW9: this line collects effluent collected from the road way and the two tank farm areas; • Cracks between manholes EW7 and EW8: this section of the line collects effluent from the road way; • Infiltration seeping in between manholes EW11a and EW12, displaced joints between manholes EW11a and EW13 and cracks between manholes EW13 and EW14: this line is located in tanker off loading area; and • Cracks between manholes TEW2 and TEW3, infiltration seeping in between manholes TEW5a and TEW7 and cracks between manholes TEW8 and TEW9: this line carries treated effluent off site to connect in to the main sewer. Section 6 of this documents details losses that have occurred at the site. Only three of these were not contained and comprised of losses onto the concrete roadways. All three were cleaned up as soon as they happened. Taking this into account it is unlikely that drainage defects in the following areas could have caused contamination of the ground: between manholes EW1 to EW2a, EW5 to EW6, EW5 to EW9, EW7 to EW8 and EW11a to EW14. Consequently, the only area of concern with regards the drainage is along the TEW line between manholes TEW2 to TEW3, TEW5a to TEW7 and TEW8 to TEW9.

[2] The DMAPA results are detailed in the subcontractor analysis part of the DETS laboratory analysis sheets and isopropanol analysis was undertaken by NLS.

Location of sampling points



10.0 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: the Site Closure Plans concludes with the following statement "from the analytical data obtained and the managed process of decontamination it can be stated that the permitted activities have had no detrimental effect on the quality of the land and no remediation is required." Taking into account the following: • The assessment of risk of pollution from activities undertaken at the site only identified two areas of "reasonable possibility", namely: 1) diesel storage for the fork lift truck 2) the transfer of isopropyl alcohol to bulk storage Spills in both of these locations occurred in the 1990's prior to the issue of the permit and improvement works were subsequently put in place to reduce the risk of a similar incident. • No spills occurred during the life of the permit which may have impacted the ground. • Infrastructure monitoring was undertaken at the site during the life of the permit and no issues were identified during site visits. • No significant soil contamination has been identified (although some of the analysis was not MCERTS accredited the laboratory has provided information on the analytical methodologies which are contained in Appendix 6 of the Contamination Site Investigation Report but are not discussed in the main report). • No significant groundwater contamination has been identified (although methanol and ethanol were not analysed for and some of the limits of detection are higher than those used to set the baseline). • The only potential area where a leak could have occurred relates to the treated effluent waste drainage on site where cracks have been identified. However, sampling undertaken close to this drainage line has not identified significant soil or groundwater contamination and therefore there is no evidence that the drainage has caused deterioration in land or groundwater quality. there is no evidence that the permitted activities undertaken have impacted the soils and groundwater at the site. Consequently, the site land and water are in a satisfactory state.

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	√
Date and name of reviewer: **Suzanne Southern & Matt Derbyshire: 29th February 2016.**	