

Environment Agency Permitting decisions

Bespoke Permit

We have decided to grant the permit for **Kirkby-in-Ashfield Anodising and Surface Treatment Facility** operated by **Acorn Surface Technology Limited**.

The permit number is **EPR/HP3832WT**

We consider in reaching that decision we have taken into account all relevant considerations and legal requirements and that the permit will ensure that the appropriate level of environmental protection is provided.

Purpose of this document

This decision document:

- explains how the application has been determined
- provides a record of the decision-making process
- shows how all relevant factors have been taken into account
- justifies the specific conditions in the permit other than those in our generic permit template.

Unless the decision document specifies otherwise we have accepted the applicant's proposals.

Structure of this document

- Annex 1 the decision checklist and Key Issues
- Annex 2 the consultation and web publicising.

Annex 1: decision checklist

Aspect considered	Justification / Detail	Criteria met
		Yes
Receipt of submission		
Confidential information	A claim for commercial or industrial confidentiality has not been made.	✓
Consultation		
Scope of consultation	The consultation requirements were identified and implemented. The decision was taken in accordance with RGN 6 High Profile Sites, our Public Participation Statement and our Working Together Agreements. The following were consulted: <ul style="list-style-type: none"> • Health & Safety Executive (HSE). • Food Standards Agency (FSA). • Ashfield Council Environmental Health Department • Public Health England and Director of Public Health 	✓
Responses to consultation and web publicising	The consultation responses were taken into account in this decision document. One response was received. Details are provided in Annex 2. The decision was taken in accordance with our guidance.	✓
European Directives		
Applicable Directives	All applicable European Directives have been considered in the determination of the application.	✓
The site		
Extent of the site of the facility	The applicant has provided a plan which we consider is satisfactory, showing the extent of the facility. A plan is included in the permit and the applicant is required to carry on the permitted activities within the site boundary. The plan within schedule 7 of the permit provides locations of all atmospheric, sewer and surface water discharges from the installation.	✓
Site condition report	The applicant has provided a description of the condition of the site in their site condition report. We consider this description is satisfactory after additional information was received as a duly making response. The decision was taken in accordance with our guidance on site condition reports – guidance and templates (H5).The site condition report is reviewed in more detail in the key issues section.	✓

Aspect considered	Justification / Detail	Criteria met Yes
Biodiversity, Heritage, Landscape and Nature Conservation	<p>The application is not within the relevant screening distance criteria of any European sites. There is one SSSI within relevant screening distance; Kirkby Grives SSSI approximately 1.1 km from the installation.</p> <p>There are 20 non-statutory sites within 2 km screening distance; all of these sites are Local Wildlife sites. The closest is Kirkby Wasteland, approximately 50 metres from the installation.</p> <p>This is an existing facility which has been operating the same type of operations for close to 40 years, though now applying for a new installation permit.</p> <p>The reduction of solvent consumption for coating and solvent vapour degreasing has minimised the environmental impacts of air emissions from the installation.</p> <p>There are no parameters with ecological Air Quality Standards linked to the installation air emissions for the main surface metal treatment activities,</p> <p>The directly associated combustion facilities to generate steam for the main scheduled activity include gas boilers of 0.9 MW thermal input. Our AQTAG 14 <i>Guidance on identifying 'relevance' for assessment under the Habitats Regulations for PPC installations with combustion processes</i> states that for combustion facilities < 5MW no habitat assessment is required.</p> <p>Overall the impact of this installation on these habitat sites is considered negligible.</p> <p>The decision was taken in accordance with our guidance.</p>	✓
Environmental Risk Assessment and operating techniques		
Environmental risk	<p>We have reviewed the applicant's assessment of the environmental risk from the facility. The applicant's risk assessment is satisfactory after additional responses received including schedule 5 responses.</p> <p>Details of H1 assessments, accident and fugitive management assessment are provided in the key issues section of this document.</p>	✓
Operating techniques	<p>We have reviewed the techniques used by the applicant and compared these with the relevant guidance notes. The operating techniques are summarised in the supplementary application report including:</p> <ul style="list-style-type: none"> • Environmental Management System (EMS) summary • Non-Technical summary • Supplementary application document section • Duly making responses • Schedule 5 details on air, effluent and fugitives emissions control <p>Permit Table S1.2 Operating techniques includes references above documents.</p> <p>The proposed techniques/ emission levels for priorities for control are in line with the benchmark levels contained in the EPR 2.07 and EPR 2.03 Sector Guidance except for certain areas where improvement plans have been committed to.</p> <p>These areas are summarised within the key issues section of this document.</p> <p>The details of the critical elements of the BAT assessment, initial gaps and actions with improvement programmes are listed in the key issues section. Such key areas include air emissions controls/abatement techniques, effluent treatment controls, fugitive and fire water management controls.</p>	✓
The permit conditions		
Odour conditions	<p>Standard odour conditions 3.3.1 and 3.3.2 suffice as there is no significant odour potential at the installation to impact beyond the installation boundary based on the submitted environmental assessment (H1 annex a) assessment submitted with duly making responses.</p> <p>Specifically the installation does not operate with inherently odorous materials and the process itself is not odorous.</p>	✓
Noise conditions	<p>Standard noise conditions 3.4.1 and 3.4.2 suffice as there is no significant noise potential at the installation to impact beyond the installation boundary based on the submitted environmental assessment (H1 annex a) assessment submitted with duly making responses</p>	✓

Aspect considered	Justification / Detail	Criteria met
		Yes
Raw Materials	<p>The raw material usage for the installation is detailed in application supporting documentation section 3.3 c.</p> <p>The applicant BAT measures for efficient usage of raw materials and water are specified in application supporting documentation section 1.31.</p> <p>We consider they represent application of indicative BAT measures having regard to our TGN EPR 2.07.</p>	
Pre-operational conditions	<p>Pre-operational conditions are inappropriate with this specific application due to the change to new applicant and our allowance for manufacture to continue pending a permit determination.</p>	✓
Improvement conditions	<p>Based on the information in the application, we consider that we need to impose three improvement conditions.</p> <p>These are detailed in the key issues section and are linked to validation of improvement plans complete with monitoring for improvements described within the application.</p>	✓
Emission limits	<p>We have decided that emission limit values do not need to be set for air emissions for this installation.</p> <p>For sewer discharges ELV's have been limited to total chromium based on its Priority Hazardous Substance status as designated in our H1 annex D guidance.</p> <p>A detailed H1 assessment underpinning this decision is included in the key issues section of this document.</p>	✓
Monitoring	<p>After review of environmental assessment for the installation (as discussed in more detail in the key issues section) compliance on-going monitoring has been set for emissions to air for chromium VI as detailed in the permit Table S3.1.</p> <p>Monitoring techniques are in line with our MCERTS standards M18 for water discharges.</p> <p>The final sewer discharge flow rate has not been limited in Table S3.2 of this permit. The reason for this is that the H1 assessment has been carried out based on maximum consent to discharge limits for both daily and instantaneous limits and the environmental impacts have been found to be insignificant for all parameters at the consent to discharge flow rates.</p> <p>The applicant has a flow meter in place with flow rate data logged for compliance with their consent to discharge. In addition the applicant has set up an alarm setting for water flow at 2.5 l/s (significantly lower than consent to discharge instantaneous peak flow limit of 6 l/s) allowing time for investigation and flow control.</p> <p>On this basis it is not considered appropriate to require MCERTS certification of this flow meter.</p> <p>In terms of S1 discharge all the emissions for specific parameters listed in applicant H1 are assessed as having insignificant impacts on receiving water course. In addition apart from total chromium all other trace metal emissions are no higher than 10 % of the benchmark emission limit values in surface metal TGN EPR 2.07.</p> <p>As such effluent monitoring has been limited to total chromium as outlined in permit table S3.2.</p>	✓
Reporting	<p>We have specified reporting in the permit under tables S4.1.</p>	✓
Applicant Competence		
Environment Management System	<p>There is no known reason to consider that the applicant will not have the management systems to enable it to comply with the permit conditions. The site operates an Environmental Management System certified to ISO14001 (Certificate No. EMS595914). The Environmental Management System summary procedures are outlined in section B2-3 of supporting application documentation.</p> <p>The EMS summary includes environmental policy, management action plan, monitoring and management techniques plus other procedures including emergency response controls plus auditing procedures.</p> <p>This decision was taken in accordance with RGN 5 on Applicant Competence.</p>	✓

Key Issues of the decision

1. Site Introduction

This is a new permit for two scheduled activities as follows:

Surface metal treatment activity installation. The scheduled activity falls within Environmental Permitting Regulations (EPR) under “Section 2.3 Part A (1) (a) Surface treating metal and plastics materials using an electrolysis or chemical process where the aggregated volume of the treatment vat is more than 30 m³”

This installation process vat capacity under this scheduled activity is **71 m³**

Hazardous waste treatment activity.

5.3 Part A (1) (a) (ii) scheduled activity ; on-site effluent treatment of liquors from surface treatment activity.

The applicant undertakes a suite of surface treatment activities on “free-issue “customer components. Overall the installation has 12 emissions to atmosphere, two discharges of uncontaminated roof water to surface water and one sewer discharge. The main surface metal activities include anodising, electroplating, electroless processes plus ion vapour deposition of aluminium and wet paint coating.

Background

These activities have been historically regulated by Ashfield Local Council under the following activities:

- **2.3 Part A(2) Surface Metal**

Surface treating metals and plastic materials using an electrolytic or chemical process where the aggregated volume of the treatment vats is more than 30m³ and where the activity is carried on at the same installation as one or more activities falling within—

- Part A(2) or Part B of Section 2.1;
- Part A(2) or Part B of Section 2.2; or
- Part A (2) or Part B of Section 6.4.

- **6.4 Part B Coating**

- (a) Unless falling within Part A(1) or Part A(2) of this Section or Part A(2)(c) of Section 2.1, any process (other than for the re-painting or re-spraying of or of parts of aircraft or road or railway vehicles) for applying to a substrate, or drying or curing after such application, printing ink or paint or any other coating material as, or in the course of, a manufacturing activity, where the process may result in the release into the air of particulate matter or of any volatile organic compound and is likely to involve the use in any 12-month period of—
 - (iv) 5 or more tonnes of organic solvents in respect of any activity not mentioned in sub-paragraph (iii).

- **7 (B) SED Activities**

Surface Cleaning above 2 tonne solvent consumption per annum

Changes

The applicant has reduced their coating solvent consumption below 5 tonne 6.4 part B activity threshold; solvent usage now is 1.1 tonnes per annum. This in turn means that 2.3 Part A (2) no longer applies for this site.

In addition the installation is no longer an SED activity as the solvent usage for perchloroethylene is 1.5 tonnes per annum maximum and hence below the relevant threshold.

The applicant has made significant improvements in line with indicative BAT techniques by substitution of trichloroethylene (Risk Phrase R45 May cause cancer) with lower risk perchloroethylene solvent and moving to a contained vapour degreasing plant. The latter has led to significant reductions in solvent usage and removal of specific stack emission.

As the site continues to operate a surface metal activity with aggregated total vat volume above 30 m³ and hence a 2.3 A (1) activity applies.

It should be noted that the facility vat volume capacity for new permit application is 71 m³. The final details of all the vat volume are provided in the applicant duly making response. The vat volume assessment has been applied in accordance with our RGN No.2 guidance.

In addition the onsite effluent treatment plant, with maximum effluent treatment capacity of 180 m3 per day is a scheduled activity as follows:

S5.3 Part A (1) (a) (ii)

(a) Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving one or more of the following activities—

(ii) physico-chemical treatment;

This permit provides the relevant changes to ensure the installation Part A (1) activities are correctly regulated by the Environment Agency.

The coating and vapour degreasing activities are now under the relevant activity threshold and are as such are directly associated activities.

Overview

BAT measures have been assessed and as a whole indicative BAT measures are in place. There are areas where further action plans have been provided and improvement programs have been included to cover those linked to chromium VI and fire water management. This site is an existing facility which is becoming a new installation. Time has been allowed to complete BAT measures that we have already assessed as part of this permit determination (see details in environmental assessment section below).

The completion of action plans is ensured via the three improvement programs and action plans are to be finalised by first quarter 2016. The improvement plan for chromium VI emission minimisation has already been initiated, as discussed below.

In general this determination document reviewed the application in line with indicative BAT measures outlined in:

- *Environment Agency guidance S2.07 The Surface Treatment of Metals and Plastics by Electrolytic and Chemical Process March 2009.*
- *Environment Agency guidance S2.03 Non-Ferrous Metals and the production of Carbon and Graphite.*
- *EU BREF Guidance Surface Treatment of Metals and Plastics August 2006.*
- *Environment Agency site visit to installation and onsite assessment 12/06/15.*

2.Site Condition Report and Protection of the Site.

The Applicant has provided a Site Condition Report (SCR) as required for a new installation. This report is a combination of four documents:

1 – H5 template summary provided with duly making response acts an overview document.

This applicant H5 completed template confirms there have been no incidents with impact to ground water and contaminated land since 2004 local council permit application. The current buildings have been in place since the 1970's.

The installation is not a COMAH site.

2 – Application site condition report (Introduction and further details on site activities)

Application supporting documentation section B-2-5b.

3 – Site Plan

- Installation and overall Site Description with process zone block diagram
- Site Drainage Plan ; a more detailed site drainage plan was provided with duly making response

4– Detailed Site condition baseline report

This consists of baseline data from 2001 ESA-2001 document in applicant duly making response. The 2001 intrusive sampling baseline report includes ground water and soil monitoring data plus a borehole location plan on pages 18 and 19 of ESA-200 document.

5. Envirocheck 2001 and 2014 reports.

We have audited applicant's site condition report with the following comments:

The Environment Agency considers the site condition report is accurate at representing the risk of ground water and contaminated land risk. The infrastructure and operating techniques are in place to minimise ground water and land contamination with improvements linked to fire water management (Improvement program 3).

Overall the baseline data presented is adequate given the moderate/low sensitivity of the site on a secondary B aquifer.

The new monitoring condition 3.1.3 has been included to allow implementation of the latest permit template and the Industrial Emissions Directive and allow further reviews of the site condition report.

3. Environmental Risk Assessment

Introduction

The environmental risk assessment submitted with the duly making response included an updated H1 assessment, operating techniques summary and a BAT assessment.

During the course of the schedule 5 additional information was obtained which is discussed below on those parameters which did not initially screen out under the H1 assessment.

In general the applicant has pursued a plan of outlining improvements to operating techniques which will be complied with from permit determination date and further future improvements which are covered under the improvement conditions to ensure completion.

The application supporting document sections 1.20.1 to 1.46 details the operating techniques for the installation and a comparison with indicative BAT measures including the following:

- Surface Treatment Processes – step by step process control measures listed.
- Vapour Degreasing – including confirmation of a closed loop system with facilities to recycle and re-usage of perchloroethylene. This has been a major improvement over original council application utilising an open system with trichloroethylene as degreasing solvent.
- Raw Material usage controls
- Monitoring techniques – process monitoring and air/effluent monitoring techniques
- Fugitive emissions controls – discussed in more detail later in this key issues section.
- Waste minimisation and waste disposal/recycling steps

Specific areas of air emissions /effluent emissions controls are detailed below:

Chromium VI abatement operation

BAT measures to minimise Chromium VI emissions as detailed in EPR 2.07 and Table 5.4 of the EU Bref for Surface Treatment include

- Eductors/agitation of liquors in vats designed to minimise chromium VI vapour emissions
- Lidding vats/usage of croffles to minimise surface evaporation
- Optimisation of local exhaust ventilation to control capture velocities to ensure occupational health compliance whilst minimising environmental exhaust flow rate emission via stack discharges.
- Freeboard distance (distance between plating liquor level and top of vat) should be 300 mm minimum for chromium mist applications.
- Suppressant powder usage on vat surfaces to minimise evaporation
- Mist eliminator/water or caustic scrubbers
- Substitution of processes liberating chromium VI emissions.

The applicant has confirmed a plan to upgrade their chrome anodising activities within their schedule 5 response.

In particular the applicant has confirmed the following improvements

- One new chromic acid tank with reduced surface area of solution (reduction from 3.6 m² to 2.4 m² surface area) – pro rata emissions reduction (1/3rd)
- Optimisation of local exhaust ventilation capture velocity and compliance with 300 mm freeboard distance (measured trial data confirms 50 % emissions reduction compared with current 150mm freeboard).
- New emission point A22 complete with proposed 3 stage dry matting droplet abatement system – 99 % abatement efficiency

Future measures to be considered on an on-going basis include lidding the tank and optimising stack height 3 metres above nearest building (dependent on planning permission) , plus a review of suppressant systems to provide a blanket on vat liquor surfaces to minimise emissions.

Conclusion

These are in line with indicative BAT measures

The H1 assessment provides a review of potential emissions both before and after the completion of these improvement measures.

Longer term the level of chromic acid processing will be reviewed; there is the potential for considerable reduction with the introduction of alternative processes e.g. usage of tartaric and sulphuric acid.

H1 to atmosphere – overview of assumptions

- ***The H1 assessment was initially based on worst case scenario of 7 days per week and 24 hours per day i.e. 8,760 hours per year.***
- ***The list of emission points with specific parameter emissions is as follows:***

Emission Point Reference	Description	Emission Parameters	Effective Height	Stack
A4	Chrome	Chromium VI	0 m	
A16	Anodising Line	Sulphuric Acid	0 m	
A 18	Spray Booth 1	Particulates and Xylene (solvent based paint)	0 m	
A 19	Spray Booth 2		0 m	
A 20	Spray Booth 3		0 m	
A 21	Spray Booth 4		0 m	

A22	Chrome	Chromium VI	0 m
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A4 emission is existing chrome emission used in initial H1 assessment

A22 emission is new chrome emissions used in final H1 assessment including future improvements.

Flowrates for each emission point are listed within the application completed H1 screening tool.

H1 screening.

The above data was used to perform a H1 screening.

Step 1

The emissions which warrant further investigations are

- PC (Long term) > 1 % of the LT Environmental benchmark.
- PC (Short term) > 10 % of the ST environmental benchmark.

The inputs are based on actual applicant atmospheric monitoring data.

The PM10 assessment is based on actual PM10 data provided with the schedule 5 response. The assessment is further based on all 4 booths operational at once which is currently not practical within current numbers of operational staff. Normal operation currently is a maximum of 2 booths at any one time but applicant has maintained for future option to run 4 booths at once.

In addition the PM10 data is actually linked to a painting period of 5 to 15 minutes. To convert the monitoring data over this period to be able to be compared with PM10 short term 24 hour EQS the factor of 0.59/1.34 has been applied based on our H1 annex f) guidance.

For the chromium VI assessment (within PM10 fraction) the applicant assessment is based on total chromium atmospheric data which again is highly conservative.

A summary of the results of the Application H1 assessment of emissions to air are as follows utilising worst case data from above:

Substance	Long Term EAL/EQS µg/m3	Short Term EAL/EQS µg/m3	PC LT µg/m3	PC % of LT EAL/EQS	PC LT > 1% of EQS/EAL	PC ST µg/m3	PC ST % of EAL/EQS	PC ST > 10 % of EQS/EAL
PM10	40	50	0.624	1.56	Yes	7.27	14.54	Yes
Chromium VI	0.0002	-	0.00405	2024	Yes	-	-	-
Sulphuric Acid	10	300	0.156	1.56	Yes	4.11	1.37	No
Xylene	4,410	66,200	50.7	1.15	Yes	1336	2.02	No

H1 Step 1 Screening Conclusion

- **Sulphuric acid and Xylene short term;** process contributions for this installation screen out as insignificant not requiring further assessment.
- Sulphuric acid and Xylene long term; process contributions are only marginally above 1% threshold. With the reality of operations not taking place 24/7 and usage of conservative 0 m effective height it can be concluded that in reality the environmental impacts for these two parameters are insignificant. As such no further assessment is required.
- **PM10 long term:** initially not insignificant. However the overall installation operates only 48 hours per week i.e. 29 % approximately operating time. On this basis the PM10 process contribution is < 1 % of the PC long term and as such is assessed as having an insignificant environmental impact not requiring further assessment.

For chromium VI long term and PM10 short term the installation process contributions are clearly potentially assessed as significant with initial running of the H1 and potential exceedance of the relevant EQS or EAL. Impacts for these are discussed in more detail below.

H1 stage 2 screening assessment.

For emissions not screened out as insignificant the H1 methodology requires an assessment of whether more detailed modelling is required

The assessment criteria given in H1 are that modelling should be considered if:

PC LT + background > 70 % of the EQS, PEC= PC LT + background.

PC ST > 20 % (EQS – 2 x background) HR in table below.

General comments on PM10 short term:

Actual stack heights for relevant stacks are as follows: A18 - A21 > 8 metres; the height above the nearest buildings are 2.5 metres for each stack meaning effective height has been set to zero within H1 assessment. This is a highly conservative assumption.

In addition the following improvements have been confirmed after applicant schedule 5 response

Operating techniques; the applicant has confirmed an action in their schedule 5 response to record their paint time more accurately with the aim to optimise paint time and reduce paint time as low as possible. This action is to be completed by the end of 2015.

The schedule 5 confirms a summary of the operating procedures for booth operation and confirming in reality that the maximum utilisation, beyond current practice, is 4 booths operating at same time for operating hours equivalent to 17 % of time for any given week.

Stage 2 assessment

Substance	Background µg/m ³	PC LT µg/m ³	PEC µg/m ³	PEC /EQS or EAL %	PEC/ EQS > 70 %	PC ST µg/m ³	PC /HR %	PC ST/ HR > 20 %
PM10	17.3 (1)	-	-	-		7.27	236	Yes

Notes

(1) Background data from DEFRA background map data. ; value is average of 4 closest national grid reference background data.

Conclusion.

Stage 1 and 2 assessments do not to screen out. However in reality the PM10 short term process contribution ,if detailed modelling was completed utilising actual stack heights, **would be < 10 % of the PM10 short term EQS and hence assessed as having insignificant environmental impact.**

Chromium VI

Chromium VI Long Term assessment

The environmental standard for Chromium VI is an Environmental Assessment Levels (EAL's) which is an Environment Agency Standard not a European or National Air Quality Standard overall. This has been reduced in April 2010 H1 guidance to 0.2 ng/m³ (previous EAL LT being 0.1 µg/m³ i.e. 500 times higher). This reduction was based on report "Expert Panel on Air Quality Standards Guidelines for metals and metalloids in ambient air for the protection of human health. 13th Report May 2009". The target is simply therefore that the PEC LT is < 100 % of EAL or that the PC for the installation is insignificant ie < 1 % of the EAL

More realistic H1 assessment:

This is based on improvements discussed above in BAT review plus following clarifications.

- Actual chromium VI monitoring ; 0.006 mg/m³
- Emissions timing – in reality chromium anodising operations are limited to maximum 15 % of available hours within any 24 hour period

Assessment below is based on following:

- Current; current situation with usage of above chromium VI data and operating time utilisation of 15 %.
- Future; future situation Stage 1 assumptions plus application of further improvements as detailed in BAT measures section above.

Substance	Long Term EAL/EQS µg/m ³	Short Term EAL/EQS µg/m ³	PC LT µg/m ³	PC % of LT EAL/EQS	PC LT > 1% of EQS/EAL	PC ST µg/m ³	PC ST % of EAL/EQS	PC ST > 10 % of EQS/EAL
Chromium VI (Current)	0.0002	-	0.000171	85.5	Yes	-	-	-
Chromium VI (Future)	0.0002	-	0.00000170	0.851	No	-	-	-

Conclusion

The future improvements (to be completed by end of 2015) from above assessment can ensure installation process contribution for chromium VI is insignificant compared to chromium VI EAL.

The completion of these measures is to be enforced through improvement program 1 (improvement plan progress report) and improvement program 2 (monitoring report to validate improvements).

Effluent Emissions

There is an on-site physio-chemical effluent treatment for process effluent covering chrome waste and anodising waste. The discharge then enters off-site sewer drainage and is treated via the Kirkby-in-Ashfield Sewage Treatment works operated by Severn Trent before final discharge into Erewash River; the site has a consent to discharge for this sewer emission.

In terms of the effluent plant capacity overall the two stage process has a capacity of 180 m³ per day and hence above the 10 tonnes/day scheduled activity threshold under 5.3 A (1) (a) (ii).

The system operates by reducing the chromium in the rinse water from its Hexavalent form to its trivalent form using bisulphate, once the chrome has been reduced to the necessary level it transfers to the settlement tank for neutralisation, the resultant sludge is periodically removed for disposal. The liquor is stored and monitored before discharge to sewer.

The flows utilised in this H1 assessment are in line with applicant consent to discharge from Seven Trent as follows:

- Long term flow – 180 m³/day (value utilised in H1 assessment).

Note: normal daily flow is typically 0.6 l/s i.e. approximately 52 m3/day)

- Short term instantaneous peak – 6.5 litres /second

The following summarises the performance of the effluent treatment plant:

Parameter	Average effluent concentration monitored data	applicant discharge	Trade discharge limit	effluent consent	Surface Metal EPR 2.03 Benchmark Emission Limit Values
Total Chromium	0.62(1)		3.0		1.0
Copper	0.1		1.0		1.0
Nickel	0.13		1.0		1.0
Zinc	0.08		2.0		2.0
Lead	0.08		1.0		0.5

Units mg/litre.

(1) Data utilised for chromium VI assessment long term as an over conservative assessment. Peak monitoring data of 0.62 mg/l utilised for chromium III short term assessment.

Key points include:

- Indicative BAT measures are in line in line with our EPR 2.07 sector guidance for effluent treatment facilities – as per above BAT assessment.

Effluent Treatment Plant (ETP) Controls include:

- Automated effluent control system
- Preventative maintenance schedule
- Chrome VI reduction via pH measurement in acid reduction for acid dosing control and pH measurement in pH correction for caustic dosing control

Further ETP controls include

Chrome reduction controls include:

- pH measurement in bay 1 for Caustic dosing control
- pH measurement in bay 2 for Acid dosing control
- pH measurement in bay 4 for dosing control (acid and caustic) and pH policeman for alarm (below pH6 over pH10).
- Conductivity probe in the chrome reduction tank

Consolidation Pit to final S1 discharge. Final controls include:

- pH measurement in bay 1 for caustic dosing control
- pH measurement in bay 2 for acid dosing control
- pH measurement in bay 4 for acid/caustic dosing control and there are audible pH alarms under 6.6 and over 8.9.
- Automatic Sampling integrator from bay 5 samples based on flow rate at 1 litre sample per 25 m3 of flow.100ml every hour

Contingency Plan

The installation has a current 8.5 m3 of excess capacity for the storage of effluent in the effluent pit around the ETP tanks. The applicant is actioning proposals to provide additional storage capacity of 24 m3 (9 and 15 m3 existing storage vessels). Based on 0.6 litres/s normal effluent flow this provides over 14 hours of ETP operational time to complete ETP remedial actions to ensure optimum ETP performance.

H1 assessment to effluent:

The latest draft variation of H1 annex d) methodology states that the process contributions can be considered insignificant if:

- **The process contribution is < 4% of the EQS Maximum Admissible Concentration (MAC) and**
- **The process contribution is < 4 % of the EQS Annual Average.**

The new H1 annex D guidance is in place for Dangerous Substances environmental screening assessment with multiple step screening approach for assessment of whether emissions are assessed as insignificant. The applicant has utilised the above screening percentages within H1 annex D. This approach continues to be one of the screening tests and if screened out with this approach the installation process contributions are considered insignificant.

Basis of assessment:

- In initial assessment the applicant has not factored in sewage treatment reduction factors
- Water hardness in the local area is described by Severn Trent as >250 mg/l level ; this has led to the EQS's listed in the table below:

Parameter	EQS Annual Average µg/l	PC LT µg/l	PC/EQS %	>4% EQS	EQS MAC	PC ST µg/l	PC/EQS%	>4% EQS MAC
Copper (water harness > 250 mg/l)	28	0.11	0.39	No	-	-	-	-
Zinc(water harness >	125	0.09	0.07	No	-	-	-	-

250 mg/l)								
Chromium III	4.7	0.68	14.45	Yes	32	2.12	6.62	Yes
Lead	7.2	0.09	1.22	No	-	-	-	-
Nickel	20	0.14	0.71	No	-	-	-	-
Chromium VI	3.4	0.68	19.97	Yes	-	-	-	-

Conclusions:

All parameters for this installation are assessed as having insignificant environmental impact against H1 4% screening assessment except chromium III and VI impacts.

The applicant discharges 50 weeks per annum and will not discharge more than 120 hours per week.

A review of our H1 annex D guidance confirms the sewage treatment reduction factor for chromium is 0.16. On this basis all the chromium emission impacts for III and VI (long and short term) are below the 4 % screening criteria and hence are assessed as having insignificant environmental impact not requiring further assessment.

Overall all the parameters screen out as insignificant and therefore no further assessment is required.

4. Fugitive emissions

The applicant has performed a H1 Part 1 screening assessment with six potential fugitive emission hazards.

These include chemical spills within buildings, fugitive dust emissions from shot blast media waste, general litter, and spent chemicals stored externally, chemicals spills during delivery or collection and fires.

Controls include

- o Tanks complete with level sensors
- o Drip trays
- o External tank bunds (three acid tanks each of 6000 litre capacity with a single bund larger than total 18000 litre capacity)
- o Spill kits
- o Hard standing tertiary containment – applicant external yard and hard standing has been renewed in past 18 months
- o Transfer of substances e.g. filling or emptying vessels: measures in place include operating procedures, delivery supervision, emergency response procedures
- o Tanker unloading controls include spill kits in place and surface water manholes covered; further details given below.
- o Series of floor drain valves /isolation valves to prevent fugitive emission discharges to surface water; details of valve locations provided on a plan in applicant schedule 5 question 6 response

Prevention of process spills accidental discharge to surface water courses W1 or W2:

Waste acid tanker loading

During the collection of waste acids the site deploys rubber mats to seal the drains.

In addition the applicant has committed to updating their operating techniques to ensure surface water and sewer isolation valves are closed prior to tanker loading.

Conclusion

- The Environment Agency has assessed the Applicants' proposals for control of fugitive emissions and considers that they will meet the regulatory requirements.
- Standard conditions 3.2.1 and 3.2.2 will ensure that the Applicant maintains this position.

5. Accident prevention and control

A H1 initial risk assessment screening exercise has been carried out in H1 accident management plan review provided with the duly making response

Each hazard has been assessed; a risk factor allocated and risk management actions outlined.

In addition to fugitive emission hazards listed above there are further risks under accident management as follows:

- a) Incompatible substances allowed to come into contact: controls include flammable gases segregated and stored in Fenced dedicated areas.
- b) Effluent Treatment tank failure – containment within kerbing and recirculated back into effluent treatment plant feed
- c) Small container spillage –sulphuric acid containers stored only internally and within purpose built cupboards/sumps. There are in addition procedures in place for offloading and storing of general chemicals. Storage of such chemicals on hardstanding.
- d) Fire: Fire risk assessment and emergency plan in place. More details discussed below.
- e) Failure to contain fire water: Emergency procedure is in place. Some containment within internal drains and effluent treatment plant. More details discussed below.
- f) Waste storage – hazardous waste stored in 205 litre drums on pallets in a roofed bunded area.

The major controls already in place include:

- Fire detection and alarm systems.
- Written operating procedures for processes.
- Bunds with capacity > 110 % of individual tanks and > 25 % of combined tank volumes for all internal and external process materials
- Maintenance of tanks and bunds.

An overview of the Accident Management Emergency Preparedness and Response is provided by the applicant in supplementary application attachment 3 section 2.7. This confirms that the applicant has established a Major Incident Contingency Plan which will be updated for this new installation. Formalised response plans and procedures will be implemented for each potential major incident.

In terms of the overall Accident Management Plan the schedule 5 question 3 response confirmed this includes

- Site emergency plan
- Emergency/Disaster recovery Plan
- Emergency preparations procedure

Fire risk

The applicant has updated their heating systems and removed electrical heating to minimise fire risk. The usage of metal not plastic vats further minimises the potential for fire risk.

The schedule 5 provided a fire water management update with the following key points:

- Fire response procedure overview provided.
- Existing storage facilities for fire water detailed including bladder valves protecting the yard in area of the acid bund, usage of 2 off currently empty storage vessels totalling 12.3 m3
- Further improvements for increased containment volume for fire water retention within main surface metal treatment building equivalent to 200 m3 and 319 m3 external fire water storage capacity to be created via addition of 12 cm kerbing and addition of sleeping policeman. The initial timescale for these improvements is completed by the end of Q1 2016.

Conclusion

- Overall compliance for accident prevention and management are formalised in the permit by the inclusion of standard condition 1.1.1 plus improvement program 3 to finalise the provision of satisfactory containment and emergency storage facilities in the event of a fire and large tanker spillage in vicinity of waste acid tank unloading area. The improvement program in addition requires the submission of a final fire response and fire water management procedure.

Annex 2: Consultation and web publicising responses.

Summary of responses to consultation and web publication.

There were no responses linked to the web publication of the application.

There was no consultation responses raising points of concern linked to the application.

Public Health England response, dated 22/06/15, confirmed they had no areas of concern linked to the application.