

## Application SCR evaluation template

Name of activity, address and NGR	<p>Section 2.3 Part A(1)(a) – Surface treatment of metals in vats with an aggregate capacity &gt;30m<sup>3</sup>.  Section 5.4 Part A(1)(a)(ii) – Disposal of non-hazardous waste by physico-chemical treatment in a facility with a capacity of more than 50 tonnes per day.</p> <p>Avdel UK Limited  Unit 43B, Hardwick Grange, Woolston, Warrington,  Cheshire, WA1 4RF</p> <p>NGR: 365070, 390178</p> <p>Surrender application reference: EPR/GP3638EJ/S005</p>
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Document reference of application SCR Date and version of application SCR	Document entitled 'Environmental Permit Surrender Site Condition Report – Unit 3 Hardwick Grange', document report number 11052(1), dated May 2018 and prepared by WSP.
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Supporting Documents	<p>Appendices:</p> <ul style="list-style-type: none"> <li>• Appendix A: Figures</li> <li>• Appendix B: Environmental Permit and Application</li> <li>• Appendix C: Environ (2008) Site Condition Report</li> <li>• Appendix D: Drainage Surveys</li> <li>• Appendix E: Photographic Log</li> <li>• Appendix F: Compliance Assessment Report</li> <li>• Appendix G: Environmental Inspection Sheets</li> <li>• Appendix H: Decommissioning Method Statement</li> <li>• Appendix I: Effluent Sump Information</li> <li>• Appendix J: WSP (2018) Phase II Site Investigation Report</li> </ul> <p>Waste Consignment Notes provided in response to information request, received on 18/06/2018.</p>
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<b>1.0 Site details</b>	
<b>Has the applicant provided the following information as required by the application SCR template?</b>	
Site plans showing site layout, drainage, surfacing, receptors, sources of emissions/releases and monitoring points	
<i>Provided in support of Environmental Permit application EPR/KP3136XG; accepted and determined on 16/02/2009.</i>	

<b>2.0 Condition of the land at permit issue</b> (Receptor)	
<b>Has the applicant provided the following information as required by the application SCR template?</b>	
<p>a) Environmental setting including geology, hydrogeology and surface waters</p> <p>b) Pollution history including:</p> <ul style="list-style-type: none"> <li>• pollution incidents that may have affected land</li> <li>• historical land-uses and associated contaminants</li> <li>• visual/olfactory evidence of existing contamination</li> <li>• evidence of damage to existing pollution prevention measures</li> </ul> <p>c) Evidence of historic contamination (i.e. historical site investigation, assessment, remediation and verification reports (where available))</p> <p>d) Has the applicant chosen to collect baseline reference data?</p>	

## 2.0 Condition of the land at permit issue

(Receptor)

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

*The Application Site Report (ASR) contained details of:*

- a) *The environmental setting: geology, hydrogeology and hydrology (drift deposits of Quaternary Peat overlying the Upper Mottled Sandstone (part of the Sherwood Sandstone Formation); minor aquifer and major aquifer (sandstone), groundwater flow anticipated to the west/north-west; and the closest watercourse is the Birchwood Brook (located approximately 500m north-west). There was one groundwater abstraction borehole located within the site which was used for process water.*
- b) *Pollution history:*
  - *Environment Agency records indicated two recorded pollution incidents to controlled waters within 550m of the site, however, neither appeared to be attributable to the site. The closest pollution incident was recorded in 1998 as a Category 3 (minor incident) and involved waste oils, which were released into an unidentified river/stream at a point approximately 100m to the west of the site. There was one recorded prosecution relating to controlled waters, which involved the release of diesel into the Spittle Brook watercourse by vandals.*
  - *Site history (earliest mapping shows the site as undeveloped land with a small unnamed drained, in 2006 the site building had been constructed and the drain is assumed to have been infilled during development, the site was originally operated for metal plating prior to Avdel leasing it in 2008. Prior to development, the immediate surrounding was largely undeveloped farmland, and was subsequently developed with commercial/industrial properties);*
  - *Substances used and stored on site were detailed in the application documents.*
- c) *Information on historic contamination was provided in sections 2.7 through the undertaking of a desk study and site reconnaissance – the site was identified on a Council database of past potentially contaminated land uses. It does not constitute a register of contaminated land but does serve to identify sites that may be contaminated due to a previous uses.*
- d) *An intrusive investigation was undertaken by Environ in 2007 and the results were included within the ASR.*

*The intrusive investigation concluded the following:*

- *The soil analytical results taken from the intrusive investigation were generally found to contain low concentrations of contaminants below the relevant guideline criteria. Elevated EPH (extractable petroleum hydrocarbon) concentrations (above the Waste Acceptance Criteria of 500 mg/kg for inert waste) were recorded in two samples taken from the made ground (610 mg/kg in WS1 (0.2-0.35m bgl) & 1,400 mg/kg in WS4 (0.3 - 0.5m bgl).*
- *The leachability results generally showed that, under laboratory conditions, the majority of the determinands within the made ground horizon are not in a readily soluble form and are not considered to represent a significant risk to groundwater and surface water resources. Although a slightly elevated chromium concentration (2.7mg/l) was detected in one sample (WS6, 02 – 0.5m bgl), no elevated chromium concentrations were detected in any of the perched or deeper groundwater samples analysed.*
- *A total of seven groundwater samples were obtained. Again, the groundwater analytical results were generally found to contain low concentrations of contaminants below the relevant guideline criteria. Given the plating activities at the site, major ions were analysed for within the groundwater samples in order to provide a baseline assessment. Concentrations of ammonia, chloride and sodium exceeded the UK Drinking Water Quality Standards. However in terms of the potential for contamination to migrate off-site onto third party land or onto the site from off-site sources, significantly elevated concentrations of contaminants have not been identified in soils or groundwater on the site boundaries, hence the potential for such migration was considered low.*

*It was concluded in the ASR, for all relevant activities at the Installation, that there was considered to be little likelihood that land pollution or leaks to the land would occur during the future life of the installation and that no further reference data for the Installation was required.*

<b>3.0 Permitted activities</b> (Source)	
<b>Has the applicant provided the following information as required by the application SCR template?</b>	<b>Response (Specify what information is needed from the applicant, if any)</b>
a) Permitted activities b) Non-permitted activities undertaken at the site	
<p><i>The site was permitted under:</i></p> <ul style="list-style-type: none"> <li>Section 2.3 Part A(1)(a) – Surface treatment of metals in vats with an aggregate capacity &gt;30m<sup>3</sup>.</li> <li>Section 5.4 Part A(1)(a)(ii) – Disposal of non-hazardous waste by physico-chemical treatment in a facility with a capacity of more than 50 tonnes per day.</li> </ul> <p><i>With the following Directly Associated Activity of heat treatment of components, which comprised of gas fired and electric radiant heated annealing, hardening and tempering furnaces.</i></p> <p><b>NB:</b> <i>The Effluent Treatment Plant (ETP) was originally permitted under S5.3 A1 (c)(ii), and this was changed to S5.4 Part A(1)(a)(ii) following a variation to reflect the implementation of the Industrial Emissions Directive.</i></p>	

<b>3.0(a) Environmental Risk Assessment</b> (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.
<p><i>Risk assessment provided in support of Environmental Permit application EPR/KP3136XG; accepted and determined on 16/02/2009.</i></p> <p><i>Taking the nature and scale of the operation into account, it was concluded that the Environment Agency did not regard the site as posing any significant environmental risks providing it remained well managed and in compliance with the permit conditions.</i></p>

<b>3.0(b) Will the pollution prevention measures protect land and groundwater?</b> (Conceptual model)	
Are the activities likely to result in pollution of land?	
<p><i>No, the activities were not considered likely to result in pollution of land – Justification was provided and assessment undertaken as part of the application for EPR/KP3136XG; accepted and determined on 16/02/2009.</i></p> <p><i>The permit was issued with an Improvement condition (IP5) requiring the provision of secondary containment to all process areas where such provision is not currently provided. This would serve as a precaution against the risk of fugitive emissions.</i></p>	
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?	<p><i>Yes – Justification was provided and assessment undertaken as part of the application for Environmental Permit EPR/KP3136XG; accepted and determined on 16/02/2009.</i></p>

<b>Application SCR decision summary</b>	<b>Tick relevant decision</b>
Sufficient information has been supplied to describe the condition of the site at permit issue	Accepted at permit determination of EPR/ KP3136XG on 16/02/2009
Pollution of land and water is unlikely	Accepted at permit determination of EPR/ KP3136XG on 16/02/2009
Date and name of reviewer: (signature of authorising officer on permit)	Martin Jenkins 16 <sup>th</sup> February 2009

## Operational phase SCR evaluation template

<b>4.0 Changes to the activities</b> (Source)
<b>Have there been any changes to the following during the operation of the site?</b>
a) Activity boundaries b) Permitted activities c) "Dangerous substances" used or produced
<p><i>There have been a number of changes to the activities, which are summarised in Table 4 – 'Principle changes to site activities' of the Surrender Report. The changes that required a permit variation are:</i></p> <ul style="list-style-type: none"><li><i>Variation EPR/KP3136XG/V002 – Addition of emission point A10 , a bulk caustic storage tank and a new heat treatment facility with two new discharges to atmosphere (A9 and A1)1 and the removal of emission point A1</i></li><li><i>Variation EPR/GP3638EJ/V004 – Change in stack position (A2).</i></li></ul> <p><i>Additionally, the registered office was changed in 2014 under application reference EPR/GP3638EJ/V003. The permit was transferred in 2014 under application reference EPR/GP3638EJ/T001 from Avdel Metal Finishing Limited to Avdel UK Limited.</i></p> <p><b>NB:</b> <i>The ETP was originally permitted under S5.3 A1 (c)(ii), and this was changed to S5.4 Part A(1)(a)(ii) following a variation to reflect the implementation of the Industrial Emissions Directive.</i></p>

<b>5.0 Measures taken to protect land</b> (Pathway)
<b>Has the applicant provided evidence from records collated during the lifetime of the permit, to show that the pollution prevention measures have worked?</b>
<p><i>The Surrender Report provides information on the preventative measures taken to protect the land, air and groundwater. This included the implementation of a programme of monthly formal inspections of bunds and secondary containment systems. There were a number of improvements undertaken at the site, which are summarised below:</i></p> <ul style="list-style-type: none"><li><i>ISO 14001 accreditation was obtained for the site's Environmental Management System (EMS).</i></li><li><i>Improved housekeeping and management of materials, including:</i><ul style="list-style-type: none"><li><i>Changes to procedures to mitigate against routine uncontrolled discharge of waste/oils to ground around the perimeter of the building.</i></li><li><i>Hazardous chemicals, oils and flammable materials stored in dedicated storage units with integral drip trays on hardstanding.</i></li><li><i>Continued inspection and maintenance.</i></li></ul></li><li><i>Totalising water flow meters installed on all water supply points on each process line to facilitate the close control of water use.</i></li><li><i>An MCERTS approved flow meter and recording system installed at the final effluent discharge point to foul sewer.</i></li><li><i>Flow control valve fitted to interceptor to prevent discharge in the event of a spillage.</i></li><li><i>Secondary containment provided through the installation of a bund constructed around the perimeter of the process building to mitigate against potential spillages and discharges from the building directly to ground.</i></li><li><i>Improvements to the effluent plant resulted in lower concentrations being released to sewer.</i></li><li><i>The frequency of replacement of the filters in the filter press increased, leading to an improvement in effluent quality. The filter cake plant was covered to prevent water ingress into the skip.</i></li><li><i>Repairs to the damaged floor below former plating lines.</i></li><li><i>Hydrochloric acid storage and delivery area adjacent to plating line 1 improved by the use of bund pallets.</i></li></ul> <p><i>Copies of Environmental Inspections undertaken by the site are included within the Surrender Report in Appendix G.</i></p>

**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)?

*The Surrender Report confirms that no environmental incidents were identified during the operation of the site that could have caused harm to land, air or groundwater.*

**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?

*There was no on-going groundwater monitoring from the on-site wells carried out during the operational phase of the permit, as it was not requested following determination. The scope of the intrusive investigation for the surrender application was designed to address this potential data gap.*

*Please refer to Section 9.0 for further details.*

## Surrender SCR Evaluation Template

### 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?

*Plant decommissioning was undertaken during 2017 and 2018, and all processes were removed from site. All works were undertaken in accordance with the risk assessments and method statements; examples of which are provided in Appendix H of the Surrender Report.*

*A programme of decommissioning is provided in the table below:*

<i>Date</i>	<i>Item</i>	<i>Description</i>
<i>Nov 2017</i>	<i>Effluent Tower 3</i>	<i>Settlement tank clean and removed</i>
<i>Nov 2017</i>	<i>Lube 2 removal</i>	<i>Water tank cleaned (via effluent), plant sold</i>
<i>Nov 2017</i>	<i>Wellman Furnace removal</i>	<i>Plant moved to wider site</i>
<i>Dec 2017</i>	<i>Line 1 clean out</i>	<i>All chemistry removed from plating line, all tanks jet washed clean</i>
<i>Jan 2017</i>	<i>Line 1 removal</i>	<i>All plant removed by Chemclear and sold to Riley's</i>
<i>Feb 2017</i>	<i>Clean out of effluent pit</i>	<i>All solution removed from pit, sides all jet washed and inspected</i>
<i>Feb 2017</i>	<i>Internal effluent plant removal</i>	<i>All tanks jet washed clean and removed by Chemclear, and the plant sold</i>
<i>March 2017</i>	<i>Filter press removal</i>	<i>All plates jet washed clean and removed Chemclear, and the plant sold</i>
<i>March 2017</i>	<i>Effluent tower removal</i>	<i>Settlement tank cleaned and removed, and sludge and washings removed by waste tanker</i>
<i>April 2017</i>	<i>Effluent pit fill-in</i>	<i>Effluent pit filled with quarry stone and then concrete surface</i>
<i>April 2017</i>	<i>Floor clean</i>	<i>Factory emptied and all floor area shot blasted, core drilling taken from several area on the site to assess concrete thickness</i>

*The effluent pit was drained, cleaned and visually inspected. The pit was backfilled with virgin quarried material, and the material test certificates are presented in Appendix I of the Surrender Report. Photos of the site are included within Appendix E of the Surrender Report.*

*A third party was commissioned to undertake an audit of the drainage interceptor and maintenance of the FilterSepta as part of the surrender process. The works included routine maintenance, cleaning and replacement of filters and oil absorbent filter material. The report from the audit is included within Appendix D of the Surrender Report.*

*Waste consignment notes from the decommissioning process were provided in response to an information request, and received on 18/06/2018.*

### 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?

(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.

A post decommissioning site investigation was initially scoped to mirror the window sampling undertaken for the baseline site assessment in 2007. The deeper boreholes (BH1 to BH3) were assessed as being serviceable and incorporated within the groundwater monitoring programme, however, collection of soil samples from these locations was not considered as required.

Following a site visit from the Environment Agency in March 2018, the scope of the investigation works was modified to include the following additional elements:

- Additional laboratory analysis for Volatile Organic Compounds (VOCs) and Semi-Volatile Organic Compounds (SVOCs) at WS107 and WS108.
- Collection of verification samples of material used to backfill the former quench oil sump.
- An additional window sample borehole (WS109) installed upstream of the damaged drain in the south-western corner of the building.
- Checking the integrity of the effluent pump.
- An inspection and assessment to confirm the thickness of the warehouse floor slab below the former plating line 1.
- Provision of verification of the material used to backfill the effluent pit.

A comparison of the data collected in 2018 compared to the baseline data obtained during 2007 has been undertaken and is presented in Appendix G of the site investigation report, which is included within the Surrender Report in Appendix J. A summary is as follows:

Assessment of soil condition:

- Maximum Total Petroleum Hydrocarbons (TPH) concentrations were all generally lower in 2018 than 2007 with the exception of one sample at WS101, where the TPH source is likely to be the same as that encountered in the baseline sampling.
- Within the southwest of the site where hydrocarbon impacted soils were observed during the 2007 investigation, concentrations of petroleum hydrocarbons were reported at less than half the 2007 value.
- The concentrations of metals are considered to be consistent between the 2007 and 2018 datasets. The 2018 reported concentrations are within the same order of magnitude as those in 2007, and all are generally low.
- The reported concentrations of Polycyclic Aromatic Hydrocarbons (PAHs) were all generally lower in 2018 relative to the 2007 data set. Two samples (WS104 and WS101) reported higher total PAH concentrations relative to the baseline data, however, the increases are marginal and considered to be within the bounds of sampling variations.
- Detected concentrations of phenols in 2018 are below the baseline concentrations.
- Water soluble sulphate concentrations were broadly consistent with the 2007 data.
- Concentrations of cyanide and PCBs above the limit of detection were not encountered in either the 2007 or 2018 dataset.

Assessment of groundwater condition:

- Dissolved phase hydrocarbon concentrations are all generally lower than the 2007 baseline, with the exception of marginal increases at WS4/WS104 and WS8/WS108.
- Within WS106, the total dissolved TPH concentrations were 434µg/l. WS6 was dry during the 2007 investigation, but petroleum hydrocarbons were reported within soil leachate at 200 µg/l. It is considered that the concentrations in the groundwater are associated with the historic soil impacts from pre-2007 discharge of soil/sweepings around the periphery of the building. Furthermore, the absence of notably elevated concentrations of metals within groundwater are indicative of an absence of measurable impacts associated with the damaged drain.
- Detected metal concentrations were reported at broadly comparable concentrations in all samples analysed when compared with the baseline data.
- The reported phenol concentrations are below previous detections with the exception of BH3, which is within the same order of magnitude as previous concentrations.
- The concentrations of PAH were all generally below 2007 reported concentrations. Two locations reported. There were two higher concentrations recorded at WS107 and WS108, however, the increase at WS107 is considered to be marginal.
- Reported ammoniacal nitrogen, sulphate and nitrate concentrations are broadly consistent with 2007 concentrations and generally within the same order of magnitude.
- All SVOC readings were below reported 2007 concentrations.

## 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?

*It was reported that concentrations of zinc had increased at WS108 (north of shed) from below the laboratory limit of detection to 2840 µg/l. It is considered unlikely that this is as a result of activities undertaken on the site during the lifetime of the permit for the following reasons:*

- Historically the Rack Zinc Plating line was located adjacent to the north eastern wall of the process building. This process line was removed during late 2007, after the baseline site investigation, but prior to the issue of the Environmental Permit. At the time of its operation and decommissioning it is not believed that there was an EMS in place and there was no peripheral bunding in place. It is therefore feasible that there was a pathway for historical contamination of zinc to enter the ground in the area of WS108, although given the relatively low mobility of zinc in groundwater this could potentially have been very localised.*
- The location of 2007 WS8 could not be confirmed, and so there may therefore be some variation in conditions resultant from local variations in groundwater quality.*
- The floor slab below the remaining plating lines has been verified as being 100mm thick and the membrane remains in place. In addition the peripheral bund has been constructed and at the time of the recent site walkovers there was no evidence of surface staining external to the bunding. It is therefore considered unlikely the three retained plating lines have been an ongoing source of impact.*
- The concentrations of other contaminants are reported at concentrations broadly comparable to the 2007 dataset, indicative of the absence of gross impact and further likelihood of localised historic impact.*

*Potential risks to human health (based on a commercial land use) and controlled waters were assessed via a Generic Quantitative Risk Assessment (GQRA), which concluded the following:*

- Human Health (commercial land use): The detected soil and groundwater concentrations are not considered to present an unacceptable health risk to future commercial workers.*
- Controlled Waters: The exceedances of the adopted screening criteria for dissolved phase TPH (predominantly C21-C35), metals, PAHs and phenols in addition to ammoniacal nitrogen, chloride and sulphate suggest theoretical risks to groundwater and surface water receptors. Factors reducing the potential risks to controlled waters include the distance to the surface water (600m) which is more sensitive to metals than drinking water whilst for groundwater many of the exceedances are isolated. The identified contaminants of concern were recorded at similar or higher concentrations in 2007 indicating that the source of the contamination was present prior to Avdel's lease and the issue of the Environmental Permit.*

*The Surrender Report concludes that the site observations and intrusive investigation results suggest that soil and groundwater conditions have generally improved since 2007, with the majority of reported concentrations below the baseline values.*



## 10.0 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?

*The applicant is not solely relying on records obtained during the operational phase of the activity, having undertaken groundwater investigations. The site has been decommissioned and all sources of potential pollution risk have been removed.*

*The Surrender Report concludes that whilst increased TPH concentrations in soils have been encountered in WS101, it is considered the TPH source is likely to be historic. The general absence of VOCs indicate the natural weathering of the impact over the intervening 11 years. In addition, given the nature of intrusive investigation techniques/ soil sampling, a certain amount of variability would be expected between observations and analysis results from different investigations.*

*The apparent increases in the dissolved phase concentrations of zinc within the groundwater at WS108 are considered to be associated with localised historic activities at the site prior to 2008 rather than activities undertaken during the lifetime of the permit. It is considered that the operation of the site by Avdel has not resulted in a deterioration of the baseline conditions.*

*Following review of the surrender application, it is concluded that the permitted activity has not had any substantive impact on the environment during its lifetime such that active remediation is required prior to the surrender being accepted. The Environment Agency therefore confirms that the permitted Avdel UK Limited installation has been returned to a satisfactory state.*

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; or	✓
Date and name of reviewer:  Kirsty Hobbs (NPS – Permitting Officer) – 03/07/2018  Lee Beveridge (Area GW&CL Team – Technical Officer) – 09/08/2018  Laura Mellor (NPS –Permitting Officer) – 14/08/2018	