

Environment Agency Permitting decisions

Bespoke Permit

We have decided to grant the permit for operated by Global Metal Finishers Limited, Unit 1-5 Moorfield Road, Blakenhall Industrial Estate, Blakenhall, Wolverhampton WV2 4QT.

The permit number is EPR/XP3335KT

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 environment 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 check list and Key Issues
- Annex 2 the advertising and consultation responses

Key Issues

1. Facility Overview

The main features of the facility are as follows.

Global Metal Finishers Ltd provides high quality metal finishing services for a wide cross-section of components. Such services include chrome plating, nickel, gold, silver and brass plating. The principal activities fall under Section 2.3 Part A (1) of the Environmental Permitting (England and Wales) Regulations. The process involves component receipt and inspection, pre-treatment and surface metal treatment. Ancillary operations include storage of raw materials, effluent treatment and solvent vapour degreasing. The site is located at grid reference SO 90930 97210. The operator has carried out surface metal treatment operations at this site since 1999 but until now below the 30 m³ vat volume capacity limit. The site currently operates Monday to Fridays. It has recently expanded and this has led to the potential for vat volume exceedance of the 30 m³ limit requiring permitting under Section 2.3 Part A(1). The current estimate of vat volume for the scheduled activity is 45m³. After treatment via the on-site effluent treatment plant the sludge is then removed off-site by a licensed contractor as a hazardous waste for partial recovery and the treated liquid discharged to sewer and is treated via Severn Trent off site treatment Barnhurst facility. This on-site treatment for disposal is a scheduled activity under 5.3 A (1) (a) Disposal of hazardous waste with treatment above the 10 tonnes per day threshold. This site has a consent to discharge in place for this sewer discharge. There are no discharges to surface water drains within the installation boundary.

Air emissions from the installation include discharges from four vat line extractions systems and a polishing line. None of the emissions breach the relevant EPR 2.07 surface metal treatment sector emission limit value benchmarks. The follow on environmental modelling conclusions are discussed in this decision document under section 9. With regard to the usage of trichloroethylene the operator during the determination has committed to stop such operations prior to permit determination. Vapour degreasing will continue as a directly associated activity but only as an enclosed operation without discharge to atmosphere.

The installation has an Environmental Management System in place and is moving towards ISO14001 certification in 2011.

In light of this it has been accepted that not all indicative BAT measures can realistically be expected to be in place immediately on the permit issue date. Certain improvements for environmental risk minimisation, beyond the measures in the application, have been required before permit determination. These include ensuring all hazardous raw materials and wastes are stored within adequate secondary containment bunding, formalisation of fire prevention and accident management procedures for vat operations plus formalisation of operating procedures for effluent treatment plant. These have been covered via pre-operational conditions.

There was insufficient information in the application for the Environment Agency to determine the Application, in particular with relation to monitoring data, modelling and environmental risk assessment. A schedule 5 notice was issued on the 17th May 2010 to provide the relevant additional information. In addition an extensive list of improvement conditions has been included with tight timeframes to raise the installation to an acceptable indicative BAT level.

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
- EU BREF Guidance Surface Treatment of Metals 2006

2. Commercial confidentiality or national security

The Operator made no claim for commercial confidentiality and the Environment Agency has not received any information in relation to this Application which appears to be confidential in relation to any party. There are no matters involving national security.

3. Operator competence/EMS

The Environment Agency is satisfied that the Operator is the person who will have control over the operation of the Installation after the grant of the Permit, and that the Operator will be able to operate the Installation so as to comply with the conditions that have been included in the Permit.

In the application form part A question 6 e) the management conditions were initially stated as not meeting our guidance.

This then led to a requirement for clarification under the Schedule 5 request dated 17-05-10.

The response clarified:

- The information provided in response to Question 3 of the 17-05-10 Schedule 5 notice on the adequacy of operator Environmental Management System for this installation confirms that an EMS is in place. The operator has provided an Environmental Manual Index which clarifies actions towards ISO14001 accreditation. The manual index is accepted as satisfactory as covering the critical requirement for an EMS including the following key area;
 - ❖ Environmental Policy.
 - ❖ Environmental Aspects and Impacts
 - ❖ Internal Audits
 - ❖ Environmental Training
 - ❖ Management Reviews
 - ❖ Environmental Control of Emissions and Discharges
 - ❖ Environmental non-conformance and corrective action form (this procedure was submitted with the schedule 5)

In an additional response dated 08-09-10 the operator confirmed that all the key EMS procedures will be in place by 30-09-10.

The certification for the installation under ISO14001 is in progress and is planned to be complete by April 2011.

Conclusion

- The EMS has been put in place only within the last few months and the EMS has to be operational for a minimum of three months period prior to ISO 14001 accreditation audit can be completed.
- Based on the list of procedures in place there is sufficient evidence to show that the key features of an EMS are in place. The progression of ISO14001 accreditation is an issue that can be progressed by the area inspector without recourse to extra permit conditions beyond standard ones listed below.
- Standard conditions 4.3.1 and 4.3.2 will ensure that the Operator maintains their responsibility with regard to incidents and complaints

4. OPRA

The Agency was not satisfied that the OPRA profile (**score of 22**) submitted with the Application is accurate following the determination of the Application. Whilst the air emission and effluent data was missing on completion of the schedule 5 monitoring the OPRA score was re-checked and no additional score was added as no emission thresholds were exceeded. In addition whilst waste disposal activity 5.3 A(1) (c) (ii) was added to the scheduled activity the OPRA guidance gives clarity that under 300 m³ per day no extra OPRA score is required (see complexity rule 9 of latest OPRA 2010 guidance for installations). The installation feed rate to effluent plant is only 65 m³ per day maximum so no extra OPRA score applies.

5. Activities

The Environment Agency has determined that the Installation comprises the following activities listed in the EPR Regulations and the following directly associated activities:

- Section 2.3 Part A(1)(a) Surface treating metals and plastic materials using an electrolytic or chemical process where the aggregated volume of the treatment vats is more than 30m³;
- Section 5.3 A (1) (c) (ii) -Disposal of non-hazardous waste in a facility with a capacity of more than 50 tonnes per day by physico-chemical treatment, not being treatment specified in any paragraph other than paragraph D9 in Annex IIA to the Waste Framework Directive, which results in final compounds or mixtures which are discarded by means of any of the operations numbered D1 to D12 in that Annex (for example, evaporation, drying, calcination, etc) (D9).

The waste disposal activity was confirmed after a final operator submission dated 28/09/10

The following activity was stated as relevant in the operator application but during the permit determination the operator has committed to stop trichloroethylene usage (response dated 10-09-10). As such this is **no** longer relevant:

- Section 7 Part B Solvent cleaning (Surface cleaning using substances or preparations which because of their content of volatile organic compounds classified as carcinogens, mutagens or toxic to reproduction under Directive 67/548/EEC on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances (**54**) are assigned or need to carry one or more of the risk phrases R45, R46, R49, R60 or R61, or halogenated VOCs which are assigned or need to carry the risk phrase R40). Threshold for this is 1 tonne solvent usage which was previously exceeded (The usage levels of trichloroethylene for last 12 months was clarified in schedule 5 response as 820 litres i.e. 1200 kg and therefore above 1,000 kg threshold for Solvent Emission Directive).

In addition the response dated 10-09-10 confirmed no other such solvents would be utilised with the above risk phrases for solvent cleaning.

The disposal of hazardous waste via the existing effluent treatment plant was confirmed to be rated to 50 m³ per day prior to vat volume increase and 60 m³ per day once permit is determined and operations taken place above 30 m³ vat volume threshold.

Directly associated activities:

- Storage and handling of input chemicals
- Pre treatment Mechanical preparation;
- Pre treatment Chemical preparation including vapour degreasing
- Post treatment including passivation and lacquering
- Rinsing;
- Drying including air and hot air drying
- Fume extraction and particulate abatement;

The directly associated activities were finalised after a clarification additional information response to schedule 5 dated 17-05-10 and further clarification in response dated 10-09-10 based on removal of trichloroethylene usage and contained vapour degreasing activities.

This information has been utilised to create Table S1.1 activities.

The activities comprise an installation because the aggregated volume of the surface treatment vats is greater than 30 m³, and hence falls under Agency regulation, as it is a listed activity. The initial application vat volume data was in error. After the schedule 5 response the vat volume was confirmed as 45 m³. This is based on definition of vats to be included and those to be excluded as referenced in Note 2.3.5 of our regulatory Guidance Series No RGN 2 Understanding the meaning of regulated facility Appendices.

6. Site plan

The Operator has provided a plan as required under condition 2.2.1, which the Agency considers is satisfactory for showing the site of the Installation and its extent. The installation covers the majority but not all of the GMF Blakenhall Industrial Park site. The parts excluded are offices and general store rooms plus activities not technically linked to the surface metal treatment process. After various discussions a final site plan with installation boundary in green was submitted dated 13-09-10.

The site on which the Operator is located on the Blakenhall Industrial Park and is surrounded on two sides by industrial units. The remaining borders are school playing fields and a public swimming pool.

7. Site Condition Report and Protection of the Site

The Operator has provided a Site Condition Report as required.

This report covers the following areas:

- Installation Details
- Condition of the land at permit issue
- Permitted Activities
- Compliance and Incident History
- Site Plans and Maps
- Environmental Setting including Ecological and Biological Quality Information
- Groundwater assessment but without intrusive reference sample data
- Surface Geology Data
- Sites of Special Scientific Interest (SSSI) information within installation screening distances

In general terms the current operator has been running a surface metal treatment operation for the last 11 years underneath vat volume criteria requiring an EPR permit. Surface metal treatment operations have been carried out at this site for fifteen years before that by other operators. In a wider context the site is located in an area has a history of industrial use for over 160 years and is still significantly industrial.

Potentially significant polluting substances include substances listed in the Groundwater Directive (pre-treatment acids, cyanide and chromium compounds) and these have been identified by the operator.

Almost all areas of the Installation are covered by hard standing. Process effluents from within the Installation are collected in site drainage systems and fed to the effluent treatment plant prior to discharge to sewer (liquid) or solid waste (disposal off-site).

The site condition report was reviewed by our relevant Ground Water and Contaminated Land team. Their comments on the adequacy are as follows. Whilst the key elements of the site condition report have been included in compliance with our H5 guidance, the justification was not initially fully made in the report to show no historical contamination of ground water and land by the operator.

In the schedule 5 response dated further justification for no historical contamination were given as follows:

- Only two incidents have been recorded in the ten years of surface metal treatment carried out by this operator at this site. Neither of these impacted ground water and land emissions.
- The site hazardous raw materials storage is located on hard standing. Although not all hazardous raw materials historically were banded, the final liquid waste storage tank prior to effluent discharge is banded.
- In addition visual inspection of manhole covers and drains is undertaken periodically across the site.
- There are no underground tanks or associated pipe works onsite.
- The main surface treatment area includes vats which are double skinned to act as their own containment bunds.
- In addition the main surface treatment building has an integral complete building bund of 100 m3 volume capacity.

Conclusions and actions:

- The Environment Agency considers with the additional justification that the likelihood of historical contamination to groundwater and land is minimal and no intrusive sampling is required to underpin the site condition report.
- However going forward actioning need to be taken as discussed in fugitives emissions and improvement programme sections to implement bunding of hazardous raw materials and to provide controls and checks for containment measures on site in a formalised manner.
- The Environment Agency considers that this report adequately describes the condition of the site and in particular identifies any substance in, on or under the land that may constitute a pollution risk.

8. Multiple Operator installations

This is not a multi-Operator installation.

9. Environmental Risk Assessment

Introduction

The environmental risk assessment submitted with the application had insufficient detail to review. Atmospheric emission data was limited and effluent emissions data non-existent. This led to a schedule 5 request dated 17-05-10 for monitoring data and the subsequent H1 modelling. The details are provided below. In addition a further response dated 13-07-10 from the operator confirmed that the application risk assessment summary of releases table was incorrect and no mercury is utilised in the process and no releases to effluent of mercury occur whatsoever.

Generic Process Operations BAT measures assessment.

No such assessment was provided with the application. An additional information response received 30-07-10 and later additional responses 08-09-10 and 10-09-10 clarified the status of the current process with improvement actions and timescales.

Activity	Current Techniques	BAT Comparison	Actions
Material storage and handling (EPR 2.07 section 2.1)	Hazardous chemicals like Cyanide are stored in a secured area. Other dry chemicals are stored on racks with proper labelling. Liquid chemicals and acids/hypochlorite etc are stored in containers /IBCs at a designated area	Storage and handling procedure to be developed Accidental spillage prevention and control procedure in place	To develop and implement Storage and handling procedure by end of September 2010
Organic solvent degreasing of metal components (EPR 2.07 section 2.2)	Vapour degreasing utilising TCE discharge to atmosphere	Tce usage stopped by end of September 2010. Enclosed solvent activities to be only method for solvent vapour degreasing.	On-going review to move to ultrasonics and aqueous cleaning techniques. Linked to improvement programme 1.

Activity	Current Techniques	BAT Comparison	Actions
Mechanical preparation (EPR 2.07 section 2.2)	Some types of high finish / specification work may require to remove rust or heat scale before subject to chemical treatment. This is done by mechanical stripping/scraping	To prove containment of fugitive emission	Demonstrate BAT compliance by a procedure by the end of September 2010
Chemical Preparation (EPR 2.07 section 2.2)	A clean surface is essential for satisfactory surface treatment operations. hot alkaline soak and electrolytic cleaners are usually used	Proprietary cleaners are used Metal components are rinsed to remove any hazardous metals being dragged over Maintenance of adequate freeboard above the cleaner level is done	
Pickling (EPR 2.07 section 2.2)	When it is required to remove oxides or heat scale, a further step known as pickling is required, acid pickling is adopted at GMF	After acid pickling, metal components are rinsed to remove any hazardous metals being dragged over to the next stage. Maintenance of adequate freeboard above the cleaner level	
Surface Treatment Electroplating (EPR 2.07 section 2.3)	Different processes are carried out at GMF, mainly including Soaking-cleaning/Acid pickling/bright dip/rinse at all stages and drying	Metal components are rinsed to remove any hazardous metals being dragged over Maintenance of adequate freeboard above the cleaner level is being done	On-going programme to encourage customers of operator to accept surface treatment methods without CrVI usage.
Rinsing (EPR 2.07 section 2.4)	Water rinse is done adequately with water being reused as much as possible	Metal components are rinsed to remove any hazardous metals being dragged over after each stage of the process Reuse of water for multiple batches is in place	Water reduction programme to be outlined by end of September
Drying (EPR 2.07 section 2.5)	Treated work is usually dried on-line in a hot air recirculated oven.	Programme for reduction of energy	To develop a plan of action to reduce energy consumption-target date end of September 2010
Fume extraction (EPR2.07 section 3.2)	Extractors are in place on process tanks	COSHH requirements need to be met.	End of September 2010

In addition the vats have lids to minimise evaporation of surface metal treatment chemicals to atmosphere via the vat line local exhaust ventilation systems. It is the operator's view that such lids offer optimum environmental benefit over croffles (plastic balls) laid on the top of vat surface treatment chemicals.

One additional request dated 12-08-10 required the operator to provide evidence that no further steps could be made to substitute or minimise usage of CrVI for other less hazardous chemicals. The response received 10-09-10 confirming that apart from process efficiencies to reduce usage levels, the operator has actioned an on-going campaign to contact customers and encourage substitution of chromium VI usage wherever possible. This satisfies the criteria under Environment Agency Surface Metal Treatment Guidance S2.07 version 2009 section 2.3 for indicative BAT.

Atmospheric.

As background Wolverhampton City Council has established a Local Air Quality Management Area (LAQMA) surrounding the city centre which covers PM10 and NO2 emissions. The GMF site is within this LAQMA.

In terms of abatement there is only one abatement system. This is a cyclone system for particulate removal designed for > 10 micron particles of the stack W emission. This was confirmed by the additional information response received dated 08-09-10 and question 1 response. Such cyclone filtration is daily inspected to ensure in correct working condition and there is a weekly maintenance and internal cyclone particulate removal in place. The sector guide EPR 2.07 has no formal BAT measures for particulates however as the equipment has been in place for many years and emission monitoring is < 10 mg/Nm3 where benchmark is 50 mg/Nm3 then the abatement is considered indicative BAT (see details of monitoring below). The 2006 Bref for Surface metal treatment and Table 5.4 do however detail cyclones as an appropriate BAT measure for particulate removal.

The environmental H1 risk assessment covering atmospheric emissions was only partially complete. Emission point have been listed (emissions identified B to X) in the supplementary application H1 assessment. Potential emissions of trace metals, particulates, free cyanides and HCL were identified. However the only monitoring data provided related to particulates and trichloroethylene. Stack X is

attached to lacquer ovens which emit process heat. No metal particulates or VOCs are emitted and the operator has made a justifiable case for insignificant environmental impact and therefore is no requirement for stack monitoring.

The emission point listing was not clear to reflect the correct emissions linked to the installation schedule activities and related directly associated activities. A schedule 5 response was required (question 5) to review the emission points, provide complete monitoring and perform a H1 Part 1 screening assessment against the emission limit value benchmarks in S2.07 Annex 1.

The schedule 5 response confirmed that the critical emissions were C, D, E, F, Q and W as listed in operator risk assessment. The emission point Q is linked to vapour degreasing unit. The response dated 08-09-10 confirmed no trichloroethylene usage and the further response dated 10-09-10 confirmed that vapour degreasing will only be performed in an **enclosed** fashion with no discharge to atmosphere. In addition the 10-09-10 confirmed also:

a) The solvents will be chosen to minimise environmental hazardous and **not** include risk phrases as per Environmental Permitting SED activity limited at 1 tonne annual consumption

- Section 7 Part B Solvent cleaning (Surface cleaning using substances or preparations which because of their content of volatile organic compounds classified as carcinogens, mutagens or toxic to reproduction under Directive 67/548/EEC on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances (**54**) are assigned or need to carry one or more of the risk phrases R45, R46, R49, R60 or R61, or halogenated VOCs which are assigned or need to carry the risk phrase R40). Threshold for this is 1 tonne solvent usage which was previously exceeded (The usage levels of trichloroethylene for last 12 months was clarified in schedule 5 response as 820 litres i.e. 1200 kg and therefore above 1,000 kg threshold for Solvent Emission Directive).
- The process will operate as such that the lower hazardous solvent limit for SED of 2 tonnes per annum is not exceeded and hence this will be a directly associated activity only.

On the above basis emission point Q is to be excluded from the permit and no risk assessment performed.

A summary of monitoring against parameters with available emission limit values is as follows (max levels given from three sets of monitoring per parameter):

Emission point reference	Emission point description	Parameter	Sector Benchmark Value in mg/m3	Emission limit monitoring data in mg/m3
C	Rose line vat extraction	Chromium VI and its compounds as chromium	1.0	0.002
C	Rose line vat extraction	Nickel and its compounds	2.0	0.16
C	Rose line vat extraction	Hydrogen cyanide	5	0.4
C	Rose line vat extraction	Hydrogen chloride	10	3.9
D	Main and lacquer vat line extraction	Chromium VI and its compounds as chromium	1.0	0.0015
D	Main and lacquer vat line extraction	Nickel and its compounds as chromium	2.0	0.08
D	Main and lacquer vat line extraction	Hydrogen cyanide	5	0.7
D	Main and lacquer vat line extraction	Hydrogen chloride	10	2.8
E	New vat line extraction (Ni)	Nickel and its compounds	2.0	0.02
E	New vat line extraction (Ni)	Hydrogen cyanide	5	4.3
E	New vat line extraction (Ni)	Hydrogen chloride	10	1.0
F	New vat line extraction (Zn)	Chromium VI and its compounds as chromium	1.0	0.006
F	New vat line extraction (Zn)	Hydrogen chloride	10	2.4
W	Polishing line extraction	Total particulate matter	50	8.9

Notes

(1) Total chromium measured and 10 % conversion criteria utilised by operator has been applied to create Cr VI data.

(2) PM 10 - assumption has been made that all trace metal emissions are in the PM10 fraction.

One point of clarification is that unlike some surface treatment plants no cadmium or lead is used on site.

Conclusion: All emissions based on monitoring data supplied with the schedule 5 response are in compliance with sector emission limit value benchmarks

H1 Part 2 screening.

The above data was utilised to perform a H1 Part 2 screening. Trace metal PM10 fraction data was utilised to carry out a PM10 assessment. The assessment was performed for each emission point.

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.

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 µg/m3	Short Term EAL µg/m3	PC % of LT EAL listed per emission point	PC % of ST EAL	Comment
Hydrogen Cyanide	-	220	-	C 0.9 D 5.5 E 13.6	C/D Insignificant E Marginal not insignificant. But other data < 10 %
Nickel in PM10 fraction	0.02 (Note 1)	-	C 42.3 D 63.5 E 7.1	-	All Not insignificant Total installation mass emission for Ni 7.9 kg – low level
Hydrogen Chloride	-	750	-	C 2.5 D 6.7 E 0.9 F 0.02	Insignificant
Copper dusts and mists as Cu	10	200	D 0.026 E 0.0019	D 6.5 E 0.5	LT and ST Insignificant
Chromium VI oxidation state in the PM10 fraction	0.0002		C 58.9 D 123.75 F 165.29		C Not Insignificant D/F Significant Note total mass negligible 0.24 kg per annum, CrVI for installation
Total PM10	40	50	C 0.48 D 1.38 E 0.86 F 0.36	C 20.8 D 118.2 E 74.2 F 20.9	LT Insignificant. Note for D average for all emission data < 1 % of ST EAL. ST Not insignificant C/F ST Significant D/E

Notes linked to above modelling are as follows:

For long term data the plant was assumed to be in operation and emitting continuously during normal operating hours. This is unlikely to ever taken place. The hours of operation utilised were as per operator response 23-07-10 - 9 hours per day for five days a week over 45 weeks totalling 2025 hours per annum.

In general terms the following comments apply to the LAQMA for PM10 and NO2 and the installation process contribution. There are no boilers or gas fired process equipment utilised on site and the NOX emissions on site are negligible.

In general terms the stack heights for all the emission points are based on 3 metres above adjacent roof buildings and the efflux velocity are based on standard engineering design of a minimum of 15 m/s.

Conclusions:

From the above initial screening assessment the following conclusions come:

- 1) Copper, HCN and HCL installation process contributions are insignificant. No further assessment is required.
- 2) PM10 long term process contributions are insignificant and short term not insignificant for C/F stacks and significant for D/E.

PM10

The total PM10 mass emission is 37 kg a negligible fraction 3.7 % of 1000 kg limit for reporting for annual pollution inventory.

The Long term contributions are insignificant. For the short term the data is hugely variable and for stack emissions C and F some of monitoring data classifies process contributions as insignificant (above table utilities worst case of monitoring data). The modelling is further potentially conservative in light of assumption that all trace metal emissions are in PM10 fraction. In view of the site having operated for 10 years and emissions C and D already being in the LAQMA background plus the LT installation PC being insignificant the decision has been made to allow permit determination but with a relevant improvement programme in place (**improvement programme 2** see details in section 17 of this document).

Background data for PM10 for the nearby Parkfield Road/Birmingham Road junction from 2003 to 2004 when plant was in operation (excluding two new vat lines) gave the following results

Annual mean: 27 µg/m3 relative to 40 µg/m3 Air Quality Standard (AQS).

Number of exceedances above 50 µg/m3 25 hour AQS was four relative to allowed 35.

In brief therefore the AQS levels are not exceeded in immediate vicinity of the installation from 2003/4 data with site operating at that time integrated into this background but the new vat lines needs to be assessed for their contribution. In light of this the improvement programme 2 has been actioned.

In summary

- Improvement programme 2 requires a re-modelling for PM10 to ensure AQS is not breached and requires an action plan if AQS is breached to ensure compliance.

Nickel in PM10 fraction

The long term process contributions are assessed as not insignificant relative to EU Air Quality Framework Directive & Daughter Directives Target Value of 20 nanogrammes/m³ (by 31/12/12). The PC's are extremely variable (see table above). H1 annex f guidance clarifies that this AQS should require introduction of no more than indicative BAT measures and should not lead to the closure of installations. The benchmark emission limit values as set out in our EPR 2.07 guidance of 2.0 mg/m³ have been fully met by this operator with all stack emission monitoring < 10 % of this value. This is utilising data where all the Nickel content is estimated to be in the PM10 fraction without firm evidence either way to justify this position.

It should be further noted that the total mass emission of nickel from the installation is estimated at < 8 kg and hence minimal. Also this is based on a worst case scenario of 100 % usage during 5 days a week operating hours which is highly unlikely plus the highest monitoring data was utilised to perform the H1 modelling.

In light of the process BAT review response in the table above it is considered that the operation has implemented standard process techniques to minimise nickel discharge to atmosphere. In particular the operator has found the usage of vat lids more effective than the usage of croffles (plastic balls on liquid surfaces). However to ensure on-going progress an Improvement programme 2 requires re-modelling of nickels levels to estimate total installation PC in more detail. This is to ensure that the AQS is complied with. The programme as detailed below in the relevant section concludes with the action to provide an improvement plan to ensure AQS compliance if modelling still displays a potential breach. In addition the atmospheric monitoring table S3.1 will include monitoring of nickel and its compounds "as requested by the Agency" in order to allow the site inspector flexibility for follow on monitoring if required after review of improvement programme 2 response. No emission limit value has been set deliberately, as to do so would be to allow operator to run plant at nickel levels over 10 times that provided in the schedule 5 response. In contrast the purpose of this monitoring is to ensure ongoing compliance with AQS as the site inspector believes necessary.

Chromium VI in PM10 fraction.

The long term process contributions for stack C are classed as insignificant and for stack D/F as significant relative to Environmental Assessment Levels for Air for CrVI in PM10 fraction of 0.2 nanogrammes/m³. For stack emissions D and F the EAL is assessed as being exceeded. There is no statutory standard for Cr VI. As such this value is a guideline only. There has been considerable discussion on this recently introduced standard and the realism of achievement. This is borne out by the benchmark standards for Cr VI being complied with for all stacks (highest monitoring data 0.006 mg/m³ relative to EPR2.07 benchmark for CR VI being 1.0 mg/m³). In addition the mass emission for CrVI is insignificant at < 0.3 kg per annum. This is relative to pollution inventory reporting threshold of 10 kg highlighting the low impact.

In light of the process BAT review response a further request was made to assess current operator measures to minimise CrVI usage. The response received 10-09-10 confirming that apart from process efficiencies to reduce usage levels, the operator has actioned an on-going campaign to contact customers and encourage substitution of chromium VI usage wherever possible. The operator is also providing support with changing customers over to the trivalent chrome. The operator aim is to transfer 25% of our existing customer base to tri chrome and the operator aims to eliminate its usage within 3- 4 years.

This satisfies the criteria under Environment Agency Surface Metal Treatment Guidance S2.07 version 2009 section 2.3 for indicative BAT.

Conclusion

Although the H1 screening classifies PC for CrVI as not insignificant/significant for the various stacks, in reality the Cr VI mass environmental emission from the installation is negligible.

For improvement programme 2 CrVI re-modelling is required with specific aim to ensure compliance with EAL. The programme as detailed below in the relevant section concludes with the action to provide an improvement plan to ensure AQS compliance if modelling still displays a potential breach.

Effluent Emissions

There was no monitoring data on effluent emissions submitted with the application. The only data provided was the discharge consent details from Severn Trent (see below). Consent discharge reference is 492/23032030. Currently there is no flow restriction on this consent; however the operator is in discussion with Severn Trent to ensure the new production levels are incorporated into a revised consent.

One emission point to sewer was confirmed within the application supplementary information (S1) from the on-site effluent treatment facility. All foul drains on site from the plating vat lines, washrooms and all other areas are routed through this facility. The effluent is treated off-site by the Barnhurst Sewage Treatment works owned by Severn Trent and is then discharged into two canals (Staffordshire and

Worcestershire Canal and Shropshire Union Canal). The installation is under a Severn Trent consent to discharge compliance and the final Severn Trent Barnhurst sewage treatment outfall is under an Environment Agency consent number 5/06/55227/R.

There are two main process waste streams discharged to this facility: the alkaline and acidic streams.

- The acidic effluent (containing chrome) is neutralised using sodium hydroxide and the alkaline effluent (containing cyanide) is destroyed during sodium hypochlorite.
- Effluent is adjusted for pH to ensure metal are converted to insoluble hydroxides.
- It is then treated with anti-foam, flocculent and piped to a sludge tank.
- Metal hydroxides are compressed out producing filter cake – taken and disposed off-site as a waste.
- The liquid passing the filtered is stored, check again for pH, adjusted as required and discharged to drain.

The on-site effluent treatment facility measures pH and Cyanide concentration in alkaline stream plus Chromium concentration in acidic stream with associated alarms. In the application no detail of follow up actions were provided if alarms were activated. The schedule 5 provided the following details:

Alarm activation leads to effluent feed to ETP stop and final waste is not released to sewer.

- In event of a total ETP Failure, production is stopped until the issue is resolved

Further details were given in response dated 08-09-10 as follows:

- The effluent treatment plant is manually checked and holding tanks topped up at least twice per day when excess sludge is also drained.

A typical batch discharge of effluent is 50 m3 before schedule activity threshold exceeded and 60 m3 after threshold exceeded. The 7,400 m3 annual effluent figure is provided in the risk assessment within the application supplementary information.

The application purely supplied a copy of the Severn Trent Consent to Discharge for this emission point.

Substance	Consent to Discharge limit (mg/l)
Free Cyanide	-
Chromium VI	-
Chromium Total	7
Copper	5
Lead	-
Zinc	-
Nickel	7

Other general limits set by the Consent to Discharge include:

- The total of suspended solids shall not exceed 400 mg/litre.
- The COD from acidified dichromate shall not exceed 600 mg/litre.
- The maximum COD load in the trade effluent to be discharged during any period of 24 hours shall not exceed 15 kilograms.
- The temperature shall not exceed 43 C.
- The trade effluent must be free from physically separable dispensed or emulsified oil and soluble oils.

There is no flow limit.

BAT review

Subject	Detail of BAT measure	Operator facility	Comment
Handling	Dedicated storage tanks	Exists with separation of incompatible materials	Indicative BAT in place
Handling	Batch treatment facility for small scale treatment	Exists with final storage tank banded	Indicative BAT in place
Handling	Effluent system should be designed so as to prevent process effluent by-passing	In place	Indicative BAT in place
Treatment Objectives	Consent compliance	Consent complied with in the main. Occasional breaches. Need to optimise controls and procedures.	Indicative BAT based on procedure review and formalising
Primary treatment	Chemical pre-treatment	In place with split of acidic and alkaline streams	Indicative BAT in place
Primary treatment	Pressure filtration of final	Filtration to filter cake in	Indicative BAT in place

	stream	place	
Secondary/tertiary treatment	Filtration to remove fine suspended solids to achieve 1 to 3mg/l for metals	ETP operates below consent with Ni @ 3 mg/l typically and Cu, Zn and Total Cr < 2 mg/l	Indicative BAT in place

In summary the majority of indicative BAT measures are in place. However consent to discharge breaches exist requiring procedural improvement as discussed below.

The pre-operational condition 3 for detail see section 16 has required formalising of the current informal effluent treatment procedure into a written document with the specific aim to optimise treatment process controls for Severn Trent consent to discharge compliance.

Monitoring and Assessment

The Schedule 5 response included a summary of three months effluent monitoring data for S1 discharge.

A summary of data is provided below:

Substance	Consent to Discharge limit (mg/l)	EA S2.07 benchmark emission limit value	Peak	Average	Comment
Free Cyanide	-	0.2			
Chromium VI	-	0.1			
Chromium Total	7	1	8.2	1.6	1 consent breach
Copper	5	1	10.4	1.7	2 consent breaches
Lead	-	0.5			
Zinc	-	2		1.2	0 consent breaches
Nickel	7	1	19.1	3.2	2 consent breaches

In summary the average figures are comfortably within the consent limits. Zinc levels are within our guidance benchmarks with copper and total chromium only marginally above. Nickel is within consent but 3 times our benchmark.

In brief the plant in general is in compliance with consent to discharge but there are one off breaches.

Barnhurst Effluent Discharge data from Environment Area records submitted by the operator in schedule 5 response: Data from July 2008 to March 2010.

Substance	EA Barnhurst effluent treatment discharge consent limit µg/l	Peak µg/l	Average µg/l	Comment
Chromium Total	100	6.1	1.5	In compliance with EA benchmark
Copper	100	26.9	3.7	In compliance with EA benchmark
Zinc	400	317	101.8	In compliance with EA benchmark
Nickel	150	155	38.6	In compliance with EA benchmark

Conclusions and actions

- All final emissions were data available to surface waters are in compliance with EA benchmarks
- GMF emission is insignificant based on compliance with ST consent to discharge and only a fraction of total flow through Barnhurst effluent treatment plant 60/ 47,500 m3 i.e. 0.1 %.
- Free cyanide – no emission data has been submitted as an initial review has clarified that ST do not monitor for cyanide.

The operator has supplied information based on Environment Agency public information for a comparable surface metal treatment site with a similar on-site effluent treatment site.

The data showed emission concentrations averaging 0.17 mg/l immediately downstream of the effluent treatment facility relative to the sector guidance of 0.2 mg/l. The results show the capability of such an on-site effluent treatment facility to provide adequate control.

However without specific site data no final assessment can be completed. In light of this an **improvement condition 4** has been inserted to provide free cyanide effluent monitoring data and perform a modelling review versus H1 Annex (d) relevant Environmental Quality Standards.

ETP procedure

In a two year period five consent to discharge breaches occurred. Whilst the consent is complied with in majority of incidents there is a lack of robust control to prevent one off breaches. This has been rectified by a pre-operational condition 3 requiring such a procedure to be sent with regard to process control, sampling and consent compliance via review of on-site effluent treatment controls against EPR 2.07 sector guidance BAT measures. Currently the AEP6 effluent failure procedure appears to

uniquely call for supervision or management to be informed in light of alarm activations. There is a clear risk of out of compliance discharges to sewer relative to the consent discharges taking place before such corrective actions are taken.

10. Raw Materials and Water

The use of raw materials and water are some of the available techniques for emission prevention and control and are therefore part of the determination of BAT for the installation. In addition "the consumption and nature of raw materials (including water) used in the process" is one of the factors to be considered in determining which of the other available techniques are BAT. The Agency has assessed the proposals set out in the Application in response to question B2.4, in section 2.4 of the Application.

The substitution of raw materials by less hazardous substances has been considered in the Application, in particular in relation to trichloroethylene (tce), chromium VI and cyanide.

Chlorinated Solvents

A response dated 08-09-10 stated that Trichloroethylene use will have stopped before permit determination. The operator is looking at ultrasonics and aqueous cleaning as alternatives. This review is covered under *improvement programme 1*.

Cyanide compounds

These are utilised in the electro-deposition of certain metals onto components. Cyanide usage has been in the main found to be the optimum process solution. One usage has been replaced where typically utilised for cyanide base zinc plating. Instead the operator utilises alkaline zinc in all cases.

Hexavalent /Trivalent Chromium Compounds

Where possible the less harmful trivalent has been utilised e.g. on the Lacquer (rack) line. The operator is currently investigating alternatives to the Hexavalent passivate employed in the barrel zinc finishing process.

These measures are considered satisfactory in theory and the standard Condition 1.3.1. will ensure that the operator maintains this position. However to ensure progress the improvement condition 2 on process BAT guidance review includes a specific reference to chromium VI substitution as outlined in section 2.3 of our EPR2.07 issue date 2009 Surface Metal Treatment Guidance.

Water usage was not clearly identified in the application. A schedule 5 response confirmed the following:

- Water usage is 65 m³/day
- Steps to manage and minimise water usage the operator has in place and future plans:
 - The operator has informal reviews to re-utilise water wherever possible. The schedule 5 response confirmed improvements to be made to include
 - Water minimisation staff training
 - Water usage base line audit of current usage confirmation of total and sub usage water levels
 - Mass balance review and improvement plan
 - Implement controls to sustain the improvements.

Conclusion

- The implementation of above such measures can be monitored and ensured via permit condition 1.3.1 raw material usage and especially 1.3.1 (c) requiring a review at least every four years.

11. Conditions relating to Waste Handling and Storage

Waste handling and storage techniques are some of the available techniques for emission prevention and control and are therefore part of determination of BAT for the installation. The Agency considers that the Applicant has only partially appropriate measures in place for the storage and handling of waste to prevent releases during normal operations and to minimise the potential for accidental releases.

Systems are in place for recording the quantity produced, its nature, origin and disposal routes for all waste produced at the Installation. Storage areas are subject to regular inspections. Waste water prior to discharge to sewer is stored in a dedicated tank with bunding. This is by far the highest volume liquid waste stream (7,400 m³ per annum).

The additional information response received 08-09-10 confirmed that the waste volumes in the H1 risk assessment, in the supplementary information with the application, are accurate going forward accounting for the addition of vat volume to the full volume of 45m³ as stated in the application.

All tanks are on hard standing. Improvements are in hand related to the final discharge of ETP filter cake to packaging to minimise fugitive particulate emissions.

The operator has voluntarily pinpointed that whilst the final effluent storage tank is bunded two further key actions are needed:

- Raw materials dosage to effluent treatment area is to be upgraded with a dedicated bund for IBC (see fugitive emission section for details)
- Proper segregation of waste materials with implementation of a dedicated waste area.

The operator has committed to action both measures.

The schedule 5 dated 17-05-10 and question 16 requested clarity on waste disposal procedures. The response included a waste disposal procedure (EMP14). This covers the following areas:

- a) classify all wastes
- b) decide when waste needs to be disposed of
- c) ensure that all wastes are correctly handled, stored, labelled and packaged and that where appropriate, relevant training is given to personnel dealing with waste.
- d) arrange for waste to be disposed or recycled
- e) check and select waste contractors
- f) complete Waste Transfer Notes correctly
- g) employ a suitable, registered controlled waste contractor.
- h) maintain waste records within a central waste file

As such the operator is aware of and complies with their responsibilities under the Hazardous Waste Directive.

Conclusion

The importance of correct bunding of all hazardous materials has led to a pre-operational condition (see *section below and condition (1)*) to ensure such containment measures are in place before schedule activity operations commence.

The standard Permit Condition 1.4.1 will ensure that the Operator maintains this position.

12. Odour

On consideration of the Application, the Environment Agency considers that the activities carried out at the installation do not have the potential to cause odour and in any event any odour is not likely to cause an odour nuisance beyond the site boundary and that the Applicant's proposals in respect of odour control represent BAT. The Agency therefore considers that the standard Condition 3.4.1 is appropriate and sufficient. The Applicant has identified potential sources of odour emissions in their supplementary application information section 1.3 and associated H1 Part1 odour assessment. Initial assessment clarified two potential odour sources

- Polishing vat local exhaust ventilation emissions
- Lacquer oven extraction.

The local Astro turf next to the factory was considered a potential sensitive receptor.

No odour assessment beyond this initial statement was contained in the application. Hence a fuller assessment was required under the Schedule 5 notice dated 17-05-10. The response dated 08-09-10 stated that whilst initial assessment raised these applications for review under odour potential, the reality is that for over eleven years the operations have been running without any odour issues and odour complaints. As such no further assessment is considered required.

Conclusion

- No significant odour issues within installation boundary.
- Standard odour condition included to ensure compliance going forward but not the stricter requirement mandating an immediate Odour Management Plan (see condition 3.5.1 and 3.5.2 as below)

3.5.1 *Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.*

3.5.2 The operator shall:
if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency for approval within the period specified, an odour management plan;

13. Fugitive emissions

The operator has performed a H1 Part 1 screening assessment (see supplementary information Table A3). Six potential hazards were identified.

The main hazards in the original risk assessment are linked to the usage of trichloroethylene (tce), dichloromethane and cyanide powder. Subsequent to the application the operator has committed to stop usage of tce removing three of fugitive emission hazards.

Infrastructure, procedures and training are in place for each of the remaining hazards. The usage of lids on vats is aimed to reduce evaporative fugitive emissions.

After the schedule 5 fuller details of fugitive controls were provided in a Control of Emissions and Discharges EMP 12 procedure. This covered key areas such as:

- Site Drainage Plan as a baseline of information

- Discharges to Sewer (and clarity on no surface discharges to surface water directly within installation boundary)
- Drainage Maintenance
- Emissions to Air Controls
- Internal Audits for compliance with above.

The response dated 08-09-10 and question 2 response confirmed that all EMS procedures including EMP 12 will be in place by the end of September 2010 which aligns with permit determination. In particular this response further detailed improvements to raw materials storage in line with fugitives and accident management initial H1 assessment screening. This will allow for a new dedicated raw materials area for dry acids, cleaners, nickel sulphate and nickel chloride. This area will be bunded via usage of "sleeping policeman" to greater than > 110 % of individual IBC's and containers plus > 25% of total volume. The previous raw materials were not so clearly located and there was no appropriate bunding. This is in turn will be completed by the end of September 2010.

In addition for the effluent treatment plant a more automated facility is to be installed for addition of Sodium Hypochlorite, hydrochloric and sulphuric acid to this plant for pH adjustment and treatment. This will avoid manual handling plus health and safety issues related to manual additions of such chemicals and prevent general spillage due to manual additions. The area will be bunding with a permanent brick wall completed to 110 % of individual total volumes.

The current main surface treatment building has a bund wall around the whole installation process area equivalent to 106 m3. This acts as a secondary bund for the process vats and the general surface treatment process area for this area.

The key exception is the rose vat line where there are no bunds currently in place but a plan is in place to action before the determination is complete. This is critical as these old vats handle trivalent and Hexavalent Chromium and Nickel. Again this is covered by pre-operational condition 1 detailed below in section 16.

As a final back up bunding the whole site including the installation and also general areas not included within the installation are to be contained within a sleeping policeman system effectively making the whole site one big bund.

Conclusion

The Environment Agency has assessed the Operator's proposals for control of fugitive emissions and considers that they will meet the regulatory requirements, dependent on improvements to bunding to hazardous raw materials and wastes being implemented. The confirmation that the key EMP 12 procedure as part of operator's EMS ensures such fugitive controls are in place and regularly re-assessed Standard condition 3.2.1 and 3.2.2 will ensure that the Operator maintains this position.

14. Noise and Vibration.

With regard to the site equipment and installation at the time of the application no potential noise hazards were identified in a H1 Part1 noise assessment. After a site visit and the experience of our site inspector this was accepted. No noise complaints have been received. This is backed up by the installation currently having minimal equipment mounted externally. Further the operator has committed to regular site checks and maintenance procedures to maintain the equipment condition to prevent equipment deterioration leading to abnormal increased noise issues beyond the installation boundary. This commitment will be underlined by the standard noise condition 3.4.1.

15. Accident prevention and control

A H1 Part1 risk assessment screening exercise has been carried out and twelve potential hazards identified. Each hazard has been assessed; a risk factor allocated and risk management actions outlined. The top risks were identified as linked to

- a) fires and toxic releases to air /smoke and firewater discharge to controlled waters
- b) loss of containment of hazardous materials
- c) failure of Effluent Treatment Plant leading to uncontrolled discharge to sewer.

The major controls already in place include:

- Fire detection and alarm systems
- Incompatible materials separately bunded (e.g. Cyanide and HCL storage)
- Limiting raw material storage quantities
- Provision of chromium VI and cyanide in solid form
- Maintenance of tanks and bunds.

An overview of the installation Accident Management Plan was submitted with the application. Emergency events were itemised. However a summary of the procedures for reacting to such events were not provided (apart from fire procedure). Specifically within the fire procedure summary in the accident management plan section the operator stated that the contaminated fire water potentially would not be fully contained, leading to uncontrolled tank overflows.

Whilst some controls were in place for minimising these risks as listed in the H1 assessment, the robustness of the infrastructure and procedures to minimise risk and impact of accidents was not sufficiently clear.

A schedule 5 request dated 17-05-10 requested clarity on such risk minimisation and in particular the inherent surface metal treatment vat usage process design, procedures to minimise the risk of fire occurring and the procedures to prevent a consent to discharge breach in the event of a fire. The response to question 10 provided an Emergency Preparedness and Response procedure to ensure an overview management procedure to handle accidental emergencies.

Additional responses were given to specific risks under response 8 and 10 as follows:

- Fire prevention - No clear fire prevention strategy and controls are formalised. This has been required under pre-operational condition 2. The fire procedure AE2 covers more the procedure in the event of a fire as opposed to fire prevention measures.
- Fire water management – A 106 m3 bund is in place within main surface treatment building. From the experience of a fire in 2004, the operator has some guidelines in place for the usage of this bund to receive fire water in an emergency and measures to prevent fire water entering the off installation but on site surface water drains. These guidelines need to be formalised and this is covered in pre-operational condition 2.
- Loss of containment of hazardous materials to Controlled waters – Several management procedures are in place to minimise chromium (VI) and cyanide fugitive discharge to off installation but on site surface water drains. These include supply in solid form, minimisation of usage and storage levels and storage away from incompatible substances. The formalising of such procedures and the review of the adequacy of the controls in the event of an accident are the subject of pre-operational condition 1.
- In general the accident management procedures as listed in the new EMS were provided :

AEP1 Spillage response, AEP2 Fire, AEP 3 Gas Leak, AEP4 Release of Acidic /Toxic Fumes to Atmosphere, AEP5 Accidental Mixing of Incompatible Substances, AEP 6 Failure of Effluent Tanks and Process and AEP-7 Emergency Contact List.

In brief these show progress but appear as aspirations for procedure as opposed to actual working procedures. Hence the requirement in pre-operational condition 2 for a review to show controls as per H1 Part 1 assessment are actually in place and functioning.

A final submission dated 08-09-10 confirmed that accident management procedures will be included in EMS and implemented by 30-09-10. However the actioning of controls stated in initial H1 screening was not confirmed and this is covered by pre-operational condition 2 (see section below).

The site is not subject to the Control of Major Accident Hazard Regulations

Conclusion

- Overall compliance for accident prevention and management are formalised in the permit by the inclusion of standard condition 1.1.1.
- Formalised actioning of accident management plan controls linked to initial H1 assessment to be covered in *pre-operational condition 2* and discharge to controlled waters issue covered in *pre-operational condition 3*.

16. Pre-operational Conditions

Condition 2.5.1 allows the imposition of conditions in respect of “steps to be taken prior to the operation of the installation.”

The Environment Agency considers that there are a minimum set of requirements that need to be met to allow the commencement of permitted activities (surface metal treatment with vat volume above 30 m3). These are three critical requirements:

- 1) Hazardous materials containment to prevent fugitive emissions especially to controlled waters
- 2) Accident management including fire prevention and management and chemical incident prevention and management.
- 3) Effluent Treatment Plant formalised written operating procedure.

In brief although elements of responses have been given during determination to the following issues no complete coherent response has been supplied. For example information on effluent treatment practices has been given but there is no clear evidence of an actual written effluent treatment operating procedure.

The pre-operational conditions are detailed in Table S1.4 A as below:

1	<p>At least 14 days prior to operation above the 30 m3 vat volume threshold for permitted activity Section 2.3 Part A(1)(a) , a report shall be submitted to the Environment Agency providing confirmation of adequate containment of all hazardous materials is in place. The report shall include but not be limited to:</p> <ul style="list-style-type: none"> • Bund capacity shall be confirmed as at least 110 % of tank volume for individual tank bunds or for multi tank bunds 110 % of the largest tank or 25 % of the total capacity of all tanks whichever is the larger. • A summary of procedures to check the integrity of such bunds. • Other controls in place to prevent abnormal discharges of hazardous substances to controlled waters. <p>No operations shall commence until this report has been approved by the Environment Agency.</p>
2	<p>At least 14 days prior to operation above the 30 m3 vat volume threshold for permitted activity Section 2.3 Part A (1) (a) , a report shall be submitted to the Environment Agency providing an Accident Management Plan for the installation including but not limited to the infrastructure and procedures in place for accident prevention and management linked to all the hazards listed in Table A4 of application H1 risk assessment.</p> <p>In addition the report shall include details of controls and procedures for fire prevention plus specify the site fire water management procedure in the event of a fire.</p> <p>The report shall confirm the implementation of such suitable infrastructure and procedures.</p> <p>No operations shall commence until this report has been approved by the Environment Agency.</p>
3	<p>At least 14 days prior to operation above the 30 m3 vat volume threshold for permitted activity Section 2.3 Part A (1) (a) , a report shall be submitted to the Environment Agency providing the formal written working procedure for operation of the Effluent Treatment Plant in order to ensure compliance with Severn Trent consent to discharge and indicative BAT measures in line with Environment Agency guidance note S2.07, 2009.</p> <p>This should include but not be limited to:</p> <ul style="list-style-type: none"> • Operating procedures in normal and failure mode • Critical controls for system operation with specific acceptable parameter ranges for consent compliance • Alarms and actions in light of alarms to ensure corrective actions before consent to discharge breaches • Contingency measures in event of alarms and complete system failure • Confirmation of operator training in line with this procedure and implementation of this procedure is to be provided. <p>Any further improvements for optimum performance are to be summarised and a timescale for completion provided. No operations shall commence until this report has been approved by the Environment Agency.</p>

17. Improvement Programme.

The following four improvement programme plans have been included. In general terms the approach has been to ensure minimum requirements are met by above pre-operational conditions and then further improvements enforced to ensure indicative BAT measures in place by an improvement programme in the shortest possible time. The initial number of improvement programmes were reduced by the submission of 08-09-10 additional information clarifying actions already taken to recover process filter cake removing need for an improvement programme to progress such actions. The response dated 10-09-10 on CrVI usage minimisation further reduced the need for an improvement programme linked to this indicative BAT element.

Table S1.3 Improvement programme.

Reference	Requirement	Date
1	<p>The Operator shall submit in writing their proposals for reducing solvent within on site vapour degreasing operation as follows:</p> <ul style="list-style-type: none"> - Proposals for complete removal of solvent usage with options including but not limited to a review of aqueous cleaning methods and ultrasonics within the shortest possible time. - Short term plans to minimise usage of solvents and ensuring solvents utilised do not include those with following risk phrase <i>R45, R46, R49, R60 or R61, or halogenated VOCs which are assigned or need to carry the risk phrase R40. Plan to include solvent names and annual consumption estimates.</i> - Plan to include details of provision of facilities to ensure solvent containment to prevent discharge to atmosphere <p>Timescales for the implementation of the above shall be provided.</p>	15/11/10
2	<p>The Operator shall carry out an assessment of the impact on the environment of emissions to air of particulate matter less than 10 microns (PM₁₀) and specific trace metals nickel and chromium VI.</p> <p>The assessment shall use an appropriate detailed air dispersion model based on actual monitoring of PM10 and trace metal data to evaluate the total process contribution for the installation for the parameters as listed above and their impact on the environment paying particular regard to the Local Air Quality management Area (LAQMA) and Air Quality Standards declared by Wolverhampton City Council. This assessment needs to be in line with Environment Agency guidance H1 annex f air emissions and take into account the following</p> <ul style="list-style-type: none"> • background PM10 data within the LAQMA and trace metal background data • monitoring data utilised needs to accurately reflect the latest installation set up including any improvements that are to be listed impacting PM10 and trace metal emissions to atmosphere • accurate usage of monitoring data for trace metals within PM10 fraction • confirmation of Cr VI/Total Cr ratio utilised with a justification • an assessment of normal and worst case scenarios for long and short term process contributions against relevant environmental standards in H1 guidance including a justification for the basis of each scenario. <p>The Operator shall provide a summary to conclude if all relevant air quality standards are achieved; or where air quality standards are not being achieved that emissions from the installation are environmentally insignificant. In the event of these standards not being met an action plan for compliance with timescales is to be provided by the operator.</p>	31/03/11
3	<p>The operator shall submit a proposal for the storage, assessment and discharge in a controlled manner of contaminated fire water in the event of an incident. The proposal shall include but not be limited to:</p> <ul style="list-style-type: none"> • Emergency storage facilities for fire water with a justification of the suitability of the volume of such facilities • Emergency procedures including sampling ,assessment criteria and disposal procedures • Compliance with existing sewer discharge consents <p>A summary of the assessment shall be sent to the Agency in writing together with a timetable to implement improvements identified. The plan shall be implemented to the timescale proposed as approved in writing by the Environment Agency.</p>	31/12/10
4	<p>A report shall be submitted by the operator summarising free cyanide effluent monitoring results for effluent discharge S1 to sewer covering a minimum of three months of operation. . The monitoring shall be performed in line with the Environment Agency mcerts sampling and monitoring guidance. The purpose of the monitoring is to assess the on site effluent treatment plant performance to meet the free cyanide benchmark to water as set out in Environment Agency Guidance Note S2.07, 2009.</p> <p>In the event of the S1 outfall free cyanide levels exceeding the benchmark modelling in line with the Environment Agency H1 guidance needs to be included to ensure the final outfall to surface water is in compliance with this benchmark. In addition if the modelling conclusions highlight a potential breach of the benchmark to surface water the report shall include an action plan for improvements to ensure compliance with timescales. The plan shall be implemented to the timescale proposed as approved in writing by the Environment Agency.</p>	31/03/11

In addition to the above the operator has provide additional improvements in their response to schedule 5 response dated 17-05-10 (question 15 response). Additional measures not covered above are summarised below:

- Proper segregation of waste materials – implementation of a dedicated waste area
- Completion and implementation of site ISO 14001 accreditation – estimate April 2011.

18. Energy Efficiency

The Agency has considered the information in the Application in respect of energy efficiency, including that for the Applicant's energy management system. (See section 2.1.3 and 2.4 of the Application).

The Operator has joined a Climate Change Levy Agreement (CCLA) which was signed in July 2008 and relates to the whole operator premises at the Blakenhall Industrial estate, part of which constitutes the permitted installation.

Gas and electricity are utilised by Global Metal Finishers in the following quantities:

Electricity: 1.321 MWh based on 2008 data

Gas: 1.052 MWh per annum based on 2008/9 data.

As an overview the site is not a significant energy user.

The electricity is utilised for the following:

- o Electric immersion heaters used for process vat heating.
- o Electric motors used for air extraction and motive functions e.g. pumping systems.
- o Rectification to DC for use in electrolytic deposition processes.
- o Electric motors used in mechanical polishing systems.
- o Lighting systems.

An energy monitoring and target programme is in place for energy efficiency management. As part of this programme is monitored and analysed on a regular basis. This data is used for optimizing energy use on site and to meet with the data collection and reporting requirements of the CCLA.

Resource efficiency is a fixed agenda item in the management meetings with an associated plan with timescales for energy consumption minimisation.

The Environment Agency is satisfied that at the commencement of the Permit, the installation should be operated in an energy efficient manner, and that Standard Condition 1.2.1 is appropriate and sufficient.

In respect of Condition 1.2.1, the Operator is required to review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities.

19. Conditions relating to Closure and Decommissioning

Within the application no such closure plan was submitted. A request for such a plan was made and this was provided in response to 17-05-10 schedule 5. The plan was accepted as satisfactory.

20. Monitoring

No monitoring schedule was submitted with the application. Firstly the monitoring and modelling had to be completed to provide an accurate risk assessment (as detailed above in the environmental risk assessment section). Based on the emissions assessment from the operator in the schedule 5 response discussed in above environmental risk assessment section our review of their proposals led to following conclusions:

Atmospheric monitoring

- Particulate matter emission from stack W is hugely variable but all below 10 mg/m³. A cyclone particulate abatement is in place. The sector guidance S2.07 for particulate states a benchmark of 50 mg/m³. However the 2006 EU Bref for Surface Metal Treatment Table 5.4 states a range 5-30 mg/m³. In the event that the plant has operated over 10 years and the data is below 10 mg/m³, an emission limit value at the top end of Bref guidance has been set of 30 mg/m³.
- Nickel and its compounds – Monitoring as requested by the Agency is included. This is to allow site inspector flexibility on receipt of improvement programme 2 nickel monitoring and modelling to request monitoring to prove on-going compliance with the Nickel AQS as referenced in our H1 guidance Annex f (20 nanogrammes for Nickel within the PM10 fraction). No emission limit value has been set deliberately, as to do so would be to allow operator to run plant at nickel levels over 10 times that provided in the schedule 5 response. In contrast the purpose of this monitoring is to ensure ongoing compliance with AQS as the site inspector believes necessary.

Effluent monitoring

There is no actual free cyanide monitoring data to sewer submitted with the application. This is being covered in **improvement programme 4**. However to allow flexibility monitoring stated "as requested by the Environment Agency" is included in the permit to allow monitoring requirement to be reviewed in light of the **improvement programme 4** submission.

In light of this the relevant point emission and monitoring tables are reproduced below. The majority of emission points have no monitoring requirements. As detailed in the environmental risk assessment, the operator has proven that all the emission limit values in the relevant S2.07 sector guidance are comfortably met. The nickel and chromium VI AQS and EAL compliance respectively are being verified by the improvement programme 2. For effluent the principal monitoring is already covered by Severn Trent monitoring to ensure compliance with their consent to discharge for the site.

Table S3.1 Point source emissions to air – emission limits and monitoring requirements

Emission point ref. & location	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A1 [Point C on application Appendix A site zone map]	Nickel and its compounds (as nickel)	Rose line vat extraction	No limit	Hourly average	As requested by the Environment Agency	BS EN 14385
A 2 [Point D on application Appendix A site zone map]	Nickel and its compounds (as nickel)	Main and lacquer vat line extraction	No limit	Hourly average	As requested by the Environment Agency	BS EN 14385
A3 [Point E on application Appendix A site zone map]	Nickel and its compounds (as nickel).	New vat line extraction (Ni)	No limit	Hourly average	As requested by the Environment Agency	BS EN 14385
A4 [Point F on application Appendix A site zone map]	No parameters	New vat line extraction (Zn)	No limits	Hourly average		-
A5 [Point W on application Appendix A site zone map]	Particulate Matter	Polishing line extraction	30 mg/m3	Hourly average	6 monthly (1)	BS EN 13284
A6 [Point X on application Appendix A site zone map]	No parameters	Lacquer ovens area general extract	No limits	-	-	-

Notes

(1) Frequency every six months until 01/07/12. Subsequently as agreed in writing by the Environment Agency

Effluent monitoring

Table S3.2 Point Source emissions to sewer, effluent treatment plant or other transfers off-site– emission limits and monitoring requirements

Emission point ref. & location	Parameter	Source	Limit (mg/l)	Reference Period	Monitoring frequency	Monitoring standard or method
S1 referenced as emission point A on site plan within site condition report Appendix A	Free Cyanide	Effluent Treatment Plant final liquid discharge to sewer	No limits	(1)	As requested by the Environment Agency	BS6068:2.17:1986

Notes

(1) The reference period and sampling technique for collecting a representative sample shall be approved in writing by the Environment Agency

Note 1: Frequency every three months until 01/07/12. Subsequently as agreed in writing by the Environment Agency.

Conclusion:

The time limit for 3 and 6 monthly monitoring allows the area inspector to review the data and modify monitoring frequency as appropriate. The application supplementary information environmental risk assessment confirms there are no surface water drains for the installation. All water on-site is routed through the effluent treatment facility prior to discharge to sewer. Hence no need for surface water monitoring.

21. Records

Effective record keeping is considered to be one of the management techniques for emission prevention and control. It is considered that the standard condition requirements are appropriate for this Installation. The EMS procedures cover this issue as follows:

EMP1	Procedure	Control of Environmental Documents	1	August 2009
EMP2	Procedure	Control of Environmental Records	1	August 2009

22. Reporting

The following standard reporting requirements have been included under Table S4.1 as follows:

Parameters, for which reports shall be made, in accordance with conditions of this permit, are listed below.

Table S4.1 Reporting of monitoring data			
Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Emissions to air Parameters as required by condition 3.3.1.	A5	Every 6 months(1)	1 st January , 1 st July
Emissions to Sewer Parameters as required by condition 3.3.1	S1	Every 6 months (1)	1 January, 1 st July

Notes

(1) Frequency as stated until 01/07/12. Subsequently as agreed in writing by the Environment Agency.

Table S4.2 has been inserted in the permit to cover the following standard performance parameters (water and energy) plus the site specific solvent consumption linked to the degreasing application. The latter is to underpin the drive to minimise the usage of such solvents and ensure under the SED threshold is not exceeded

Table S4.2 Performance parameters		
Parameter	Frequency of assessment	Units
Water usage	Annually	tonnes
Energy usage	Annually	MWh
Total Vapour degreasing chemical usage	Annually	Kg

23. Groundwater

The installation does not have any direct discharges to ground water.

24. Waste Minimisation

Section 2.5 of the supplementary application information gives details of the waste streams, quantities and whether hazardous or not. In total there are seventeen waste streams of which fourteen are hazardous. However the main process discharge stream is also included which is assessed above in discharges to sewer. In general the waste quantities are low (excluding the sewer stream) with the quantities ranging between 200 litres to 8 tonnes per annum. However the most critical hazardous waste is the process filter cake from the final filter press in the effluent treatment process. 8 tonnes of this waste containing trace metals was previously disposed of without recovery whatsoever. However as confirmed in the additional response dated 08-09-10 this waste is now sold to a waste contractor for partial trace metal recovery (specifically for nickel recovery).

Waste Oils Directive

The installation does not contain waste disposal or recovery activities involving waste oils to which the Directive applies.

Conclusion

- The operator has committed to an EMS with an internal audit system to cover waste minimisation.
- The permit condition 1.4.1 requires waste minimisation and specifically a review at least every four years 1.4.1 (b)

25. Conservation

A screening assessment has been carried out with the assistance of Easimap.

The only sites that screen in are as follows:

- Special Areas of Conservation (SAC) - Designation Name: FENS POOLS, Designation Reference: UK 0030150 < 10 Km (9 km from installation)
- Ancient Woodlands : Woodland Name: PARK COPPICE < 2 km (1.5 km from installation)

Woodland Name: ASHEN COPPICE < 2 km (1.8 km from installation).

The Fens Pools SAC lies to the north of Brierley Hill and comprises three canal feeder reservoirs and a series of smaller pools. The site includes a wide range of habitats from open water through swamp, fen and inundation communities to unimproved neutral and acidic grassland and scrub. It is the best amphibian site known in the West Midlands. The protected habitat is fens. The habitat will not be affected by this installation especially as the operator has been operating on site for over ten years for the reasons given below.

The two woodlands are ancient and semi-natural woodland. The Park Coppice of 4.6 hectares (grid reference SO913952) and Ashen Coppice 1.92 hectares (grid reference SO910956). Park coppice is not linked to any protected habitat. However for Ashen Coppice there is an overlap with a deciduous woodland protected habitat. The habitat will not be affected by this installation especially as the operator has been operating on site for over ten years for the reasons given below

There are no specific H1 EAL or AQS levels for key atmospheric parameters (trace metals, cyanides and particulates). The operator atmospheric H1 screening showed installation process contributions emissions to be insignificant with respect to long term environmental standards apart from tce, chromium VI and nickel (see section 9 for details). Tce emissions to atmosphere will cease. Chromium VI and nickel installation long term process contributions are classified as significant and not insignificant respectively according to H1. However as discussed above in section 9 the mass emissions are minimal (nickel < 8kg and Chromium VI1 < 0.3 kg per annum) and as such in practice can be classed as insignificant.

Improvement programme 2 requires re-modelling after improvements made to ensure minimisation of environmental impact.

The operator has no combustion plant on site whatsoever and no process emissions creating nitrogen or ammonia. As such a H1 Annex F review of critical levels for protection of vegetation and ecosystems has not been carried out for nitrogen and ammonia.

The Fen Pools feed to canal rather than are fed by canals and as such the discharge from GMF will not impact the Fen Pools. Barnhurst sewage treatment works discharges into the Staffordshire and Worcestershire Canal at Barnhurst Basin Bridge, just north of Oxley Moor Road at grid reference SJ 90228 01521. The discharge is in full compliance with the Environment Agency consent as discussed in the environmental risk assessment above.

The impact on these habitat sites in conclusion is considered insignificant. The Appendix 11 form has been completed and sent to Natural England for information only.

Annex 1: decision checklist

This checklist should be read in conjunction with the Duly Making checklist.

Activity	Justification / Detail	Determination criteria met	
		Yes	N/A
Receipt of submission			
Confidential information	No claims for commercial or industrial confidentiality have 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.	✓	
Responses to consultation, web publicising and newspaper advertising	The consultation and advertising responses (Annex 2) were taken into account in the decision. Consultation responses were received from Wolverhampton Council Planning Department and PCT.	✓	
Operator			
Control of the facility	We are satisfied that the applicant (now the operator) is the person who will have control over the operation of the facility after the grant of the permit. The decision was taken in accordance with EPR RGN 1 Understanding the meaning of operator.	✓	

Activity	Justification / Detail	Determination criteria met	
		Yes	N/A
European Directives			
Applicable Directives	The European Directives that apply are as follows: <ul style="list-style-type: none"> • IPPC Directive • Groundwater Directive • Air Quality Framework Directive • Air Quality Framework Directive and Daughter Directives • Waste Framework Directive 	✓	
The site			
Extent of the site of the facility	The operator has provided a plan which we consider is satisfactory, showing the extent of the site of the facility A plan is included in the permit and the operator is required to carry on the permitted activities within the site boundary.	✓	
Site condition report (installations, waste operations and relevant mining waste operations only - not mobile plant)	The operator has provided a description of the condition of the site. We consider this description is satisfactory. The decision was taken in accordance with our guidance on site condition reports – guidance and templates (H5). Additional information was requested from the operator to ensure H5 compliance.	✓	
Biodiversity, Heritage, Landscape and Nature Conservation	We have not formally consulted on the application but have sent information to Natural England for information only as detailed in conservation section No. 26 of key decisions. The decision was taken in accordance with our guidance.	✓	
Environmental Risk Assessment and operating techniques			
Environmental risk (use when the operator has carried out the risk assessment)	We have reviewed the operator's assessment of the environmental risk from the facility. The operator's risk assessment is satisfactory after additional information as required in 17-05-10 schedule 5 and responses dated 08-09-10 and 10-09-10. The assessment shows that, applying the conservative criteria in our guidance on Environmental Risk Assessment and similar methodologies supplied by the operator and reviewed by ourselves all emissions may be categorised as environmentally insignificant (except PM10, nickel and CrVI emissions which are dealt with in improvement programme 2)	✓	
Operating techniques	We have reviewed the techniques used by the operator and compared these with the relevant guidance notes. The operating techniques for effluent treatment were in line with our guidance but pre-operational condition 3 has required operator to provide a formal operating procedure for effluent treatment plant. The BAT review of process operations as outlined in section 9 of this document showed only partial compliance.	✓	
The permit conditions			
Use of conditions other than those from the template	No non-standard conditions utilised.	✓	
Odour alternative conditions (installations and waste operations only)	We consider that the Applicant's proposals represent the appropriate measures to prevent/minimise such odour. See section 12 of this document. We consider odour risk from this installation as insignificant.	✓	
Noise alternative conditions (installations and waste operations only)	We consider that the activities carried out at the site do not have the potential to cause noise and/or vibration that might cause pollution outside the site and consider it is appropriate to impose specific measures. See section 14 of this document	✓	
Raw materials (installations and waste operations only)	The raw material usage has been reviewed. No limits on raw materials have been set. See section 10 of this document.	✓	
Pre-operational conditions	Based on the information on the application, we consider that we need to impose pre-operational conditions to ensure minimum environmental improvements prior to operation. Three such pre-operational conditions have been set (see section 16 of this document for detail).	✓	

Activity	Justification / Detail	Determination criteria met	
		Yes	N/A
Improvement conditions	Based on the information on the application, we consider that we need to impose improvement conditions. In general the site is not fully at indicative BAT standards. Special concession has been agreed to allow determination based on critical pre-operational conditions (see above) a critical list of urgent improvement conditions with short time scale response dates. In total four improvement programmes have been listed (see key decisions improvement programme section).	✓	
Emission limits	We have decided that an emission limit should be set for total particulates atmospheric emission from A5 as listed in the permit.	✓	
Monitoring	We have decided that monitoring should be carried out for the parameters listed in the permit, using the methods and to the frequencies specified. These monitoring requirements have been imposed in order to ensure compliance with BREF /Environment Agency benchmarks as detailed in Table S 3.1 and S3.2 and discussed in monitoring section 20 of this document.	✓	
Reporting	We have specified reporting in the permit. Please see key decisions reporting section 22 of this determination	✓	
Operator Competence			
Environment Management System	There is no known reason to consider that the operator will not have the management systems to enable it to comply with the permit conditions. The decision was taken in accordance with RGN 5 on Operator Competence.	✓	
Relevant Convictions (installations, waste operations and relevant mining waste operations only)	The National Enforcement Database has been checked to ensure that all relevant convictions have been declared. No relevant convictions were found. A conviction was included in the application for a consent to discharge offence against Severn Trent but this was not a relevant conviction to controlled waters in line with our policy operating instruction 194_03 assessing relevant convictions.	✓	
Financial provision (installations, waste operations and mining waste operations only)	There is no known reason to consider that the operator will not be financially able to comply with the permit conditions. The decision was taken in accordance with RGN 5 on Operator Competence.	✓	
OPRA			
OPRA Score (Tier 3 operations that are not C for D only)	The OPRA score for this new bespoke permit installation is 22. After discussion unchanged from duly making OPRA score.	✓	

Annex 2: Consultation, web publication and newspaper advertising responses

There were only two responses as below.

Response received from Wolverhampton City Council Planning Department
Received 29-04-10 (Stamped as sent by Council 23-04-10)
Brief summary of issues raised
Standard letter sent with no issues of environmental concern (five questions)
Summary of actions taken or show how this has been covered
No actions

Response received from Wolverhampton PCT
Received 15-06-10 (Stamped as sent by Council 14-06-10)
Brief summary of issues raised
Brief summary of environmental issues with comments (Emissions to air and water, EMS and nuisance emissions). No major issue. One comment that H1 assessment for air emissions is insufficient and tce emissions need further assessment
Summary of actions taken or show how this has been covered
H1 review part of schedule 5 dated 17-05-10.