

A.1 NON-TECHNICAL SUMMARY

Description

Waterford Plating Company Ltd. is an independent trading company and operates a surface treatment facility located at the IDA Northern Industrial Estate in Waterford City. The facility operates under IPPC Licence Register No. P0280-01. The company was formed in 1991 and currently employs 16 permanent employees. The normal operating hours are between 8.00a.m. to 4.30p.m, Monday to Friday. Surface treatment activities are currently conducted within the leased Units 604/605/606 in the Northern Industrial Estate, covering a total area of 1382 m². The installation is surrounded by light industrial units within Northern Industrial Estate.

Activities at Waterford Plating Company Ltd. associated with the surface treatment of metals include 1) electroplating coatings 2) non-electroplating coatings and 3) painting of components.

Unit 605/606 is one large open area with offices and employee facilities located to the front of the building (east). Activities in Unit 605/606 involve the customer reception of components from sub-contractors, unloading/loading of components onto appropriate jigs; surface treatment in a series of vats; baking; wet spray painting; and ultra-violet curing. Chemicals and solvents are stored on storage racks or designated bunded storage rooms. Vats, which are lined up sequentially in order of surface treatments to be applied, generate wastewaters from rinses and spent electroplating or chemical conversion solutions. A specifically designed Wastewater Treatment Plant (WWTP) at the facility treats potential contaminants from the surface treatment process prior to discharge to Waterford City Council sanitary sewer.

Unit 604 is an area that is currently used for the painting and drying of components using dry powder paints and wet spray paint. Unit 604 equipment includes one dry painting open booth, one wet/dry painting open booth and a large oven for baking. When painting and drying is completed, the components are returned into Unit 605/606 for quality control checks and packaging.

The facility operates under IPPC Licence Register No. P0280-01 under Class of Activity 12.3 *'The surface treatment of metals and plastic materials using and electrolytic or chemical process where the volume of the treatment vats exceeds 30 m³'* from the First Schedule of the Protection of the Environment Act 2003. The facility underwent an expansion plan which was completed in 2007. The expansion of Unit 605/606 involved incorporating old office space into a new production area, and new offices and canteen facilities were built onto the front of Unit 605/606. Presently, Waterford Plating Company Ltd. leases the adjacent Unit 604, into which one existing paint process (dry powder) and a new paint process (dry and wet) has been installed. These modifications have not impacted on the surface treatment processes undertaken in Unit 605/606.

It is the intention of Waterford Plating Company to decommission Unit 604 and transfer all activities and processes carried out in Unit 604 to a new extension leased by Waterford Plating Company Ltd. at the rear of Unit 605/605, which is referred to as Unit 655. The review of this IPPC licence is sought in relation to relocation of the existing emission point AE2-2 and the installation of a third emission point AE2-3 for a wet/dry painting booth in Unit 655. The proposed area for Units 605/606/655 is 1493 m².

The process for the dry powder painting (AE2-2) will not change from the licensed activity, the air extraction and diameter of the stack will be consistent with the previous location.

The new paint booth (AE2-3) is a PSW3 meter no pump water wash spray booth, which removes wet or powder paint through a water scrubber and baffle prior to emission to atmosphere. The washing chamber is fitted with a centrifugal fan having a total capacity of 8600cfm.

The review of this IPPL licence is also sought in relation to the relocation of Emissions to Sewer Schedule 2 (i) monitoring reference point SE-1. This is due to the expansion of the office area in front of the building, the access point to the main foul sewer was restricted which resulted in the movement of the monitoring point approximately four meters from its original location.

The lease on Unit 604 expires in October 2008 and it is envisaged that the transfer of the painting processes to Unit 655 will take place during the summer shutdown 2008.

Process

The main process at the facility involves the surface treatment of customer components, which can be aluminium, steel or zinc (electro-coated steel) by placement on jigs, barrels are not used at the facility. The surface treatment line contains solutions and rinses in vats which are lined up simultaneously for each type of surface treatment provided by Waterford Plating Company Ltd. The finish is dependant on the requirements stipulated by the customer.

Phosphate Coatings are processes of chemical conversion on a metal surface to produce a thin adherent phosphate compound coatings. The phosphate crystals formed on the surfaces of materials can be iron, zinc, or manganese phosphates. It is one of the most useful non-metallic coatings.

Aluminium Chromating Coatings are also processes of chemical conversion where chromated coatings are formed by the reaction of water solutions of chromic acid or chromium salts. The coatings can be applied to aluminium, zinc, cadmium, and magnesium. These coatings have good atmospheric corrosion resistance.

Cyanide Zinc plating is a process of using electrical current to coat an electrically conductive object with a relatively thin layer of metal. The primary application of electroplating deposits a layer of a metal having some desired property (e.g. abrasion, corrosion protection, aesthetic qualities) onto a surface lacking that property. Colour or clear passivation is a chemical treatment applied to the surface of a metal to improve corrosion resistance and appearance.

A mixture of paints are used in the process to apply a paint coating to the finished product from the surface treatment. Solvent based paints are used in the enclosed wet painting booth, where employees operating the spray guns wear air filter masks. Powder paints are sprayed on to components in an open booth with air extraction installed. Wet and dry paint operations take place in an open booth served by a water scrubber and baffle.

Waterford Plating Company Ltd. provides surface treatment to customer components which must comply with Directive 2002/95/EC of the European Parliament and of the Council on the restriction of the use of certain hazardous substances in electrical equipment. This Directive, from 1st July 2006, prohibited the use of Lead, Mercury, Cadmium, Hexavalent Chromium, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE). For this reason, paints used at the facility in the wet and dry painting process must also comply with Directive 2002/95/EC. The paint suppliers certify the paint products conform to this Directive and do not contain the substances prohibited.

The use of hexavalent chromium (Cr(VI)), albeit for a small number of customers, is used in the cyanide zinc plating line. Hexavalent chromium (Cr(VI) compounds are a group of chemical substances that contain the metallic element chromium in its positive 6 valence (hexavalent) state. Occupational exposures to Cr(VI) occur during the production of stainless steel, chromate chemicals, chromate coating and chromate pigments, and the Cr(VI) compound has been considered as a potential occupational carcinogen.

To minimise the use of Hexavalent chromium (Cr (VI) compounds, two chrome free solutions have been introduced on the line for the chromate treatment of aluminium. The introduction of chrome free colour passivation on the zinc plating line was undertaken in August 2006. To date the use of Cr(VI) in clear chromating solutions has been fully changed over to the trivalent form Cr(III) by using the product Slotopas Z21/Blue/22. Approximately 95% of the process for colour chromating solutions using Cr (VI) has been changed to Cr(III) by using the product Slotopas G10. The remaining 5% of processing using a product containing Cr(VI) arises due to customer specification for component finishing. The product MacDermid Iridite LY-FPC which contains Cr(VI) is received to the facility in soluble liquid state and the maximum stock level at any one time is 25 litres. This small percentage of customers are exempt from compliance with Directive 2002/95/EC on Restriction of Hazardous Substances

Operations

The facility is operated five days a week from 8a.m. to 4.30p.m. These hours are consistent throughout the year excluding Christmas and summer shutdown (August). There is no activity during night-time hours. Surface treatment is conducted throughout the daytime working period. Painting process is dependent on the finishing turn around of the surface treatment process and the type of paint required by the customer. Extraction fans at the painting booths area are ran continuously during the working day and powered off outside hours of operation.

The main consumables used during the operation of the plants will be natural gas and water. Electricity is used to heat process tanks, run dosing equipment and drying ovens. Electricity consumption in 2007 was 340 MWhrs, with an average of 452 MW/hr over between 1999 and 2007.

Natural gas used at the facility is in the form of piped natural gas supply from Bord Gáis and is used in the drying process in the dryer unit since 2007. Natural gas consumption in 2007 was 30,652m³.

The water supply from Waterford Corporation municipal supply is mainly required for surface treatment vats chemical solutions and rinsing vats. Water consumption has declined significantly since 1999 when it was at 10,881m³ yr to 3231m³ in 2006. This is due to new initiatives where recycling and recovering of rinsing solutions are reducing the volumes required for the surface treatment process.

There will be no significant increase in the usage of consumables or resources at Waterford Plating Company Ltd. due to the transfer of activities from Unit 604 into Unit 655. There is no storage of hydrocarbons at the facility.

Emissions to Air

There are no point source atmospheric emissions from the surface treatment process for phosphate conversion coating, chromate conversion coating and cyanide zinc plating.

Painting operations arising from painting of components is carried out in three separate paint booths with stack and emission points as follows:

- Wet spray painting – emission point A2-1
- Dry powder painting – emission point A2-2
- Wet spray /dry powder painting – emission point A2-3

Pollutant parameters that may be present in the air emissions from these emission points is as follows:

- Particulates
- Volatile Organic Compounds

Note: Schedule 1 (ii) of IPPC Licence requires monitoring of Lead, Zinc, Chromium however, the paint products used at the facility do not contain these substances.

A total of 3,421 litres of solvent based paint & thinners was used at the facility in 2007.

Emissions to Surface Water

While there are no direct emissions to surface waters, SW1 discharges into the Northern Industrial Estate stormwater drain which discharges into the River Suir in Waterford. The stormwater does not undergo any form of treatment by Waterford Corporation. Currently, SW1 is monitored on a quarterly basis for COD concentration. The increase in the size of the proposed facility for this application will not add significant load on the stormwater drains.

Emissions to Sewer

The WWTP at Waterford Plating Company has undergone an upgrade, which was completed in 2007. Wastewater from rinses and vat solutions are both biologically and chemically treated. The currently License requires the monitoring for the parameters aluminium, BOD, Chloride, Chromium, Chromium (VI), COD, Copper Cyanide Nitrate Oils, Fats & Grease, Phosphate (Total), Solids (Total Suspended), Sulphate, Surfactants as MBAS, and Zinc. Emissions to sewer at SE1 are monitored monthly. The daily limit is 100m³. The total volume discharged to sewer in 2007 was 2,768 m³.

Emissions to Ground

There are no emissions to ground at the facility.

Noise Emissions

The facility is located in a light industrial estate set in an urban environment in Waterford City. Activities at the facility are such that there is a low level of noise emitted and traffic movements associated with the facility are light. A noise survey was conducted as part of the application for IPPC Licence P0280-01 and it was found that noise levels varied between 54 dBA to 57 dBA. The noise limit at noise sensitive locations during daytime hours is 55dBA. There are residential areas within 500m of the facility. However, the area is predominantly industrial with a business centre located to the west. It is envisaged that the noise impact from activities at the facility will not cause nuisance to noise sensitive locations.

Other emissions

There will be no onsite disposal of waste. Non-hazardous waste is in the form of general office waste cardboard packaging. Waste paint and paint sludge is collected in a carbide at the facility and then collected for treatment and disposal by Rilta Environmental. Sludge

from the WWTP is removed and disposed of accordingly. Scrap metal, including copper wire for the jigs is recycled with an approved scrap merchant. Waste cyanide drums are washed out at the facility, tested and recycled with Waste Metal Management Company.

Best Available Techniques (BAT)

Waterford Plating Company Ltd. have been involved in the optimisation of electroplating activities to reduce the use of chemicals in conjunction with the Cleaner Greener Production Programme for which they have significantly reduced the mass loadings with recycling water initiatives. Their continued commitment to the best available techniques for the processes conducted on site whilst minimising the impact in the environment. Two BREF documents are considered for activities at the installation, which in turn have BAT documents as transposed by the Agency:

BREF Reference document on Best Available Techniques for the Surface Treatment of Metals and Plastics (European Commission December 2006);

BREF Reference document on Best Available Techniques for Solvent Use in Coating, Cleaning and Degreasing (EPA August 2007);

Draft BAT Guidance Note on Best Available Techniques for Surface Treatment of Surface Treatment of Metals and Plastic Metals (EPA July 2007);

Draft BAT Guidance Note on Best Available Techniques for Solvent Use in Coating, Cleaning and Degreasing (EPA August 2007).

The company operate to BAT for their activities at the site.

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Aspects relating to the existing IPPC Licence

Further to the installation and operation of the wet/dry paint booth, there are a number of issues with regard to the existing licence that it is proposed could be subject to change as part of this review.

Briefly the following changes to this licence are proposed:

- (i) Licence should reflect change in Emissions to Sewer pH from 6-9 to 6-10 based on correspondence with EPA.
- (ii) New emission point AE2-3 located in Unit 655 monitoring for particulates.
- (iii) Relocation of surface water sampling location due to construction of extension planning permission Ref fs2905.
- (iv) Propose to have surface water monitoring removed from licence as asbestos roof has been replaced in Unit 605/606 also, results show that there is no potential risk from storm water at the facility on the environment.
- (v) Wet and powder paints used at the facility are compliant with 2002/95/EC of the European Parliament and of the Council on the restriction of the use of certain hazardous substances in electrical equipment and do not contain Zinc, Lead and Chromium. Therefore, it is requested that monitoring of same for emission points A2-2 and A2-3 does not include these substances.
- (vi) Limits on Emissions to Sewer parameters: require the limit is based on mass emission basis as opposed to ELV.
- (vii) Propose reduction of emissions to sewer monitoring from monthly to quarterly. Chromium (VI), total chromium and cyanide to remain on a monthly monitoring bases or preferably reduced to bimonthly.
- (viii) Propose to raise the maximum volumetric flow on Emission Refs AE2-1, AE2-2, and AE2-3 from 5,000 m³ to 8,000 m³, which will in turn increase the maximum daily volume to 72,000 m³. The impact on the environment at the higher flow rates will be demonstrated through the AERMOD air dispersion model that will be submitted subsequent to this application.