



Avon Speciality Metals Limited

ENVIRONMENTAL RISK ASSESSMENT REPORT

Centurion Industrial Estate



Avon Speciality Metals Limited

ENVIRONMENTAL RISK ASSESSMENT

Centurion Industrial Estate

TYPE OF DOCUMENT (VERSION) CONFIDENTIAL

PROJECT NO. 70066956

DATE: MARCH 2021

WSP

8 First Street
Manchester
M15 4RP

WSP.com



QUALITY CONTROL

Issue/revision	First issue	Revision 1	Revision 2
Remarks	Draft report		
Date	March 2021		
Prepared by	Charlotte Daniels		
Signature			
Checked by	Karen Phillipson		
Signature			
Authorised by	Stuart Clayton		
Signature			
Project number	70066956		
Report number	70066956/ERA/V1		
File reference			



CONTENTS

1	INTRODUCTION	1
1.1	AUTHORISATION	1
1.2	SITE DETAILS	1
1.3	BACKGROUND INFORMATION	2
1.4	OBJECTIVES OF THE ENVIRONMENTAL RISK ASSESSMENT	2
1.5	RECEPTORS	3
2	ENVIRONMENTAL RISK ASSESSMENT	4
2.1	SCOPE	4

TABLES

Table 1-1 - Site Details	1
Table 1-2 - Ecological Receptors	3
Table 1-3 - Human Receptors	3
Table 2-1 - Discharges to sewer, surface or groundwater	4
Table 2-2 - Accidents	7
Table 2-3 - Odour	10
Table 2-4 - Noise and Vibration	12
Table 2-5 - Uncontrolled or unintended fugitive emissions	14
Table 2-6 - Visible emissions	19

1 INTRODUCTION

1.1 AUTHORISATION

This Environmental Risk Assessment (ERA) 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 SITE DETAILS

The site details can be seen in Table 1-1 below.

Table 1-1 - 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:	<p>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.</p> <p>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.</p>

1.3 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.

1.4 OBJECTIVES OF THE ENVIRONMENTAL RISK ASSESSMENT

The ERA is undertaken in accordance with the following steps:

- Identify and consider risks for the site, and the sources of the risks.
- Identify the receptors (people, animals, property and anything else that could be affected by the hazard) at risk from the site.
- Identify the possible pathways from the sources of the risks to the receptors.
- Assess risks relevant to the specific activity and check they are acceptable and can be screened out.
- State what the site will do to control risks if they are too high.

1.5 RECEPTORS

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:

Table 1-2 - Ecological Receptors

Direction	Ecological Site	Distance
North	Alney Island Local Nature Reserve	2,000
South east	Robinswood Hill Local Nature Reserve (LNR)	1,170
South west	Quedgeley Arboretum LNR	2,500
South east	Green Farm Orchard LNR	1,200
South east	Robin's Wood Hill Quarry Site of Special Scientific Interest (SSSI)below and	2,000

The following human receptor locations are shown in Table 1-3 below.

Table 1-3 - Human Receptors

Direction	Location	Distance
North	Houses on Kaskelot Way	450
North east	Houses on Tuffley Crescent	490
East	Houses on Milton Avenue, Mansell Close and Harvey Close	300
South east	Milton Avenue Play Area	200
South east	Podsmead Community Centre	310
South east	Houses on Betjeman Close and Shakespeare Avenue	260
South east	Capitol Park (sports ground)	400
North west	Houses on The Anchorage and Hempsted Lane	180
North west	Houses on The Forge and Horseshoe Way	375



2 ENVIRONMENTAL RISK ASSESSMENT

2.1 SCOPE

The ERA has been undertaken in accordance with the following guidance:

<https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit>

The risk assessment should consider risk associated with:

- any discharge, for example sewage or trade effluent to surface or groundwater
- accidents
- odour
- noise and vibration
- uncontrolled or unintended ('fugitive') emissions, for which risks include dust, litter, pests and pollutants that should not be in the discharge
- visible emissions, for example smoke or visible plumes

The risks associated with the above issues are considered in the following risk tables along with proposed risk management measures and the overall remaining risk.

Table 2-1 - Discharges to sewer, surface or groundwater

Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Uncontrolled release to sewer	Local sewage treatment works	Site drains	Only vibro barrelling process discharges to the sewer and can cease operations by hitting the emergency shut off. All equipment which stores chemicals or oils with the potential to impact the drainage are subject to a maintenance programme to ensure	Very Low	Contamination of sewer	Not significant if management practices adhered to

Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
			<p>that they are operated in accordance with manufacturers recommendations.</p> <p>The sewage treatment works is capable of treating any potential release from the vibro barrelling process.</p> <p>Any spill/leaks are recorded in accordance with the EMS and are reviewed as part of annual management review in order to assess trends and target opportunities for improvements.</p>			
Uncontrolled release to surface water	<p>Surface Water Drainage</p> <p>Gloucester and Sharpness Canal</p> <p>River Severn</p>	Site Drains	<p>All activities take place inside the building with no opportunity to escape.</p> <p>All equipment which stores chemicals or oils with the potential to impact the drainage are subject to a maintenance programme to ensure that they are operated in accordance with manufacturers recommendations.</p> <p>Any spill/leaks are recorded in accordance with the EMS and are reviewed as part of annual management review in order to assess trends and target opportunities for improvements.</p> <p>Any potential impact to the ground or Gloucester and Sharpness Canal/River Severn will be reported to the Environment Agency in accordance with the requirements of the environmental permit.</p>	Very Low	Contamination of surface water drainage and surface water	Not significant if management practices adhered to



Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Uncontrolled release to groundwater	Land Groundwater	Site drains Land Ground water	<p>All opportunities take place in a building on hardstanding and would have no opportunity to escape.</p> <p>Any potential release would require failure of primary and secondary containment.</p> <p>All equipment which stores chemicals or oils with the potential to impact the land or groundwater are subject to a maintenance programme to ensure that they are operated in accordance with manufacturers recommendations.</p> <p>Any spill/leaks are recorded in accordance with the EMS and are reviewed as part of annual management review in order to assess trends and target opportunities for improvements.</p>	Very Low	Contamination of land/ groundwater	Not significant if management practices adhered to



Table 2-2 - Accidents

Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Release of metal	Land Groundwater	Spillage during delivery/ transfer Failure of containers	<p>A procedure will be implemented for the supervision of deliveries.</p> <p>Loading area is kept clear with access to loading points maintained.</p> <p>All deliveries are secure in drums/IBCs or strapped to pallets and are delivered in covered or enclosed vehicles.</p> <p>Operator will be in attendance throughout the offloading operation to take appropriate action in the event of a spillage.</p> <p>Any spillage will be swept up immediately.</p> <p>Loading and transfer of metals will take place in the building in areas protected from wind.</p>	Very Low	Contamination of land/ groundwater	Not significant if management practices adhered to
Release of chemicals/oils	Land Groundwater Soil/ vegetation	<p>Failure of storage vessel/ containers.</p> <p>Spillages during deliveries.</p>	<p>A procedure will be implemented for the supervision of deliveries.</p> <p>Loading area is kept clear with access to loading points maintained.</p> <p>Operator will be in attendance throughout the offloading operation to take appropriate action in the event of a spillage.</p> <p>Spill kits are available.</p> <p>All areas where chemical/oil is offloaded will be on concrete hardstanding within the main building.</p> <p>Any drums/IBCs of chemical/oil on site would be stored with their lids on unless they are being</p>	Very Low	Contamination of land/ groundwater	Not significant if management practices adhered to



Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
			<p>used to change chemical in the pickling tanks, lubricating or machine oil.</p> <p>The tanks used for pickling would not be filled all the way to the top and would have sufficient headroom to avoid spillage. These tanks are set within a bund which has a sump and a float switch which would pump anything in the sump to an Intermediate Bulk Container (IBC). All containers are located in bunds sized to contain 110% of the largest tank or 25% of the total tankage.</p> <p>The EMS has procedures in place for the management of spillages and emergencies.</p>			
Adverse reaction acid/alkali	Plant workers Members of the public Wildlife Soil Groundwater	Air Groundwater	<p>Acids and Alkalis are stored in separate vessels. Each of these vessels (IBC for alkali and rigid plastic tanks for acids) are resistant to the materials being stored.</p> <p>Any potential for these to mix would require a simultaneous failure of each primary containment which is considered extremely improbable.</p> <p>The tanks and IBCs are located in separate rooms with one side open where the bund is located. There is no access to mobile plant to these areas.</p> <p>The tanks and IBCs are subject to checks by the operators during daily use who would observe any defects.</p>	Low	Hydrochloric acid (HCl) is used in the process, which, if accidentally combined with alkaline reagents, such as during an accidental spillage, could create heat and this reaction could also damage the concrete. It is considered	Low if management practices are adhered to



Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
			<p>The site has in place emergency procedures which would enable safe evacuation should an incident occur.</p> <p>All staff who work on the pickling process are trained in the handling of chemicals.</p> <p>Safety data sheets are maintained at point of use which would help to detail how any spillages can be addressed safely.</p> <p>Any spill/leaks are recorded in accordance with the EMS and are reviewed as part of annual management review in order to assess trends and target opportunities for improvements.</p> <p>The EMS has procedures in place for the management of spillages and emergencies.</p>		highly unlikely that there is sufficient acid and alkali to render it incompetent.	



Table 2-3 - Odour

Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Release of chemical odour	Houses located on: Kaskelot Way (450m north); Tuffley Crescent (490m north-east); Milton Avenue, Mansell Close and Harvey Close (300m east); Betjeman Close and Shakespeare Avenue (260m south-east); The Anchorage and Hempsted Lane (180m north-west); The Forge and Horseshoe Way (375m north-west) Milton Avenue Play Area (200m south-east) Podsmead Community	Air	<p>Acid fume from the pickling process is extracted via a hood to a scrubber unit which has a water bath with trickling sodium hydroxide feed in order to neutralise the fumes.</p> <p>Lids are kept on pickling process tanks at all times except when loading and unloading the baskets from the tanks.</p> <p>Operations only take place between 07.00 and 15.30 during weekdays.</p> <p>The scrubber system is operated by employees trained in its use and is maintained in accordance with the manufacturers recommendations.</p> <p>All process equipment is enclosed and located in buildings/structures which will be constructed to minimise any releases from vents and have fast acting roller shutter doors.</p> <p>Any unusual odours to be investigated immediately in accordance with procedures within the EMS.</p> <p>Record and act on complaints in accordance with the incident procedure under the EMS.</p>	Low-Mitigation measures in place should ensure that exposure is minimised.	Unpleasant odour at nearby receptors	Not significant if management practices adhered to



Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
	Centre (310m south-east) Capitol Park (sports ground) (400m south-east)					



Table 2-4 - Noise and Vibration

Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Noise from cutting or grinding operations	Residential properties (see above) Milton Avenue Play Area Podsmead Community Centre Capitol Park (sports ground)	Sound propagation through the air.	<p>The main process equipment and plant noise sources are located within a building.</p> <p>All cutting and grinding operations take place in heavy duty sheeted enclosures within the main building. All doors are kept shut when not in use.</p> <p>All operations on site take place between the hours of 7.00 and 15.30.</p> <p>The site has never had any complaints with regards to noise.</p> <p>Equipment is subject to maintenance in accordance with manufacturers recommendations. This should ensure that all equipment is operating within normal parameters and noise from wear on equipment is minimised.</p> <p>Any unusual noises to be investigated immediately in accordance with procedures within the EMS.</p> <p>Record and act on complaints in accordance with the incident procedure under the EMS.</p>	Low	Increased noise at nearby receptors	Not significant if management practices adhered to
Noise from shot blasting	Residential properties (see above)	Sound propagation through the air.	<p>The main process equipment and plant noise sources are located within a building.</p> <p>All operations on site take place between the hours of 7.00 and 15.30.</p>	Low	Increased noise at nearby receptors	Not significant if management practices adhered to



Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
	Milton Avenue Play Area Podsmead Community Centre Capitol Park (sports ground)		<p>The site has never had any complaints with regards to noise.</p> <p>The shot blasting takes place in an enclosed unit which is sealed to prevent any noise release.</p> <p>Equipment is subject to maintenance in accordance with manufacturers recommendations. This should ensure that all equipment is operating within normal parameters and noise from wear on equipment is minimised.</p> <p>Any unusual noises to be investigated immediately in accordance with procedures within the EMS.</p> <p>Record and act on complaints in accordance with the incident procedure under the EMS.</p>			



Table 2-5 - Uncontrolled or unintended fugitive emissions

Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Dust	Residential properties (see above) Milton Avenue Play Area Podsmead Community Centre Capitol Park (sports ground)	Air	<p>Metal deliveries are not inherently dusty. The exception to this are metal shavings which are delivered in enclosed containers which are kept sealed.</p> <p>All loads delivered in covered or enclosed vehicles directly into the main building.</p> <p>All activities at site take place in enclosed buildings with fast acting roller shutter doors.</p> <p>Dust produced by grinding, cutting and shot blasting is collected in a filter in the exhaust system.</p> <p>Dust Management Plan prepared as part of the permit application for the control of dust.</p> <p>Dust from vehicles would be controlled via washing of wheels if own vehicles or using a road sweeper to clean muddy yard areas.</p> <p>Record and act on complaints in accordance with the incident procedure under the EMS.</p>	Low	Increased dust at nearby receptors	Not significant if management practices adhered to



Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Pests	<p>Residential properties (see above)</p> <p>Milton Avenue Play Area</p> <p>Podsmead Community Centre</p> <p>Capitol Park (sports ground)</p> <p>Alney Island Local Nature Reserve (LNR) (2000m North)</p> <p>Robinswood Hill LNR (1170m South East)</p> <p>Quedgeley Arboretum LNR (2500m south-west)</p> <p>Green Farm Orchard LNR (1200m South East)</p> <p>Robin's Wood Hill Quarry Site of Special Scientific Interest (SSSI)</p>	<p>Air</p> <p>Drainage infrastructure</p>	<p>Pests are attracted to food and shelter.</p> <p>The metal would not be attractive to pests as a food source.</p> <p>The site will be reasonably well lit so would not be attractive as a place to shelter.</p> <p>A record of all pest control treatments carried out will be maintained.</p> <p>A suitably qualified pest contractor is used who maintain bait boxes at site to control vermin and would be called for other pest if required.</p> <p>Metal storage and transfer is within an enclosed building.</p> <p>Record and act on complaints in accordance with the incident procedure under the EMS.</p>	<p>Very Low - Unlikely that pests will be attracted and if so would be subject to pest control measures that would prevent any issues outside the site boundary.</p>	<p>Attraction of pests such as rodents and flies</p>	<p>Not significant if management practices adhered to</p>



Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
	(2000m South East)					
Mud	Surrounding land Roadways	Tracked onto site by wheeled vehicles Windblown	The site would utilise a road sweeper to ensure access roads and yard areas are kept clean from any deposits. The site access road is constructed of hardstanding. Periodic cleaning of site to remove any mud. Record and act on complaints in accordance with the incident procedure under the EMS.	Low	Mud produced by onsite activities	Not significant if management practices and working plan are adhered to.
Litter	Surrounding land Roadways	Tracked onto site by wheeled vehicles Windblown	Very little municipal type waste will be generated from welfare activities onsite. Municipal type waste will be stored in an enclosed container prior to removal off-site. Perimeter fence would capture any litter in the extremely unlikely event that it is generated. Site operators are able to visually observe the site and identify any litter problems. Regular cleaning of site to remove residual waste. Record and act on complaints in accordance with the incident procedure under the EMS.	Low	Litter accumulation can be unsightly and pose a threat to wildlife	Not significant if management practices adhered to



Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Vandalism	Residential properties (see above) Milton Avenue Play Area Podsmead Community Centre Capitol Park (sports ground) Alney Island Local Nature Reserve (LNR) (2000m North) Robinswood Hill LNR (1170m South East) Quedgeley Arboretum LNR (2500m south-west) Green Farm Orchard LNR (1200m South East) Robin's Wood Hill Quarry Site of Special Scientific Interest (SSSI)	Soil / vegetation Surface water drainage infrastructure Percolation through soil	<p>The site is fitted with perimeter fencing surrounding the site with access permitted through a secure access point.</p> <p>Site is kept locked when not in use and employs state of the art cctv inside and outside to prevent unauthorised access.</p> <p>Third party security is employed to monitor CCTV and are on call out should there be any alarms.</p> <p>In addition, there are vibrators on the walls which would report to local security who notify site management when it happens.</p>	Very Low	Contamination	Not significant



Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
	(2000m South East) Soil/ vegetation Groundwater					



Table 2-6 - Visible emissions

Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
Dust from Donaldson Toritt	Residential properties (see above) Milton Avenue Play Area Podsmead Community Centre Capitol Park (sports ground)	Dispersion by wind	<p>The system is checked daily to ensure there is no sign of visible emissions.</p> <p>The Donaldson Toritt has a drum underneath for the capture particulate metal as it is a valuable commodity still and is sold on. So, it is advantageous to capture as much as possible.</p> <p>The unit is maintained in accordance with manufacturers recommendations.</p> <p>The pressure gauges are checked as part of the daily check to ensure that there is sufficient pressure across the filters and none of the cartridge filters needs replacing. If the cartridge needs replacing then this is done straight away.</p> <p>Record and act on complaints in accordance with the incident procedure under the EMS.</p>	Very low	Nuisance caused from reduced visibility.	Very low
Emissions from Scrubbers	Residential properties (see above) Milton Avenue Play Area	Dispersion by wind	<p>The system is checked weekly to ensure the scrubber is operating in accordance with manufacturer's recommendations.</p> <p>The emission is not at temperature as the exhaust passes a water bath prior to release which would neutralise any acid fume and ensure there is no visible plume.</p>	Very low	Nuisance caused from reduced visibility.	Very low



Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk?
	Podsmead Community Centre Capitol Park (sports ground)		The unit is maintained in accordance with manufacturers recommendations. Record and act on complaints in accordance with the incident procedure under the EMS.			



8 First Street
Manchester
M15 4RP

wsp.com

CONFIDENTIAL