



Avon Speciality Metals Limited

SITE CONDITION REPORT

Centurion Industrial Estate





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1 INTRODUCTION

1.1 AUTHORISATION

This Site Condition Report (SCR) has been prepared on behalf of Avon Speciality Metals Limited (hereafter referred to as Avon Metals) to support the application which is being made for a new Environmental Permit.

1.2 BACKGROUND INFORMATION

The site accepts waste and virgin metals in a number of ways which include in shipping containers, vans, or heavy goods vehicles (HGV). The metals are stored in drums, bags, strapped to pallets, in metal cages or boxes. The vehicles and containers that deliver the metals to site are covered at all times.

The metal waste can come in a variety of forms which include:

- Metal parts (e.g casting runners and risers, small castings, targets and turbine blades);
- Metal turnings and fines.

Once the load has past acceptance to verify the alloy that is received then it goes forward for treatment. This treatment can take a number of forms:

- Cleaning of metals to remove any dirt or post pickling rinse;
- Cutting and grinding (using mechanical cutters/grinders to a plasma arc cutter) to reduce the size of the metal;
- Shot blasting for both cosmetic finish or to remove a coating; and
- Pickling to remove a coating such as a thermal barrier.

The site currently operates under waste exemption T9: recovering scrap metal. The waste exemption that Avon Speciality Metals Limited have, T9, has the following requirements:

- 1,000 tonnes at any one time- the site currently stores approximately up to 500 tonnes
- Can have metal on site for 24 months- most is removed from site within 6 months and if not is derated (in terms of value) and removed from site after 12 months.
- Allows for sorting, grading, shearing by manual feed, baling, crushing and cutting with handheld equipment. The shot blasting activity, plasma cutting, and pickling process would mean that the T9 exemption would not be valid for use at the site. The T9 exemption is likely to be removed by the Environment Agency in the near future.

In addition, to the activities of shot blasting, plasma cutting and simple pickling process not being in accordance with the T9 exemption the site is proposing a new acid plant with the use of the existing acid pickling plant to be used extract precious/high value metals from the acid processing. The existing process will become research and development activities in the first instance before scaling these up to commercial operation if proven.

Therefore, a bespoke waste operation is being applied for which requires a site condition report.

1.3 OBJECTIVES OF THE SITE CONDITION REPORT (SCR)

The SCR comprises desk-based research of public and private domain information along with evidence gathered from a site visit and a review of site operations. The objectives of this SCR are to:

- Provide information on current site activities and site condition;
- Establish the environmental setting and land pollution history for the site;
- Identify activities that are conducted at the installation which may cause pollution of the land and / or groundwater;
- Identify and assess the preventative measures that are in place and will be put in place to protect the land and / or groundwater;
- Assess whether there is a risk to the land and / or groundwater beneath the site and potential for impact from existing and proposed site activities; and
- Be sufficient to form the basis of any required further work to establish baseline conditions.

1.4 SCOPE OF WORK

The SCR considered the following elements:

- Discussions with Avon Speciality Metals, namely Des Dillon (Operations Manager);
- Site visit and site walkover with Des Dillon on 08th July 2020;
- Review of existing reports, site history, local geology, hydrogeology and hydrology, examination of archive sources and historical Ordnance Survey maps; and
- Factual and interpretative reporting.

2 SITE DETAILS

This section of the SCR provides the site details, environmental setting and land pollution history for the site within the installation. The site layout is shown in Appendix A1.

Table 2-1 –Site Details

Installation Name	Gloucester Site (Empire Way)
Installation Address:	Avon Specialty Metals Ltd Centurion Industrial Estate Unit 2, Empire Way, Gloucester GL2 5HY, United Kingdom
National Grid Reference:	381970, 216210
Size:	Approximately 0.51 ha
Description of Site:	The site is located on an industrial estate in Gloucester. The site is an industrial building with hard standing outside with car parking space and access for deliveries.
Description of Surrounding Area:	The area immediately surrounding the installation is comprised of industrial or commercial properties in each direction. There is a road 50m to the West with the Gloucester and Sharpness Canal beyond 75m from site. Beyond the Canal is the A430. The nearest surface watercourse is the Gloucester and Sharpness Canal which is 75m to the West of the site. The other significant surface water feature is the River Severn which is approximately 750m to the West.

2.1 GEOGRAPHY AND TOPOGRAPHY

The site is generally level and is located on an industrial estate in Gloucester. The site is an industrial building with hard standing outside with car parking space and access for deliveries.

2.2 INSTALLATION LAYOUT

The site accepts waste and virgin metals in a number of ways which include in shipping containers, vans, or heavy goods vehicles (HGV). The metals are stored in drums, bags, strapped to pallets, in metal cages or boxes. The vehicles and containers that deliver the metals to site are covered at all times.

The metal waste can come in a variety of forms which include:

- Metal parts (e.g casting runners and risers, small castings, targets and turbine blades);
- Metal turnings and fines.

The metal is received into bay 1 which is the acceptance area. Each item in the delivery is given a work in progress (WIP). No metal is allowed forward into production with a WIP number, this signifies that the material has not yet been tested to ensure conformity to purchase order.

The delivery is weighed in and compared with the delivery paperwork to ascertain whether there are any discrepancies.

The metal is then subject to material analysis to provide further detailed information on the metal's composition and verify that the received metal is as described from the supplier. This is done via the use of a Thermo Scientific Niton Gold X62 x-ray unit which is a handheld device. This is held to the metal surfaces and analyses the metal against a library of known alloys. This breaks down the elements in the alloy and is attached to the load along with the WIP number.

Not every item in the load is tested but a representative sample is assessed. For example, if a 2-tonne load is received then the sample requirement can be anything between 10% and 100% using the handheld x-ray device. If any non-conforming material is found, then the sample is dismissed, and a 100% check is completed. Any items which do not look visually correct compared to the rest of the load will be checked more thoroughly.

When the sorting takes place and the alloy is confirmed, the information is recorded on an Out Turn (sorting sheet) for each individual container, a hand-written label is placed on the container(s) for the interim until the delivery has been completed. Once sorting has been completed for the load, then the out turn will be taken into the office and either IWIP labels or FG labels will be produced to replace the WIP label.

Any of the metal loads within the facility will have one of 3 labels associated with it. These are:

- WIP- metals which have arrived but not yet been tested;
- I-WIP- metal that has been tested and is awaiting further processing; and
- FG- these are finished goods which have been processed and quality assured and is awaiting collection for despatch to end user.

Once the load has been qualified as to the alloy that is received then it goes forward for treatment. This treatment can take a number of forms:

- Cleaning of metals to remove any dirt or post pickling rinse;
- Cutting and grinding (using mechanical cutters/grinders to a plasma arc cutter) to reduce the size of the metal;
- Shot blasting for both cosmetic finish or to remove a coating; and
- Pickling to remove a coating such as a thermal barrier.

Cleaning can be undertaken using a pressure washer in an enclosed area.

Cutting and grinding can be done for several reasons. This can be for size reduction of metals prior to despatch to a customer without further treatment. It can also be done to remove a base metal from an alloy. For example, with a turbine blade the blade housing is a base metal whilst the blade itself can be a highly valuable alloy. The blade is cut off at the junction where the base metal and valuable metal alloy meet. The blade is then sent off-site for recycling whilst the base metal (root) goes forward for further treatment. Any blades that exhibit a Thermal Barrier Coating (TBC) but no high value coating would then be size reduced so that it would fit into the baskets to go within the pickling process to remove the TBC on the outside of the blade. The site has 2 hydraulic scissor cutters (JMC McIntyre Units), circular cutter (Reichmann 20" Cut Off), angle grinder and 3 plasma cutter units. All of these are located in the cutting room and are ducted to the Donaldson Torritt extraction unit.

Other metals with coatings such as a zirconium coating would then be loaded into the basket within the shot blasting unit which is then enclosed, and the material is subject to blasting with shot to remove the coating. This can then either be sent off site to the customer or go for size reduction, pickling and cosmetic shot blast before sending on to the customer.

Current pickling process takes place on two types of metals. Those with a thermal barrier that requires removal to access the valuable alloy beneath or to remove an indium coating which is used as a bonding agent to bond two metals together. The pickling process currently takes place in 4 tanks with 2 further water tanks each of 400 litres. The pickling tanks are filled with an acid mixture of 80% Hydrochloric acid (HCl@32% strength) and 20% ferric chloride (@40% strength) which in itself is a 40% liquid blend. The metal to be treated is loaded within baskets which are allowed to soak in the acid mixture until the coating is removed. The baskets are then removed from the acid tanks and dipped in the water tanks as a rinse. These then go for further pressure washing to ensure they have been fully cleaned.

Once the pickled metal is pressure washed it is then retested to ensure that the coating is fully removed using the handheld x-ray device. If any of the coating remains, then the metal is sent back for a further soak to remove it. If the coating has been fully removed it then first of all it is dried in the oven and then goes forward for further size reduction using the cutting or grinding equipment or it is packed and made ready for despatch to the customer.

The acid mixture is removed every 3 to 4 weeks dependent on production volumes. The water baths are also changed at the same time. A barrel pump is used to empty each of the tanks to an IBC and this is then sent off-site using an approved waste contractor.

The fumes off the acid tanks are vented via a scrubber system. The scrubber system is fitted with a water bath. There is also a dosing pump which periodically doses sodium hydroxide (NaOH) to neutralise any of the acidity in the water bath prior to venting to atmosphere via a roof line stack. The extraction hoods are directly over the tanks. The tanks are lidded during the pickling process, so it is only during loading and unloading operations when they are open. The tanks are heated to 50°C to aid the pickling process. The NaOH is in an IBC co-located with the acid tanks. The area has a chemical spill kit.

This pickling line will become the research and development pickling process when the new pickling line is operational. The tanks will either remain the same configuration e.g. 4 acid tanks to 2 wash tanks or will be changed to 5 acid tanks to 1 wash tank.



The chemical mixture will be 5-10% HCl. The tank will have an anode and cathode and sonic probe to remove high value metals from some specialist coatings which use platinum/silver/gold as a coating.

The site has a vibro barrelling machine to remove dirt and rough edges by the metal tumbling on each other and stones to take of edges. This is then washed with a detergent water mix prior to being dried. The detergent goes to a filter tank prior to reuse whilst the water is discharged to sewer.

There are also 2 shot blasting units with a third smaller unit being prepared. The metal is loaded into a hopper in the mill. This has 6 or 8 paddles and is then spun at high velocity with steel grit to remove the coating. The steel grit gets constantly recirculated. The shot blasting only occurs between 7.15 and 15.45 Monday to Thursday and 7.00- 15.30 on Fridays.

The shot blasters vent via a Donaldson Torrit local exhaust ventilation extraction system. This system includes for a filter which collects all the dust particles/shot and metal which is collected in a drum and is then sent off-site for recycling also. There is a pressure control system which shows when filter cartridges need replacing. The unit is serviced each year and the cartridges changed at the direction of the service engineer.

In addition, there is a baler which can be used to crush like metals to a bale for easy transport to the customer.

The new pickling line will have greater capacity to treat metals. There will be 12 tanks with 8 acid tanks and 4 wash tanks (all 1500 mm long x 770mm wide x 1130mm high) each 1.3m³. The tanks would not be filled all the way to the top and would have sufficient headroom to avoid spillage so are likely to be a maximum of 1,200 litres each. They will operate on the same principle as described for the current pickling process. They will include an anode and cathode extraction system to take metallics from the acid tanks and further prolong the life of the acids before requiring replacement.

These tanks are set within a bund which has a sump and a float switch which would discharge anything in the sump to an IBC.

The extraction system is the same as for the pre-existing process with extraction hoods via a water bath trickle fed with NaOH prior to discharge to atmosphere. This will be independent to the original scrubber system so there will be two separate vents.

In addition, there is an onsite laboratory with an XRF machine, this will provide a true analysis of material down to parts per million (PPM), an ICP machine due to be installed in the near future to produce provide a true analysis to parts per Billion (PPB), a polishing and preparation machine and Leco Units for gas levels (Nitrogen, Oxygen, Hydrogen, Carbon and Sulphur) found within the alloys.

3 CONDITION OF LAND AT PERMIT ISSUE

3.1 INTRODUCTION

This section of the SCR provides information on the condition of the land within the site boundary. Information was obtained from both private and public sources and, in particular, was obtained from Avon Speciality Metals Limited and from an Envirocheck report (Appendix B), dated October 2020.

Table 3-1 – Public Domain Information

Document / Resource Title	Information Obtained
Historical Ordnance Survey Plans	Information relating to: Historical land use of site Historical land use of surrounding area
Envirocheck Report, October 2020	Environmental data relating to: Operational and non-operational landfills Abstraction Licenses (groundwater and surface water) Chemical releases Discharge consents EPR Authorisations Pollution Incidents River Quality Surveys Operational and non-operational scrap yards and waste transfer / treatment sites Current industrial land uses Geology and hydrogeology Statutory records and authorisations Borehole and trade directory entries
British Geological Survey Website	Type of geology (bedrock and superficial)
Coal Authority Website	Mineral extraction data
GOV.UK Website	Environmental data obtained from MAGIC Maps relating to groundwater source protection zones and aquifer designations Flood Risk (Flood Map for Planning) Environment Agency Public Register
HSE Website	HSE COMAH 2015 Public Information

3.2 ENVIRONMENTAL SETTING

REGIONAL AND SITE GEOLOGY

Geological mapping (<http://mapapps.bgs.ac.uk/geologyofbritain/home.html>) shows the site to be underlain by Tidal Flat Deposits - Clay, Silt and Sand. The bedrock layer is Blue Lias Formation and Charmouth Mudstone Formation (undifferentiated) – Mudstone. The thickness of the superficial and bedrock layers is not indicated on the geological maps reviewed.

The site is built up with an industrial unit and hardstanding which is probably underlain by a layer of made ground.

MINERAL EXTRACTION

Coal Mining

Information from the Coal Authority website (<https://www.groundstability.com/public/web/log-order?execution=e3s2>) confirms that the site is not located within a coalfield and that a coal mining report is not required.

Other Mining

The Envirocheck report states that there is no hazard to the site being impacted by non-coal mining areas of activity.

The potential for collapsible ground stability hazards has been classified as 'no hazard'. The potential for compressible ground stability hazards has been classified as 'moderate' on the site itself although there is a 'no hazard' risk area close to the site. Similarly, the potential for ground dissolution, landslide, running sand and shrinking or swelling ground stability hazards is classified as 'no hazard', 'very low', 'moderate' and 'low' hazard potential respectively.

HYDROGEOLOGY AND HYDROLOGY

Hydrogeology

The superficial and the bedrock aquifer of the area is classified as a Secondary Aquifer - Undifferentiated as per the Aquifer Designation Map available on the MAGIC.GOV website. A **Secondary A** aquifer is a permeable layer capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.

The site is not located within a Nitrate Vulnerable Zone (NVZ) as shown on MAGIC and in the Envirocheck report. The site does lie within a Drinking Water Safeguard Zone for surface water. These are established around public water supplies where additional pollution control measures are needed, as defined in the summary published on the GOV.UK website by the Environment Agency on 19th October 2020.

No ground investigations have been carried out on the site to date.

Hydrology (Surface Water)

The nearest surface water feature is the Gloucester and Sharpness Canal which is 88 m north west of the site boundary. The other significant surface water feature is the River Severn which is approximately 750m to the West.

Risk of flooding from rivers and sea

According to EA data held on the GOV.UK website almost 75% of the site area is located within a low risk area, where the risk of flooding is between 1 in 1000 (0.1%) and 1 in 100 (1%). Remaining portions of area along the southern boundary is located within a very low risk area, where the risk of flooding each year is less than 1 in 1000 (0.1%).

Risk of flooding from surface waters

Surface water flooding occurs when rainwater does not drain away through the normal drainage systems or soak into the ground but lies on or flows over the ground instead.

According to Environment Agency (EA) data held on the GOV.UK website the site is located within a very low risk area, where the risk of surface water flooding each year is less than 1 in 1000 (0.1%).

ENVIRONMENTAL CONSENTS, LICENSES, AUTHORISATIONS, PERMITS AND DESIGNATIONS FOR THE SITE AND SURROUNDING AREA

The following section contains regulatory information associated with the site and its surrounding area. This information has been obtained from the Envirocheck Report and information publicly available on the Environment Agency Public Register and the HSE COMAH Sites Register. The nearest postcode of PL32 9YG has been used for the online searches.

COMAH Sites

No registered COMAH sites were found within 1 km of the site on the HSE COMAH 2015 Public Information online search tool.

Integrated Pollution Prevention & Control (IPPC) / Environmental Permitting Regulations (EPR) Authorisations

There are four IPPC permit listed within 1 km of the site. Table 3-2 below provides a summary of the sites with IPPC / EPR permits within 1 km of the site.

Table 3-2 – IPPC / EPR Authorisations

Name	Details	Direction	Distance (m)
UK Power Reserve Limited	Permit reference number HP3208PQ	South West	251 m
Uwin Bio Ltd	Permit reference number SP3231UM	South	500 m
Severn Trent Water Limited	Permit reference number WP3331JQ	South West	957 m
Severn Trent Water Limited	Permit reference number KP3007PD	South West	957 m

Local Authority Environmental Permits

Table 3-3 below shows details of sites within 1 km which are permitted by the Local Authority, Gloucester City Council as per the Envirocheck Report.

Table 3-3 – Local Authority Permitted Sites

Name	Details	Direction	Distance (m)
Dcs Car Repairs Ltd	PG6/34 Respraying of road vehicles Permit Reference EP25-08	North	51
Travis Perkins	Unloading of petrol PG1/14 Permit Reference EP59-08	North East	67
Avon Metals	Production and Processing of Metals Permit Reference A2-1-03	North East	163
Pj Nicholls Ltd	PG1/14 Petrol filling station Permit Reference PPc42-05	South West	290
Joseph Griggs & Co Ltd	PG6/2 Manufacture of timber and wood-based products Permit Reference PPc18-03	North	447
Bristol Street Motors	PG6/34 Respraying of road vehicles Permit Reference EP23-09	South West	484
Nicks & Co Timber	PG6/2 Manufacture of timber and wood-based products Permit Reference PPc15-03	North East	593
Cemex Uk Materials Ltd	PG3/1 Blending, packing, loading and use of bulk cement Permit Reference Ppc11-03	South West	734
Chelmix Ltd	PG3/1 Blending, packing, loading and use of bulk cement Permit Reference Ppc09-03	South	769
Baylis	PG6/34 Respraying of road vehicles Permit Reference EP24-09	South	988

Radioactive Substances Authorisations

There are no registered Environmental Permits for Radioactive Substances operations within 5 km of the site as per the Environment Agency’s Public Register.

Groundwater and Surface Water Abstractions

The Envirocheck Report indicates that there are 5 licensed groundwater abstractions within 1km of the site with a further 1 licensed groundwater abstractions present within 2km of the site. These are outlined in Table 3-4 below. The Envirocheck report has multiple references for individual licence but they have been included once only for the purposes of this section.

Table 3-4 – Groundwater/Water Abstractions within 2km of the Site

Licensee	Details	Direction	Distance (m)
Canal and River Trust	Bristol Channel Fisheries - Gloucester & Sharpness Canal	South West	202
British Waterways Board	Other Industrial/Commercial/ Public Services: Non-Evaporative Cooling Source: Surface	North	404
Canal and River Trust	Machinery and Electronics: Hydraulic Testing Source: Surface	South West	561
Canal and River Trust	Mineral Products: General Washing/Process Washing Source: Surface	South West	733
Canal and River Trust	Mineral Products: Process Water Source: Surface	South West	733
British Waterways Board	Other Industrial/Commercial/ Public Services: Non-Evaporative Cooling Source: Surface	North	1057

Discharge Consents

There are ten registered (current / active) discharge consents within 1 km of the site as per the Envirocheck report. These are listed in Table 3-5 below.

Table 3-5 – Discharge Consents

Licensee	Details	Direction	Distance (m)
European Metal Recycling Limited	Trade Effluent Discharge-Site Drainage <i>Discharge to Freshwater Stream/River – Black Ditch</i>	South	119
British Gas Properties	Trade Discharges - Site Drainage (Contaminated Surface Water, Not Tips) <i>Discharge to ditch – Black Ditch</i>	South	167
National Grid Property Holdings Limited	Trade Discharges - Site Drainage (Contaminated Surface Water, Not Tips)	South	167

Licensee	Details	Direction	Distance (m)
	<i>Discharge to Freshwater Stream/River – Black Ditch</i>		
Severn Rewinds Portakabin Limited	Sewage Discharges - Final/Treated Effluent - Not Water Company <i>Discharge to Freshwater Stream/River – Black Ditch</i>	West	135
Gloucester Boathouse Limited	Sewage Discharges - Final/Treated Effluent - Not Water Company <i>Discharge to Freshwater Stream/River – Black Ditch to River Severn</i>	West	191
Severn Trent Water Limited	Public Sewage: Storm Sewage Overflow <i>Discharge to Freshwater Stream/River – Tributary of River Severn</i>	South East	201
Severn Trent Water Limited	Trade Effluent Discharge-Site Drainage <i>Discharge to Freshwater Stream/River – Whaddon Brook</i>	South West	689
Ready Mix Concrete	Trade Discharge - Process Water <i>Discharge to Freshwater Stream/River – Gloucester/Sharpness Canal</i>	South West	741
Severn Trent Water Limited	Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company <i>Discharge to Saline Estuary – River Severn Estuary</i>	West	970
Severn Trent Water Limited	Discharge of Other Matter-Crude Effluent <i>Discharge to Saline Estuary – River Severn Estuary</i>	West	997

Operational and Non-Operational Landfills

The Envirocheck Report shows two historical landfills within 1km of the site. There is a record of an onsite historical landfill site but the use of which is unknown according to the Envirocheck report. The second historical landfill site is situated 973 m West of the site for which the deposited waste included Inert and Commercial Waste.

There are two Local Authority Landfill Coverages consisting of Gloucestershire County Council; which has supplied landfill data as part of the Envirocheck report and Gloucester City Council; which doesn't have any landfill data to supply.

Registered Waste Transfer / Treatment Sites

There is no registered waste transfer site within 1 km of the site in accordance with the Envirocheck report. There are two registered waste treatment sites within 1 km of the site in accordance with the Envirocheck report the details of which have been included in the table below.

Table 3-6 – Registered Waste Treatment Sites

Licensee	Details	Direction	Distance (m)
Cooper (Metals) Ltd	Categorised as Scrapyard Authorised waste includes: Fragmentiser Waste, Scrap Equipment, Scrap Metal, Scrap Vehicles, Swarf/Turnings, Transformers/Capacitors	North West	21
Cleave Motor Salvage	Categorised as Scrapyard Authorised waste includes: Scrap vehicles	North East	979

SSSI's and Sensitive Habitats

The site does not lie within any designated areas. According to the Envirocheck report, and a search undertaken on MAGIC.GOV, there are the following ecologically designated sites within 2km of Avon Speciality Metals limited:

- Alney Island Local Nature Reserve (LNR);
- Robinswood Hill LNR;
- Quedgeley Arboretum (LNR);
- Green Farm Orchard LNR;
- Robin's Wood Hill Quarry Site of Special Scientific Interest (SSSI); and
- River Severn Special Area of Conservation (SAC).

Nitrate Vulnerable Zones (NVZ)

The site is not in a designated Nitrate Vulnerable Zone (NVZ) as per the 2017 designations (England) in accordance with the MAGIC.GOV Maps.

Radon

The site lies in the lowest band of radon potential as less than 1 % of homes above the Action Level' as per the UK Radon Maps (<https://www.ukradon.org/information/ukmaps>). This means that no radon protective measures are necessary in the construction of new dwellings or extensions full radon protective measures are necessary in the construction of new dwellings or extensions.

3.3 POLLUTION HISTORY

POLLUTION INCIDENTS WHICH MAY HAVE AFFECTED THE LAND

There have been twenty-five pollution incidents to controlled waters within 1 km of the site. The nearest recorded pollution incident to the site was 142 m north which occurred in April 1998 and related to deliberate disposal of diesel oils to a canal. This was classified as a Category 3 minor incident.

These pollution incidents are presented in Table 3-7 below.

Table 3-7 – Pollution Incidents to Controlled Waters

Property Type	Pollutant	Incident Date	Receiving Water	Severity of Incident	Distance from Site
Ships/Boats	Oils - Diesel (Including Agricultural)	11 th April 1998	Canal	Category 3 – Minor	142 m North
Ships/Boats	Oils - unknown	7 th June 1996	Canal	Category 3 – Minor	244 m South West
Miscellaneous Premises	Miscellaneous - Inert Suspended Solids	21 st April 1997	Watercourse	Category 3 – Minor	327 m West
Industrial	Oils - Diesel (Including Agricultural)	10 th April 1996	Watercourse	Category 3 - Minor	336 m East
Metal Industry	Oils - Other Oil	19 th February 1998	Watercourse	Category 3 - Minor	350 m North East
Power Generation/Distribution	Oils - Waste Oil	1 st June 1998	Watercourse	Category 3 - Minor	392 m North East
Engineering	Oils - Other Oil	22 nd March 1996	Watercourse	Category 3 - Minor	420 m North East
Metal industry	Oils - Other Oil	26 th February 1997	Watercourse	Category 3 - Minor	564 m South
Fire Water	Oils - Other Fuel Oil	14 th May 1996	Watercourse	Category 3 - Minor	589 m West
Miscellaneous Premises: Unknown	Oils - Diesel (Including Agricultural)	30 th January 1997	Watercourse	Category 3 - Minor	655 m South West

Property Type	Pollutant	Incident Date	Receiving Water	Severity of Incident	Distance from Site
Private Sewage (Non-PLC): Surface Water Outfall	Oils - Unknown	25 th April 1997	Canal	Category 3 - Minor	677 m South West
Miscellaneous Premises: Unknown	Oils - Unknown	2 nd July 1997	Canal	Category 3 - Minor	680 m South West
Industrial: Other	Oils - Diesel (Including Agricultural)	28 th August 1997	Canal	Category 3 - Minor	681 m South West
Miscellaneous Premises: Unknown	Oils - Other Oil	23 rd September 1997	Canal	Category 3 - Minor	685 m South West
Industrial: Other	Chemicals - Acid	5 th October 1995	Watercourse	Category 2 - Significant	691 m South
Industrial: Other	Oils - Diesel (Including Agricultural)	26 th August 1997	Watercourse	Category 3 - Minor	694 m South West
Power Generation/Distribution	Oils - Waste Oil	20 th July 1997	Canal	Category 3 - Minor	727 North East
Miscellaneous Premises: Other	Oils – Gas Oil	14 th December 1995	Canal	Category 2 - Significant	741 m South West
Miscellaneous Premises: Unknown	Oils - Unknown	12 th April 1999	Watercourse	Category 3 - Minor	742 m South West
Miscellaneous Premises: Unknown	Miscellaneous - Unknown	12 th August 1995	Watercourse	Category 2 - Significant	825 m South West
Road (Road Traffic Accident)	Oils - Diesel (Including Agricultural)	30 th September 1996	Canal	Category 3 - Minor	830 m South West
Engineering	Oils - Diesel (Including Agricultural)	7 th May 1998	Watercourse	Category 3 - Minor	852 m South West

Property Type	Pollutant	Incident Date	Receiving Water	Severity of Incident	Distance from Site
Industrial: Other	Other Chemicals	10 th April 1996	Canal	Category 3 - Minor	849 m North
Miscellaneous Premises: Other	Oils - Other Oil	11 th May 1996	Not Given	Category 3 - Minor	943 m South West
Ships/Boats	Rubble/Litter or Solids	25 th August 1997	Canal	Category 3 - Minor	947 m South West

No substantiated pollution incidents have been recorded within 100 m of the site. Substantiated incidents are those that have had a significant impact on a receptor. These are shown in Table 3-8 below. Three substantiated incidents have been recorded up to 500 m from the site.

Table 3-8 – Substantiated Pollution Incidents

Authority	Pollutant	Incident Date	Severity of Incident	Distance from Site
Environment Agency - Midlands Region, West Area	Oils - Cutting Oils	8 th January 2002	Water: Category 2 – Significant Incident Air: Category 4 – No impact Land: Category 4 - No Impact	343 m West
Environment Agency - Midlands Region, West Area	Oils - Cutting Oils	19 th December 2001	Water: Category 2 – Significant Incident Air: Category 4 – No impact Land: Category 4 - No Impact	343 m West
Environment Agency - Midlands Region, West Area	Oils - Cutting Oils	17 th January 2002	Water: Category 2 – Significant Incident Air: Category 4 – No impact Land: Category 4 - No Impact	345 m West

There are no Enforcement and Prohibition notices listed in the Envirocheck report.

There is one prosecution relating to authorised processes within 1 km of the site. The details are presented in Tables 3-9. There have been no prosecutions relating to controlled waters within 1 km.

Table 3-9 – Prosecutions relating to authorised processes

Location	Pollutant	Date of incident	Direction	Distance (m)
Bristol Road, Gloucester, Gloucestershire, GL2 6BX	Failure to use BPM to prevent an unauthorized release of ammonia	28 th November 1994	North East	401 m

HISTORICAL LAND USE AND ASSOCIATED CONTAMINANTS

A study has been undertaken of historical Ordnance Survey maps from 1884 to 2020. A selection of historical mapping has been presented in Appendix C.

Site History

The earliest map from 1884 indicates that the site forms a part of undeveloped land with the growth of non-coniferous trees and no buildings on the site itself. However, since at least 1902, the site has been cleared and remains the same till at least 1975.

The map reviewed from 1986 shows that the site has been developed with a single building running along the southern boundary of the site. The north western corner of the site remains vacant and is being used for parking purposes. The site has been labelled as Works. There is no change in the site layout since 1986.

Surrounding Area History

The following history of the surrounding area nearby to the site was taken from the review of the Envirocheck Reports historical mapping.

Surrounding Features	Distance	Dates	Direction
Depot	30m	Pre 1985 - Present	North
Warehouse	30m	Pre 1985 - Present	North
New Docs Branch (Railway line) Then Dismantled Railway	40m	Pre 1923 – Pre 1972 Pre 1972 – Pre 1994	East
Builder's Merchant Depot	60m	Pre 1972 - Present	North
Works	60m	Pre 1986 - Present	West
Depot Then undeveloped land	70m	Pre 1970 – Pre 2000 Pre 2000 - Present	South

Surrounding Features	Distance	Dates	Direction
Oil Storage Depot Then unlabelled building	80m	Pre 1970 – Pre 1986 Pre 1986 - Present	South West
Garage Then Warehouse	90m	Pre 1923 – Pre 1970 Pre 1970 - Present	South West
Timber yard	90m	Pre 1923 Pre 1970	North West
Breaker's Yard Then land cleared and subsequently unlabelled buildings come up	130m	Pre 1970 – Pre 1975 Pre 1975 - Present	South
Warehouse Then Works	140m	Pre 1884 – Pre 1986 Pre 1986 - Present	North West
Standard Match Factory Then Depot Then additional buildings developed and existing one demolished	150m	Pre 1923 – Pre 1975 Pre 1975 – Pre 1986 Pre 1986 - Present	West
Builder's Yard Then unlabelled buildings	150m	Pre 1970 – Pre 1975 Pre 1975 - Present	South
Scrap Metal Yard	170m	Pre 1972 - Present	North
Motor Body Repair Works Then unlabelled buildings	180m	Pre 1956 – Pre 1994 Pre 1994 - Present	South
Warehouse	220m	Pre 1972 - Present	North
Heavy Goods Vehicle Testing Station	230m	Pre 1972 – Present	North East
Ashville Industrial Estate	230m	Pre 1972 – Present	North East
Biscuits Depot	250m	Pre 1972 - Present	North East
Concrete works Then works and depot Then unlabelled buildings	280m	Pre 1923 – Pre 1970 Pre 1970 – Pre 1990 Pre 1990 - Present	South West
Gloucester Gas works	310m	Pre 1884 – Pre 2020	South
New Docs Branch (Railway line) Then Dismantled Railway	320m	Pre 1902 – Pre 1972 Pre 1972 – Pre 1994	North East

Surrounding Features	Distance	Dates	Direction
Timber Yard	330m	Pre 1956 – Present	North
Chemical Works Then few unlabelled buildings and subsequently cleared land area	330m	Pre 1972 – Pre 2013 Pre 2013 – Present	North East
Chemical Works Then few unlabelled buildings and subsequently cleared land area	370m	Pre 1923 – Pre 2013 Pre 2013 – Present	North
Marble Works Then Engineering works Then undeveloped land and subsequently residential buildings	410m	Pre 1923 – Pre 1956 Pre 1956 – Pre 2013 Pre 2013 - Present	North-East
Timber yard Then Saw Mills and Joinery Works	420m	Pre 1884 – Pre 1923 Pre 1923 - Present	North
Engineers Works Then undeveloped land and subsequently residential buildings	450m	Pre 1972 – Pre 2013 Pre 2013 - Present	North East
Kilns and Brick works Then Timber yard	470m	Pre 1884 – Pre 1902 Pre 1923 -	South
Engineering works Then undeveloped land and subsequently residential buildings	490m	Pre 1936 – Pre 2013 Pre 2013 - Present	North

VISUAL / OLFACTORY EVIDENCE OF EXISTING CONTAMINATION IDENTIFIED BY EXISTING SITE INVESTIGATION AND ASSESSMENT REPORTS

There have been no ground investigation reports undertaken to date.

During the site visit there was no visual or olfactory evidence that would point to the existence of any contamination especially as the operation is undertaken on competent hardstanding both internally and externally.

3.4 SITE RECONNAISSANCE

A site reconnaissance was undertaken on 08th July 2020 by Stuart Clayton of WSP and accompanied by Des Dillon of Avon Speciality Metals Limited. The purpose of the reconnaissance was to inspect the site to be included in the environmental permit application, confirm the current land use as identified by the desk based review and identify any evidence of or potential sources of contamination.

As detailed above there was no visual or olfactory evidence of contamination.



3.5 BASELINE REFERENCE DATA

No reference data was collected at the commencement of the operation of Avon Speciality Metals Limited at the site in 2012.

4 PERMITTED ACTIVITIES

4.1 OVERVIEW

The site accepts waste and virgin metals in a number of ways which include in shipping containers, vans, or heavy goods vehicles (HGV). The metals are stored in drums, bags, strapped to pallets, in metal cages or boxes. The vehicles and containers that deliver the metals to site are covered at all times.

The metal waste can come in a variety of forms which include:

- Metal parts (e.g casting runners and risers, small castings, targets and turbine blades);
- Metal turnings and fines.

Once the load has been verified as to the alloy that is received then it goes forward for treatment. This treatment can take a number of forms:

- Cleaning of metals to remove any dirt or post pickling rinse;
- Cutting and grinding (using mechanical cutters/grinders to a plasma arc cutter) to reduce the size of the metal;
- Shot blasting for both cosmetic finish or to remove a coating; and
- Pickling to remove a coating such as a thermal barrier.

A detailed description of the existing permitted activities is provided in Section 2.2

4.2 PERMITTED AND NON-PERMITTED ACTIVITIES

Table 4-1 below shows the activities that take place within the site along with the capacities of each activity.

Table 4-1 Activity capacities and throughput

Activity	Disposal and Recovery codes	Throughput (tonnes per day)	Capacity
Waste Storage	R 13 Storage of waste pending any of the operations numbered R 1 to R 12 (excluding temporary storage, pending collection, on the site where the waste is produced)	Up to 25 tonnes in one day	Maximum of 500 tonnes at any one time
Cutting and Grinding	-	Up to 5 tonnes per day (based on 5-day week 48 weeks per year)	Up to 1,200 tonnes per annum
Pickling	R 4 Recycling/ reclamation of metals and metal compounds		



Activity	Disposal and Recovery codes	Throughput (tonnes per day)	Capacity
Research and Development Process	R 4 Recycling/ reclamation of metals and metal compounds		
Shot blasting	R 4 Recycling/ reclamation of metals and metal compounds		
Vibro Barrelling	R 4 Recycling/ reclamation of metals and metal compounds		

5 RISKS TO LAND AND GROUNDWATER

This SCR provides an assessment of the risks to land and groundwater from the activities undertaken by Avon Speciality Metals Limited at its site. The report includes identification of the activities undertaken and associated materials used on site, the mitigation measures employed and the resultant risk and these were considered as part of the original permit determination.

This section of the SCR is updated to identify the potential risks to the land and groundwater posed by the site as part of this new application.

5.1 STORAGE TANKS AND ASSOCIATED PIPEWORK

Tables 5-1 and 5-2 below provide details of the tanks in place at the site.

Table 5-1 – Above Ground Tanks

Tank Ref	Contents	Volume (litres / m ³)	Ancillary Pipework (incl. fill & draw lines / points)	Secondary / Tertiary Containment Feature
Current Pickling line: Water tank x 2	Water	400 litres each	All ancillary pipework's are within the metal bund above concrete hardstand.	The water tanks are within the metal bunds which act as a secondary containment and are bolted on the concrete floor. The wider building stands on a concrete hardstanding which acts as a tertiary containment.
Current Pickling line: Pickling/Acid Tank x 4	The pickling tanks are filled with an acid mixture of 80% Hydrochloric acid (HCl@32% strength) and 20% ferric chloride (@40% strength) which in itself is a 40% liquid blend	400 litres each	All ancillary pipework's are within the metal bund above concrete hardstand.	The acid tanks are within the metal bunds which act as a secondary containment and are bolted on the concrete floor. The wider building stands on a concrete hardstanding which acts as a tertiary containment.
New Pickling line: Water tank x 2	Water	1,200 litres each (1500 mm long x 770mm wide x 1130mm high)	All ancillary pipework's are within the metal bund above concrete hardstand.	The water tanks are within the metal bunds which act as a secondary containment and are bolted on the concrete floor. The wider building stands on a concrete hardstanding which acts as a tertiary containment.

Tank Ref	Contents	Volume (litres / m ³)	Ancillary Pipework (incl. fill & draw lines / points)	Secondary / Tertiary Containment Feature
New Pickling line: Pickling/Acid Tank x 6	The pickling tanks are filled with an acid mixture of 80% Hydrochloric acid (HCl@32% strength) and 20% ferric chloride (@40% strength) which in itself is a 40% liquid blend	1,200 litres each (1500 mm long x 770mm wide x 1130mm high)	All ancillary pipework's are within the metal bund above concrete hardstand.	The acid tanks are within the metal bunds which act as a secondary containment and are bolted on the concrete floor. The wider building stands on a concrete hardstanding which acts as a tertiary containment.
Scrubber system: IBC x 2	Sodium hydroxide	1,000 litres each	All ancillary pipework's are within the metal bud above concrete hardstand.	Stored in IBCs within the metal bunds which act as a secondary containment and are bolted on the concrete floor. The wider building stands on a concrete hardstanding which acts as a tertiary containment.

Table 5-2 – Underground Infrastructure

Contents	Secondary / Tertiary Containment Feature	Containment Measures
Surface water	None	None
Foul sewage	None	None

All bulk storage tanks are located in areas of hard standing within a bund. Any spillages or loss of containment can be isolated through collection in sumps which is then pumped to an IBC for disposal.

There are other areas for the storage of materials in smaller containers such as IBCs and drums. These are located within buildings or also on concrete hardstanding with appropriate containment measures in place.

There are no underground storage tanks, although, there are underground surface water and foul drains at the installation.

5.2 CONCRETE HARDSTANDING AND BUNDS

The majority of the site is covered with a building and car park all of which are hardstanding. All tanks, storage vessels and bunds are located internally within the main building.

5.3 VEGETATION

The main factory site is predominantly surfaced with hardstanding although there is a small strip of land between the car parking and reception area and the vehicle delivery area which is soil out of which there is a row of trees.

5.4 SURFACE WATER FEATURES

There are no natural surface water features associated with the site.

5.5 NATURE OF THE STORAGE AND HANDLING OF MATERIALS

Materials to be stored in at site as a result of this application are detailed in Tables 5-1 and 5-2 above.

All raw materials will be delivered to the site in IBCs by van/small lorry. They will be offloaded within the main building and stored in a designated location, e.g. in the chemical storage area. The chemical bund in the corner of the workshop is for virgin material. Spent acid and water washings are stored in a shipping container in the outside yard area which can take 8 1,100 litre bulk containers.

Appendix B to the main application contains an Environmental Risk Assessment which summarise the potential risks and the proposed mitigation measures which will be put in place to minimise the risks from the storage and handling of any materials to prevent any pollution to land and or groundwater.

5.6 SURFACE WATER AND FOUL DRAINAGE

The main operational discharges to water from the site comprise:

- Surface water;
- Process effluent; and
- Foul water

There will be no changes to the drainage at the site. There will be no new emissions to water as a result of this permit application.

5.7 POLLUTING SUBSTANCES AND RELEVANT ACTIVITIES

Potentially polluting substances used at site are shown in Table 5-5 along with how they are stored and where they are used.

Table 5-3 - Potentially Polluting Substances

Substance	Activity
Ferric Chloride (40%)	Delivery to site in IBCs
	Current use – 3 tonnes Storage in chemical store
	Use in pickling process
Hydrochloric acid (32%)	Delivery to site in IBCs

Substance	Activity
	Current use – 10 tonnes Storage in chemical store
	Use in pickling process
Sodium Hydroxide	Delivery to site in IBCs
	Current use – 5 tonnes Storage in IBCs
	Use in pickling process
Ferric Chloride/HCl blend	Delivery to site in IBCs
	Current use – 10 tonnes Storage in chemical store
	Use in pickling plant

5.8 PREVENTATIVE MEASURES

The pollution preventative measures (physical infrastructure and those relating to testing, inspection and maintenance) for each relevant existing activity associated with the potentially polluting substances have been identified and their extent and condition assessed. For those potentially polluting substances and activities listed in Table 5-5, the nature of the pollution prevention measures has been assessed on the basis of primary, secondary or tertiary containment.

Table 5-4 - Pollution Prevention Measures for Relevant Activities

New Substance	Activity	Primary Containment	Secondary Containment	Tertiary Containment
Ferric Chloride	Delivery	Container of chemical / substance	To take place over concrete hardstanding	Wider building with concrete hardstanding and no drainage points.
	Storage	Pickling process rigid plastic tank	To be stored in a bunded area within the main building.	
	Use		To take place in a bunded area over concrete hardstanding	
Hydrochloric acid	Delivery	Container of chemical / substance	To take place over concrete hardstanding	

New Substance	Activity	Primary Containment	Secondary Containment	Tertiary Containment
	Storage		To be stored in a bunded area within the main building.	
	Use in pickling process	Pickling process rigid plastic tank	To take place in a bunded area over concrete hardstanding	
Sodium Hydroxide	Delivery	Container of chemical / substance	To take place over concrete hardstanding	
	Storage		To be stored in a bunded area within the main building.	
	Use in scrubber system		To take place in a bunded area over concrete hardstanding	
Ferric Chloride/HCl blend	Delivery	IBC	To take place over concrete hardstanding	
	Storage		To be stored in a bunded area within the main building.	
	Use in pickling process	Pickling process rigid plastic tank	To take place over concrete hardstanding	

6 OPERATIONAL PHASE SCR

In accordance with the template detailed in the Environment Agency publication: EPR H5 Site Condition Report: Guidance and Templates (Version 3.0 April 2013), the Operational Phase SCR requires the maintenance of four key areas:

- 4.0 Changes to the activity;
- 5.0 Measures taken to protect land;
- 6.0 Pollution incidents that may have had an impact on land, and their remediation; and
- 7.0 Soil gas and water quality monitoring (where undertaken).

These key areas are listed below and are intended to be updated and altered as required.

4.0 CHANGES TO THE ACTIVITY

Have there been any changes to the activity boundary?	To be completed for future variations.
Have there been any changes to the permitted activities?	To be completed for future variations.
Have any 'dangerous substances' not identified in the Application Site Condition Report been used or produced as a result of the permitted activities?	To be completed for future variations.

5.0 MEASURES TAKEN TO PROTECT LAND

Measures taken to Protect the Land	To be completed for future variations.
Checklist of supporting information	To be completed for future variations.

6.0 POLLUTION INCIDENTS THAT MAY HAVE HAD AN IMPACT ON LAND AND THEIR REMEDIATION

Pollution incidents that may have had an impact on land, and their remediation	To be completed for future variations.
Checklist of supporting information	To be completed for future variations.

7.0 SOIL GAS AND WATER QUALITY MONITORING (WHERE UNDERTAKEN)

Soil gas and water quality monitoring (where undertaken)	To be completed for future variations.
Checklist of supporting information	To be completed for future variations.



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