Environmental Risk Assessment

Environmental Permit Variation and Consolidation Support

Feralco (UK) Ltd

Ditton Rd, Widnes, Cheshire, WA8 0PH

Prepared by:

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Basis of Report

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Table of Contents

Tables in Text

Figures in Text

1.0 Introduction

SLR Consulting Ltd (SLR) has been instructed by Feralco (UK) Ltd to prepare an Environmental Risk Assessment (ERA) as part of an Environmental Permit (EP) variation of the bespoke EP, reference EPR/WP3630WV for the manufacturing plant at Ditton Road, Widnes, Cheshire, WA8 0PH (the site), for submission to the Environment Agency (EA).

The Ditton Rd manufacturing plant requires a variation under the Environmental Permitting (England and Wales) Regulations 2016 (EP reference EPR/WP3630WV) for the increased production of ferric sulphate through site expansion and the installation of a second production line and associated equipment.

This ERA is a simple assessment of the risks to the environment and human health from accidents, odour, noise and fugitive emissions that may be associated with the manufacturing plant.

1.1 Methodology

This ERA is an assessment of the risk to the environment and to human health that may be associated with the proposed EP variation at the site.

The assessment has been completed in accordance with the Environment Agency (EA) Technical Guidance 'Risk Assessments for your Environmental Permit' dated August 2022. The aim of the assessment is to identify any significant risks and to demonstrate that the risk of pollution or harm will be acceptable by taking the appropriate measures to manage these risks.

This ERA uses the following approach for identifying and assessing the risks from the proposed EP variation to the existing permitted operations:

Step 1 Identify and consider risks for your site and the sources of the risks.

Step 2 Identify the receptors at risk from your site.

Step 3 Identify the possible pathways from the sources of the risks to the receptors

Step 4 Assess risks relevant to your specific activity and check they are acceptable and can be screened out.

Step 5 State what you will do to control the risks if they are too high

Step 6 Submit your risk assessment as part of your EP application.

Section 2.0 of this document is a screening step to identify the receptors at risk as part of this assessment.

Section 3.0 identifies people or parts of the environment that could be harmed (at potentially significant risk) by the activity. The ERA for an EP variation application requires all receptors that are near the site and could reasonably be affected by the activities to be identified and considered as part of the assessment.

The guidance[1] requires all receptors that are near the site, and could reasonably be affected by the proposed activities, to be identified and considered as part of the ERA. Therefore, for the purpose of this report:

- A 10km radius has been adopted in reviewing potentially sensitive receptors designated as SSSIs, RAMSAR, SAC, SPA and Marine Potential SPA;

[1] https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit accessed April 2023

- A 2km radius from the site's EP boundary has been adopted in reviewing potential sensitive receptors of ecological importance along with features such as sites of cultural and natural heritage; and
- A radius of 500m from the site's EP boundary has been adopted for all other potentially sensitive local receptors (for example, residential, commercial, industrial, agricultural and surface water receptors).

Section 4.0 of this document presents the assessment and demonstrates that any risks of pollution or harm will be mitigated to manage the risk.

This ERA should be read in conjunction with the following documents submitted with this EP variation application:

- Application Forms
  - Part A, C2, C3 and F1
- Non-Technical Summary (SLR Ref. 410.064958.00001_NTS)
- Best Available Techniques and Operating Techniques document (SLR Ref. 410.064958.00001_BATOT)
- Air Emissions Risk Assessment (SLR Ref. 410.064958.00001_AERA)
- Drawings

2.0 Identifying the Risks

Step 1 is a screening step to identify potential risks to the environment from the development. The following are generally considered to require assessment for industrial installations:

- Any discharge;
- Accidents;
- Odour;
- Noise and vibration;
- Uncontrolled or unintended emissions (fugitive emissions);
- Visible emissions; and
- Release of bioaerosols.

Based on the proposed EP variation to the installation, there will be no point source emissions to groundwater, or land and the proposed changes are not likely to attract pests. For the purpose of this ERA these elements have not been considered.

Emissions to surface water and the generation of noise and odour from the proposed EP variation have been further considered within the ERA.

The generation of fugitive emissions (dust and litter) resulting from the proposed EP variation have been considered within the ERA, as well as environmental accidents.

Point source emissions to air have been considered in the Air Emissions Risk Assessment which forms Section 5 of the EP variation application.

A Best Available Techniques and Operating Techniques document is included in Section 3 of this application, to address methods which help minimise impacts on the environment.

3.0 Site Setting and Receptors

Step 2 identifies people or parts of the environment that could be harmed (at potentially significant risk) by the activity. This section identifies the site setting and potentially sensitive receptors in the vicinity of the site.

3.1 Site Setting

"The site" is located at Feralco (UK) Ltd, approximately 1.3km southwest of Widnes, which is located approximately 17.1km to the southeast of Liverpool city centre. The National Grid Reference (NGR) for the centre of the site is SJ 49984 84814. The site is an installation facility which occupies approximately 2.5 hectares, which comprises of production facilities, maintenance facilities, warehousing and office space including laboratories.

The nearest residential properties are located approximately 500m northwest of the site and commercial properties lie in all directions for at least 600m.

Steward's Brook lies adjacent to the east of the site boundary which flows south to the River Mersey (approximately 720m south), open ground is located approximately 30m north, and a railway line is located approximately 30m south.

The site location is illustrated on Drawing 001. The proposed site layout, EP boundary & emission points is shown on Drawing 002, Drawing 005A illustrates the Local Receptors and Drawing 005B shows the Natural and Cultural Heritage.

The site has two vehicular access points via Ditton Road at the north of the site.

A summary of the immediate surrounding land use is provided in Table 1 below.

Table 1. Immediate surrounding land uses

Direction	Land Use
North	Open ground, commercial properties and residential properties beyond.
East	Steward's Brook, beyond which lies commercial premises including WSR Recycling.
South	A railway, beyond which lies commercial premises including Eddie Stobart Container Logistics and open ground.
West	Commercial premises including Halton Community Transport.

3.1.1 Residential Properties

The closest residential properties lie approximately 500m northwest of the site (Nazareth House Lane) beyond Speke Road.

3.1.2 Industrial and Commercial Premises

Industrial and commercial premises lie in all directions of the site boundary for at least 600m, with the closest being adjacent to the site. These premises include Halton Community Transport, Fallon Bros and M & J Burns Ltd.

3.1.3 Local Transport Network

A railway line lies approximately 30m south of the site boundary.

Ditton Road provides vehicular access to the site. Foundry Lane lies approximately 220m south of the site boundary and Speke Road is approximately 300m north. To the west, St. Michael's Road is located at approximately 380m.

3.1.4 Surface Water Features

A review of Multi Agency Geographical Information for the Countryside[2] (MAGIC) map reveals Steward's Brook to be adjacent to the east of the site boundary, which flows in a southernly direction to the river Mersey, approximately 720m south.

3.1.5 Open ground

Areas of open ground lies approximately 30m north and 230m southwest of the site boundary.

3.1.6 Woodland

A deciduous woodland, which has been identified as a priority habitat, is within the site boundary at the very southern point. As some of this woodland has been cleared for the development, Feralco plan to replant trees on site after construction has been completed which will ultimately result in biodiversity net gain.

The deciduous woodland stretches approximately 350m west of the site and approximately 190m east of the site. There is a further deciduous woodland (priority habitat) located approximately 150m southeast of the site.

3.1.7 Solar Farm

A solar farm lies approximately 140m northwest of the site boundary.

3.2 Geology, Hydrogeology and Hydrology

3.2.1 Geology

A search on the British Geological Survey (BGS)[3] Map identifies the site as having the following strata:

- Superficial Tidal Flat Deposits comprising of clay, silt, and sand formed between 11.8 thousand years ago and the present during the Quaternary period; and
- Bedrock of Wilmslow Sandstone Formation, comprising sandstone. This sedimentary bedrock was formed between 252.2 and 247.1 million years ago during the Triassic period.

3.2.2 Hydrogeology

The MAGIC Map identifies the bedrock at the site as a Principal Aquifer, which is defined as:

"layers of rock or drift deposits that have high intergranular and/or fracture permeability, meaning they usually provide high level of water storage and transmission. They may support water supply and/or river base flow on a strategic scale."

The Superficial deposits are defined as a Secondary (undifferentiated) Aquifer.

The site does not lie within a Source Protection Zone.

[2] Multi-Agency Geographical Information for the Countryside Map, available at www.magic.defra.gov.uk, accessed in June 2023.

[3] British Geological Survey, available at http://www.bgs.ac.uk, accessed in June 2023

3.2.3 Hydrology

Groundwater vulnerability for the east of the site has been classified as “medium” and the west hand side of the site has been classified as “medium – high”.

3.2.4 Flood Zone

The Flood Map for Planning[4] identifies that a large area of the site, to the north, west and south, lies within flood zone 3 (an area with high probability of flooding). The remainder of the site lies within flood zone 2 (an area with a medium probability of flooding) and flood zone 1 (an area of low probability of flooding) (Figure 1).

The Envirocheck report states that the risk of flooding from surface water is low (1000-year return) to medium (100-year return) for the northwest part of the site. There is no risk of flooding from surface water for the rest of the site.

The Long-Term Flood Risk Assessment[5] indicates that the site is at ‘very low risk’ of flooding from surface water. Very low risk means that this area has a chance of flooding of less than 0.1% each year. Flooding from surface water is difficult to predict as rainfall location and volume are difficult to forecast. In addition, local features can greatly affect the chance and severity of flooding.

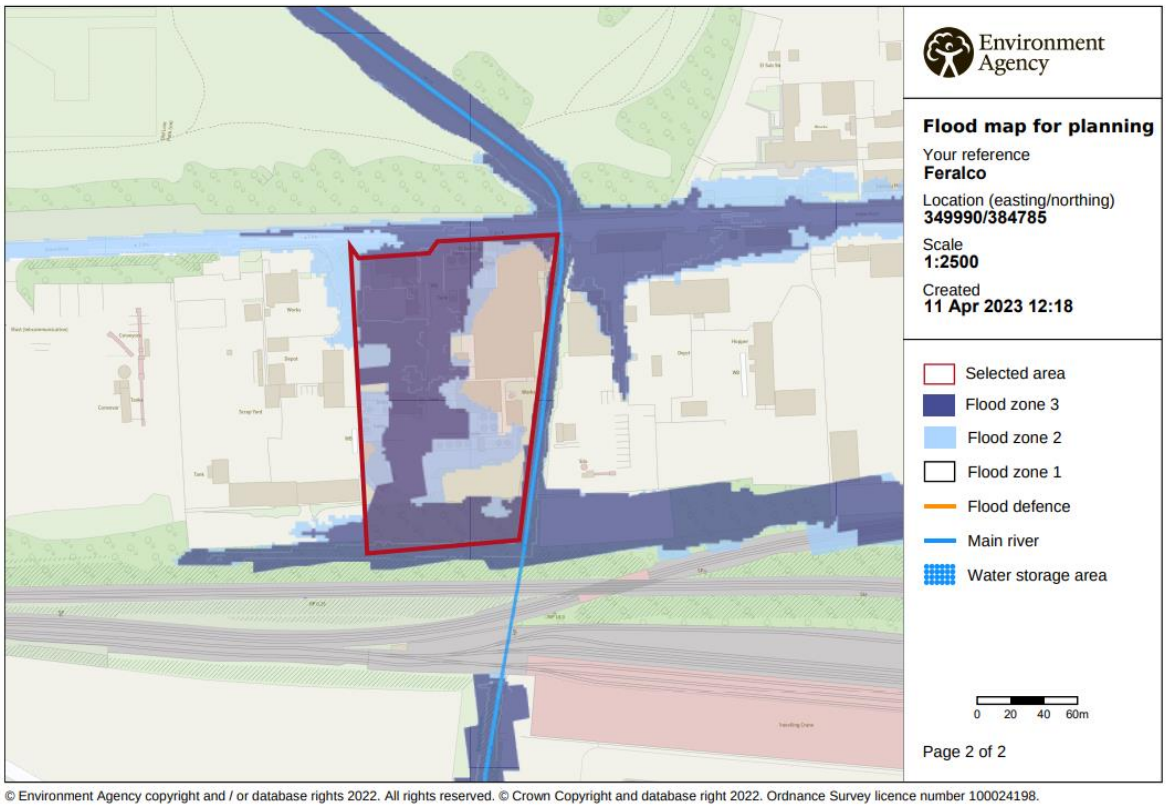


Figure 1 Flood Zones within site boundary

[4] Flood Map for Planning, available at https://flood-map-for-planning.service.gov.uk, accessed in June 2023.

[5] Long Term Flood Risk Assessment – Available at: Check the long-term flood risk for an area in England – GOV.UK (www.gov.uk) accessed in June 2023.

3.3 Ecology

3.3.1 Internationally Designated Sites

A review of MAGIC identified that the Mersey Estuary lies approximately 720m south of the site boundary, which is designated as the following:

- Site of Special Scientific Interest (SSSI);
- Special Protection Area (SPA);
- RSPB Reserve;
- SPA Marine Components; and
- RAMSAR

Other Receptors

A review of MAGIC map confirmed that no Special Areas of Conservation (SAC) are situated within a 10km radius of the site boundary.

3.3.2 Nationally/Locally Designated Sites

National Parks

A review of the MAGIC map identified that there are no National Parks within a 2km radius of the site boundary.

Other Receptors

Three Local Nature Reserves (LNR) were identified within 2km radius of the site boundary:

- Pickerings Pasture LNR is situated 0.96km southwest of the site;
- Hale Road Woodland LNR is situated 1.2km west of the site; and
- Clincton Wood LNR lies 1.7km northwest of the site.

As per the Nature and Heritage Conservation Screening Report: Bespoke Installation (Appendix A), six Local Wildlife Sites (LWS) were also identified within a 2km radius of the site boundary:

- Widnes Warnth saltmarsh;
- Hale Road woodland;
- Pickerings Pasture;
- Upper Mersey Estuary Intertidal Areas and Mudflats;
- Upper Mersey Estuary; and
- Clincton Wood

A review of MAGIC map confirms that none of the following below are situated within a 2km radius of the site boundary:

- Areas of Outstanding Natural Beauty (AONB);
- Ancient Woodland;
- Biosphere Reserves; and
- National Nature Reserves (NNR)

3.4 Cultural Heritage

A review of MAGIC map confirmed there are multiple listed buildings within a 2km radius of the site boundary. The buildings are mainly located to the east and southeast of the site with one building situated to the northwest. The closest listed building to the site boundary is a Schedule II* listed building (Church of St Michael), which is approximately 750m northwest of the site boundary. The closest Schedule II building lies approximately 1.1km (Former Widnes Corporation Bus Depot) northeast of the site. No Schedule I buildings are located within 2km of the site.

One Schedule Monument has been identified within a 2km radius of the site boundary. Lovel's Hall moated site and fishpond, Widnes is located approximately 2km west of the site boundary.

Other Receptors

A review of MAGIC map confirmed that none of the following are situated within a 2km radius of the site boundary:

- World Heritage Sites;
- Registered Battlefields; and
- Registered Parks and Gardens

3.5 Identified Receptors

Table 2 below and Drawing 005A & 005B identified receptors which are considered to be potentially sensitive and could reasonably be affected by activities at the site.

Table 2 Identified Receptors

Receptor Name	Receptor Type	Direction from Site	Approximate Distance from Site Boundary at closest point (in metres)
Local receptors located within 500m of the EP boundary as shown on Drawing 005A			
Deciduous woodland	Woodland	South	Adjacent
Steward's Brook	Surface water feature	East	Adjacent
Water Vole	Mammal	East	Adjacent
Halton Community Transport	Commercial/Industrial	West	Adjacent
Fallon Bros	Commercial/Industrial	East	Adjacent
M & J Burns Ltd	Commercial/Industrial	East	Adjacent
Open ground	Agricultural	North	30m
Railway	Local transport network	South	30m

Receptor Name	Receptor Type	Direction from Site	Approximate Distance from Site Boundary at closest point (in metres)
Solar Farm	Solar Farm	Northwest	140m
Deciduous woodland	Woodland	Southeast	150m
Foundry Lane	Local transport network	South	220m
Open ground	Agricultural	Southwest	230m
Speke Road (A562)	Local transport network	North	300m
St Michael's Road	Local transport network	West	380m
Residential properties	Residential	North	500m
Internationally Designated receptors within 10km and Nationally/Locally Designated Ecological Receptors located within 2km of the EP boundary as shown on Drawing 005B			
Mersey Estuary	SSSI, SPA, SPA marine components, RSPB Reserve and RAMSAR	South	720m
Church of St. Michael	Listed Building (Grade II*)	Northwest	750m
Pickerings Pasture	LNR	Southwest	960m
Widnes Corporation Bus Depot	Listed Building (Grade II)	Northeast	1100m
Hale Road Woodland	LNR	West	1200m
Clincton Wood	LNR	Northwest	1700m
Lovel's Hall moated site and fishpond, Widnes	Scheduled Monument	West	2000m

3.6 Windrose

Figure 2 below shows the wind patterns between 2015 - 2019 as identified by Liverpool's Meteorological Station. The most prominent wind directions are from the northwest and southeast. Winds from the northeast and southwest are relatively infrequent by comparison.

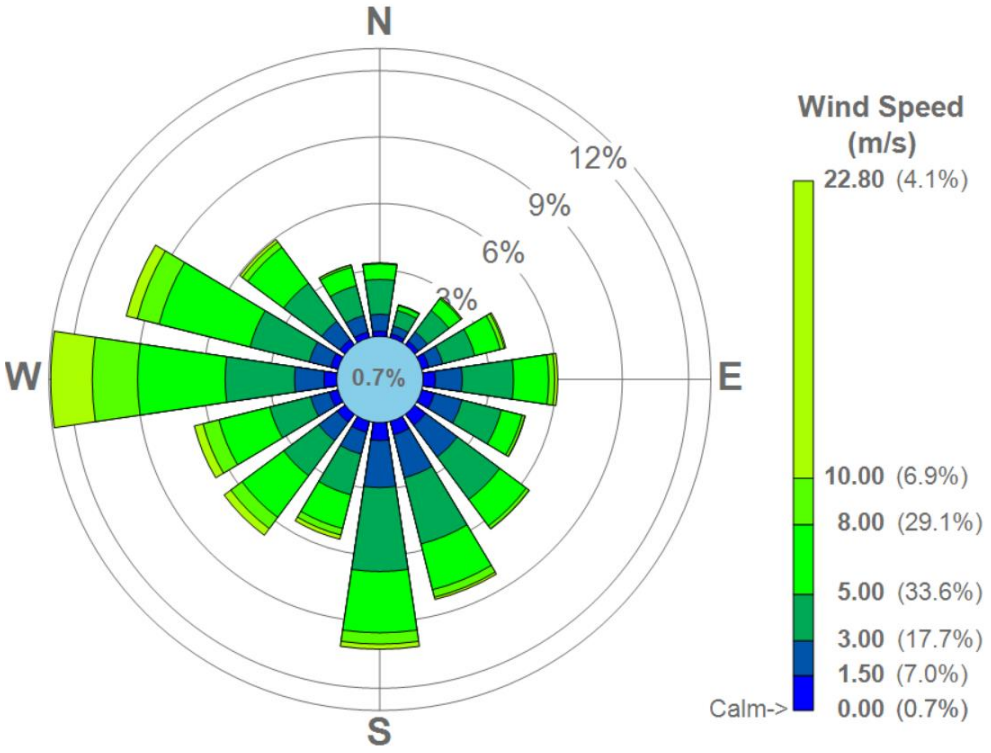


Figure 2. 2015 - 2019 Wind Patterns

4.0 Environmental Risk Assessment

The following table sets out the potential hazards posed by the proposed permit variation for, receptors and pathway, along with management and assessment of the identified risks. This section comprises Steps 3, 4, 5 and 6 as identified in Section 1.1 above.

The probability of exposure is the likelihood of the receptors being exposed to the hazard, and is defined as low, medium or high. These terms are qualified as follows:

- Low: exposure is unlikely, barriers in place to mitigate against exposure.
- Medium: exposure is fairly probable, barriers to exposure less controllable.
- High: exposure is probable, direct exposure likely with few barriers.

The methodology outlined in Section 1.1 of this report is the basis on which it is determined whether the proposed operations will lead to significant impacts on the surrounding environment. Where a conclusion of ‘not significant’ has been reached, it is proposed that the mitigation and management measures that will be in place at the site will be sufficient to ensure that there will be no impact at the surrounding environment.

Table 3 Noise and Vibration Risk Assessment and Management Plan

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Consequence**	**What is the overall risk**
What has the potential to cause harm?	***What is at risk what do I wish to protect?***	***How can the hazard get to the receptor?***	***What measures will you take to reduce the risk? – Who is responsible for what?***	***How likely is this contact?***	***What is the harm that can be caused?***	***What is the risk that still remains? The balance of probability and consequence***
Noise from the operation of the reactor vessel and associated plant. Noise from vehicles on site.	Receptors as identified in Table 2. Drawing 005A & 005B.	Air	The site has not received any noise complaints from its neighbours. The production areas are located inside buildings on site. All new equipment will be designed in accordance with European and UK standards; the equipment will be subject to regular preventative maintenance in accordance with the manufacturer's requirements. All site personnel are trained in the need to minimise site noise and are responsible for monitoring and reporting excessive noise when carrying out their everyday roles. Noise monitoring is carried out at periodic intervals. The HSEQ	Low – with the measures implemented on site.	Nuisance and health risk to human receptors.	**Not significant**

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
			Manager is responsible for implementing risk management measures in accordance with operational and management procedures.			

Table 4. Odour Risk Assessment and Mitigation Plan

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Consequence**	**What is the overall risk**
What has the potential to cause harm?	***What is at risk what do I wish to protect?***	***How can the hazard get to the receptor?***	***What measures will you take to reduce the risk? – Who is responsible for what?***	***How likely is this contact?***	***What is the harm that can be caused?***	***What is the risk that still remains? The balance of probability and consequence***
Odour from the production of ferric sulphate and storing of associated raw materials.	Receptors identified in Table 2. Drawing 005A & 005B.	Air	The site has not received any odour complaints from neighbours, and the manufacturing process does not generate significant odour. The production areas are located inside buildings on site.	Low – with the measures implemented on site.	Nuisance and health risk to human receptors.	**Not significant**

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
			The HSEQ Manager is responsible for implementing risk management measures in accordance with operational and management procedures.			

Table 5. Accidents Risk Assessment and Management Plan

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Consequence**	**What is the overall risk**
What has the potential to cause harm?	***What is at risk what do I wish to protect?***	***How can the hazard get to the receptor?***	***What measures will you take to reduce the risk? – Who is responsible for what?***	***How likely is this contact?***	***What is the harm that can be caused?***	***What is the risk that still remains? The balance of probability and consequence***
Spillage or leakage from site equipment	Local land quality, surface water and groundwater (aquifer)	Runoff and percolation through ground.	Prior to delivery of raw materials, the capacity of the storage facility is checked to ensure that receipt of a full delivery is possible to prevent spillage. The entire installation is bunded and spills from site in operational areas will enter the closed loop drainage system. Bunding will be subject to routine	Low – with the measures implemented on site.	Contamination of land, groundwater and surface water. Nuisance.	**Not significant**

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
			inspections, with any remedial work undertaken and recorded. Storage tanks are constructed to the appropriate British Standard. Pipe work and joints will be constructed to appropriate standards and be subject to regular inspection as part of the Planned Preventative Maintenance programme. Intermediate Bulk Containers (IBC) are protected from UV, to prevent the degrading of plastic (primary containment). Site staff undertake monthly workplace inspections and part of the inspection monitors for leaks from pipework and vessel manways. Any leaks are then reported to the Production Manager if found on inspection. Alongside regular visual inspections, the tanks are fitted with high level indicators and interlocks with pumps to prevent overfilling. PLC system is also in place to prevent overfilling. Materials suitable for absorbing and containing minor spillages are maintained on site e.g., clay mat drain seals and spill kits. Minor spillages will be cleaned up immediately using sand			

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
			or proprietary absorbent to clean up liquids and disposed via licensed contractor as hazardous waste. In uncontained areas, surface drains are covered. A drain bladder will also be placed adjacent to culvert cover. In the event of a major spillage the EA will also be notified, and immediate action will be taken to contain the spillage. As much product as possible from the source of the leak will be transferred to another stock tank. The procedure for accident/incident/near-miss investigation is followed once the emergency has been controlled. Level of investigation depends on type of spillage, consequences etc. The spill containment methods outlined above will prevent contamination to adjacent Steward's Brook. The HSEQ Manager is responsible for implementing risk management measures in conjunction with the Best Available Techniques and Operating Techniques (Ref: 410.064958.00001_BATOT).			

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Fire	Receptors as identified in Table 2. Drawing 005A & 005B.	Air Land, surface water and groundwater	The site has fire risk assessments in place, and the whole site is classed as a low fire risk. The site has the following in place which seeks to reduce the impacts as the result of a fire: • fire and site evacuation procedures; • a fire alarm system connected to audible and visual (stroposcopic) signal; • local firefighting equipment (including fire extinguishers) is provided at the site; and Pallet and packaging amounts are kept to a minimum, with stored pallets being kept away from buildings. The proposed plant inspection schedule will include checks of electrical equipment within the site to ensure any faults are identified and repaired. Fixed wire testing is carried out every three years and PAT is carried out annually. Smoking is not permitted in any areas of the site.	Low – due to the fire preventative measures, inspections and maintenance procedures implemented at the site.	Harm to human health and ecology. Nuisance. Contamination of land, groundwater and surface water	**Not significant**

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
			Operators working practices ensure assessment of fire hazards and training of employees in fire prevention, e.g., use of fire extinguishers and emergency procedures. The EA are advised of all incidents of fire as soon as practicable.			
Security and Vandalism	Receptors as identified in Table 2. Drawing 005A & 005B.	Land, surface water, groundwater, air.	In order to prevent unauthorised access, a number of security measures are in place at the site including: • 24-hour CCTV surveillance which covers the offices, weighbridge, peroxide loading area, acid discharge area, alum loading area and are digitally recorded; • Security officers onsite from 5:30am-5:30pm including weekends and bank holidays; and • All visitors and contractors report to reception before permission is granted to the site. The HSEQ Manager is responsible for implementing risk management measures in conjunction with the Operating Techniques (Ref: 410.064958.00001_BATOT).			

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Flooding	Surface water, soils and groundwater	Flood waters over land	The site lies in Flood Zones 1-3, ranging from a low to high probability of flooding from rivers and the sea. Surface water runoff is directed away from buildings into sumps. The site has a flood defence plan in operation. Flood defence kits are available on site. The EA has requested flood attenuation systems to control the outlet to Stewards Brook – an attenuation tank has now been installed which will collect rainwater in the area of the second ferric sulphate production line.			
Vehicle collisions	Harm to human receptors		Only authorised vehicles are granted access to the site. The site implements strict vehicle movement protocols to prevent collisions. Segregation of pedestrians and vehicles on traffic routes.	Low	Harm to human health	**Low**
Plant failure	Receptors as identified in Table 2 Drawing 005A & 005B	Air, surface water, ground water	All equipment is subject to pre-planned preventative maintenance checks and maintained in accordance with manufacturer's recommendations. Should any problems, malfunctions or breakdowns occur, which affects the	Low – with the preventative systems in place on site.	Nuisance, harm to human health and environmental harm.	**Not significant**

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
			ability to safely function, manufacturing will stop until the problems are rectified. Monitoring systems are in place, including temperature, flow and level instrumentation, to ensure that all relevant parameters are within safe limits and that any operating faults can be detected. The HSEQ Manager will be responsible for implementing risk management measures in conjunction with the Best Available Techniques and Operating Techniques (Ref: 410.064958.00001).			
Explosion	Receptors as identified in Table 2 Drawing 005A & 005B.	Air	All electrical equipment is subject to inspection and marked appropriately to conform with applicable regulations and legislation. Incompatible materials are stored separately. Training is provided to all operatives on site to understand the risks. 'No Smoking' signs are in place. Smoking is not permitted on site The site implements fire precaution measures and acts upon any actions arising from the fire risk assessment.	Low – with the preventative measures implemented.	Contaminated land, air pollution and harm to human health.	**Not significant**

Table 6 Fugitive Emissions Risk Assessment and Management Plan

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Consequence**	**What is the overall risk**
What has the potential to cause harm?	***What is at risk what do I wish to protect?***	***How can the hazard get to the receptor?***	***What measures will you take to reduce the risk? – Who is responsible for what?***	***How likely is this contact?***	***What is the harm that can be caused?***	***What is the risk that still remains? The balance of probability and consequence***
To Air:						
Dust from vehicle movement	Receptors identified in Table 2. Drawing 005A & 005B.	Air	The following measures are used to prevent mobilisation of dust generally at the site: • good housekeeping of roads and surfaces; • powdered raw materials are dealt with indoors; • speed limits are implemented; • all vehicle movements are on hard standing surfaces; and • Visual inspections are carried out daily	Low – with the mitigation measures implemented on site.	Nuisance, and health risk to human receptors.	**Not significant**

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Dust from machinery and equipment	Receptors as identified in Table 2. Drawing 005A & 005B.	Air	Material imported or exported from the site are transported in enclosed vehicles. Solid magnetite powder is handled indoors. The powder is transferred into a hopper and conveyed to the magnetite slurry make up vessel. The magnetite powder is 'damped' and heavy which minimises dust generation. Visual inspections are carried out daily and good housekeeping measures are undertaken.	Low – with the operational procedures and mitigation measures implemented on site.	Nuisance and health risk to human receptors.	**Not significant**
Asphyxiation	Human receptors Drawing 005A	Air	A permit to work system is in place ensuring appropriate precautions and control measures are implemented. The permit to work procedure is incorporated into the confined space procedure. The presence of inert atmospheres is taken into consideration during operational or maintenance activities. Processes within the "Pluspac" area produce carbon dioxide which can accumulate in the bund. Carbon dioxide detectors linked to alarms and beacons prevent access to the area.	Low – with the operational procedures and mitigation measures.	Health risk to human receptors	**Not significant**

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
			Control systems based upon the use of oxygen analysers protects against asphyxiation if entering such areas. There are procedures in place for entry to vessels. This includes tank cleaning, maintenance etc and helps to mitigate the risk of asphyxiation. Gas monitors are attached to the person entering a confined space. The person entering the confined space wears a harness with lanyard and a fall arrest system. Maintenance activities are only undertaken by suitably trained and authorised personnel.			
To Water:						
Runoff from site surfaces	Receptors as identified in Table 2 Drawing 005A and 005B	Land, surface and groundwater.	Raw and waste materials associated with the ferric sulphate production will be stored in suitable containers and where required provided with secondary containment. Any surface water runoff from the hard-surfaced area of the site is collected by the site's closed loop drainage system.	Low – with the operational procedures and mitigation measures in place	Nuisance, pollution of controlled water and soil.	**Not significant**

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
			Sumps (infiltration basin) are present on site to manage surface runoff and are emptied routinely. Containment methods outlined above will prevent contamination to the adjacent Steward's Brook. Uncontaminated rainwater from non-operational areas of the site is discharged to Steward's Brook via surface grids.			
Percolation of contaminated liquid into groundwater	Groundwater	Groundwater	The operational area of the proposed ferric sulphate production will be surfaced with impermeable surfacing to prevent the percolation of contaminated materials into the underlying soil and groundwater. The entire installation is bunded and served by a closed loop drainage system, preventing contamination to the groundwater. Raw material will be stored in hard surfaced areas. All hazardous liquids awaiting waste collection and disposal will be stored in a bunded facility within the designated waste storage area for that building. All external liquid storage facilities (sumps) on site are checked on a	Low – with the measures implemented on site	Contamination, nuisance, pollution of soil and controlled water	**Not significant**

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
			regular basis to ensure continued integrity and to assess if the bund requires emptying of rainwater. All fixed bunding is visually checked for leaks. Materials suitable for absorbing and containing minor spillages is maintained on site. Minor spillages are cleaned up immediately, using sand or proprietary absorbent to clean up liquids and disposed via licensed contractor as hazardous waste. In the event of a major spillage, immediate action is taken to contain the spillage an prevent liquid from entering surface water drains and the unsurfaced ground. The spillage is cleared immediately and placed in containers for off-site disposal and the EA is notified. The Site Manager is responsible for implementing risk management measures in conjunction with the Best Available Techniques and Operating Techniques (Ref: 410.064958.00001_BATOT).			
Litter						

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Litter	Receptors as identified in Table 2 Drawing 005A & 005B.	Air	The site is kept clean and tidy by way of daily housekeeping regime of operational areas/the site perimeter. Any litter found is returned to the main storage areas. An external contractor is periodically asked to do some litter picking on an ad hoc basis. Waste accumulation within production areas is controlled and limited with external waste collection containers. Waste streams are clearly labelled and segregated. Waste is removed from the site regularly by licensed and approved contractors. Incoming raw material is transported in enclosed vehicles to ensure no escape of materials (e.g. packaging) during transit. Perimeter fencing of the site reduces the chances of litter blowing off site. Finished products are dispatched from the site in enclosed vehicles. The HSEQ Manager is responsible for implementing risk management measures in accordance with	Low – with the measure implemented on site.	Nuisance, human and environmental receptors.	**Not significant**

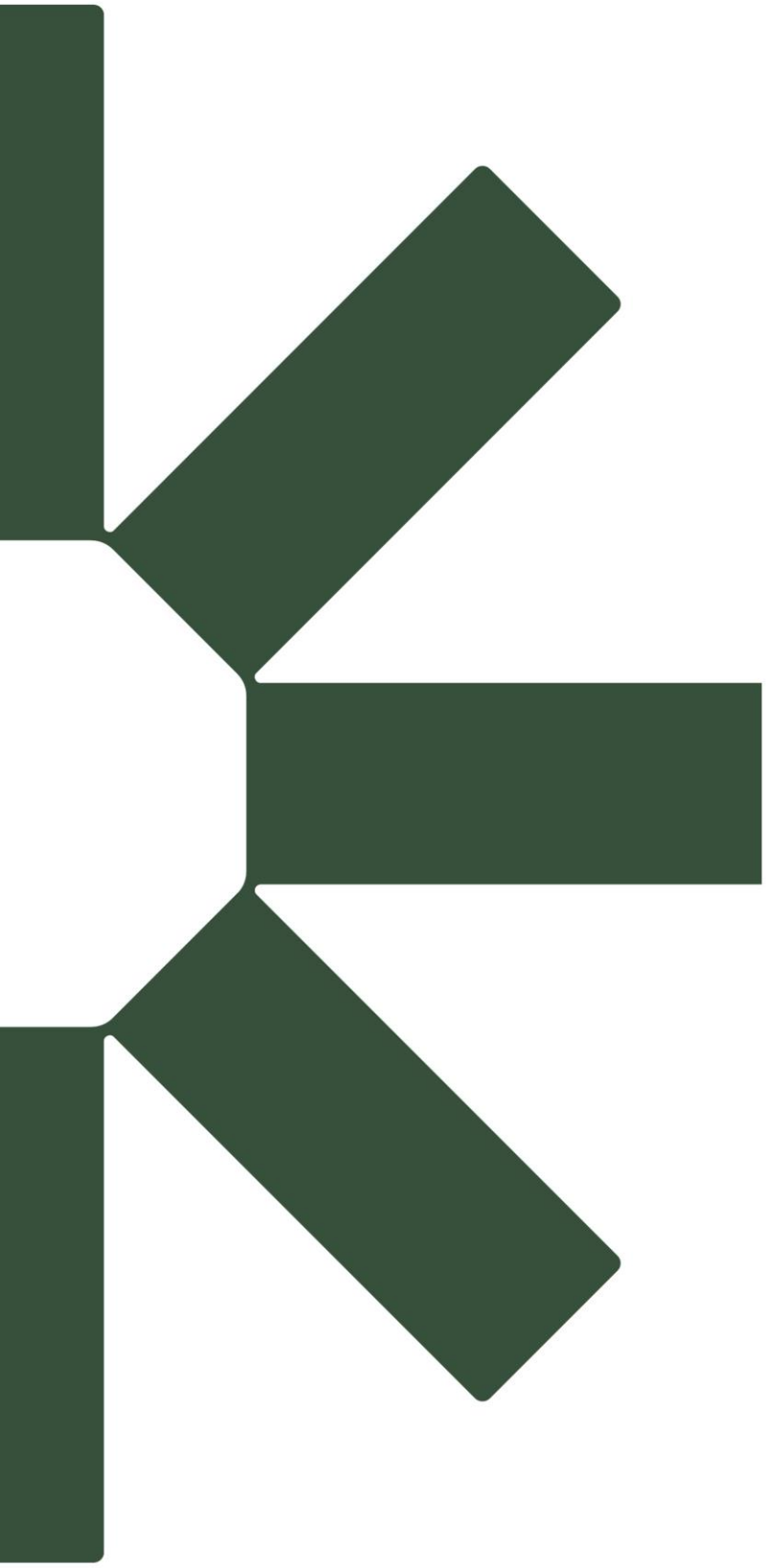
What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
			operational and management procedures.			

5.0 Conclusion

This qualitative ERA has been undertaken in accordance with EA guidance. The assessment concludes that with the implementation of the risk management measures described above, potential hazards from the proposed changes to the site are not likely to be significant or pose a risk of harm to sensitive receptors in the vicinity of the site and therefore, no further assessment is required.

6.0 APPENDIX A:

6.1 Nature and Heritage Conservation Screening Report: Bespoke Installation



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