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NP19 4XJ

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ACCIDENT MANAGEMENT PLAN

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ENERSYS NEWPORT, NEWPORT

PPC PERMIT No. NP3030BJ

ACCIDENT MANAGEMENT PLAN

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This report was originally prepared by Environmental Compliance Limited (ECL) in their professional capacity as Environmental Consultants. The report has been reviewed by EnerSys Ltd. in May 2007, October 2010, June 2013 & November 2015.

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ACCIDENT MANAGEMENT PLAN

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ACCIDENT MANAGEMENT PLAN

1. INTRODUCTION

1.1. This Accident Management Plan was originally prepared on behalf of Enersys Newport by Environmental Compliance Limited ("ECL") in 2006. This Plan, (document reference C166/R006a – *issue 5*) is an updated and amended version of a plan originally submitted to the Environment Agency ("EA") for approval. *Issue 5* is representative of all subsequent relevant comments from the EA/Natural Resources Wales (NRW). The preparation of the Plan is a condition of the PPC Permit Improvement Programme, specifically Item IP9.

1.2. Improvement Item IP9 states:

> *"The Operator shall develop and maintain an Accident Management Plan following the Agency's Sector Guidence Note IPPC S4.03. The Accident Management Plan shall include a procedure for flood management detailing the measures taken to ensure the prevention of environmental impacts resulting from potential flood scenarios occurring at the permitted Installation. The Operator must provide a written copy to be approved by the Agency ".*

1.3. The nearest surface water course to the Enersys Site, a 'reen', flows along the western boundary of the site (the whole of the area is served by the reen drainage system). The nearest major watercourse is the Usk estuary, which lies approximately 600m to the south-west of the Enersys site at its nearest point. Based on information from NRW, it is known that the Site is within an area that is deemed a 'significant' flood risk; specifically, tidal flooding.

1.4. There are some flood defences in place from the Usk estuary; comprising of earthen embankments. The railway embankment to the south-western boundary of the Site is also expected to offer some level of defence. Information provided by NRW predicts that flooding from the River Usk would be over a large area due to the even topography.

1.5. Enersys Newport recognises that not preparing for flooding could result in potential pollution to waterways from materials used and stored at the Site.

2. FLOOD EMERGENCY PLANNING

2.1. The area where Enersys is sited is predominantly flat and at risk of tidal flooding. The 'surge tide' flooding predictions (2000) which are collated by NRW predict the tidal levels in a one in 200 year occurrence. The nearest risk level is set at 8.54m AOD. Updated information provided to Enersys Newport from NRW states that Stillwater tidal predictions for the area incorporating climate change values up to the year 2054 are 8.87m AOD and 9.08m AOD.

The Enersys Site is situated at 8m AOD (estimated to be higher in some parts). This would indicate there is a risk of flood levels at the Site to approximately **0.5m – 1m,** (see also Section 1.4.). A risk scenario for the flood depth of **0.75m** has been used for further risk assessments. Information received states that flooding would coincide with a high tide situation, and would therefore recede within a relatively short timeframe.

2.2. In November 2014 an initial Flood Risk Analysis was completed by Consultants on behalf of EnerSys. This was followed up in July 2015 with a Flood Consequence Assessment. The site was deemed to be **low risk** in relation to river and coastal, surface water pluvial and groundwater flooding.

2.3. The company's response to a flooding scenario (as above) is set out in Section 3.3. This includes a chronological list of steps to be taken in the event of a flood and therefore includes receiving and obtaining warnings, warning response, preventative actions, risk response, mitigation and clean up operations.

2.4. The procedure(s) contained within Section 3.3. are meant to be used as 'stand alone' instructions, and will be incorporated into the Site Environmental Management System ("EMS") as a controlled document. The information within the procedure is designed for nominated members of the EnerSys emergency response team (ERT); to train relevant staff and co-ordinate pollution prevention measures to effectively and safely shut down operations.

This Plan will ensure that relevant information is easily accessible for all key employees, and can be easily communicated to all Enersys staff (and where relevant, contractors).

Enersys Newport shall include these measures into relevant environmental awareness training, and they will be formally incorporated as a stand-alone procedure as part of the Site EMS, and therefore controlled. ERT members at EnerSys will keep information to hand regarding:

- A list of important contacts, including NRW Floodline, building services, suppliers and evacuation contacts for staff.
- Maps showing locations of key property, protective materials and service shut-off points.
- Basic plans for preventing business disruption.

3. STRUCTURE OF ACCIDENT MANAGEMENT PLAN

3.1. Requirements of Section 2.8 of IPPC Guidance Note S4.03

3.1.1. Section 2.8 of IPPC Sector Guidance Note S4.03 *Guidance for the Inorganic Chemical Sector* addresses accidents and their consequences, and provides an indication of what is considered to be Best Available Techniques (BAT); this is referred to as "indicative BAT".

3.1.2. The indicative BAT requirements of Section 2.8 of S4.03 have been taken into consideration when compiling a suitable accident management plan. Current management control techniques of identified risks have also been considered.

3.1.3. Only those that are directly relevant to the activities at the Installation, taking into account the scale and nature of these activities, are detailed below:

A formal structured accident management plan should be in place which covers the following aspects:

- *A - Identification of the hazards to the environment posed by the Installation using a methodology akin to a Hazop study. Areas to consider should include, but not be limited to, the following:*
  - *transfer of substances (e.g. filling or emptying of vessels);*
  - *overfilling of vessels;*
  - *emission from plant or equipment (leakage from joints, over-pressurisation of vessels, blocked drains);*
  - *failure of containment (e.g. physical failure or overfilling of bunds or drainage sumps;*
  - *failure to contain firewaters;*
  - *failure of main services;*
  - *operator error;*
  - *vandalism.*
- *B - Assessment of risks. The hazards having been identified, the process of assessing the risks should address six basic questions:*
  - *how likely is the event to occur (source frequency)?*
  - *what substances are released and how much of each (risk evaluation of the event)?*
  - *where do the released substances end up (emission prediction - what are the pathways and receptors)?*
  - *what are the consequences (consequence assessment - what are the effects on the receptors)?*
  - *what are the overall risks (determination of the overall risk and its significance to the environment)?*
  - *What can prevent or reduce the risk (risk management - measures to prevent accidents and/or reduce their environmental consequences)?*

- *The depth and type of assessment will depend on the characteristics of the Installation and its location. The main factors to take into account are:*
  - *the scale and nature of the accident hazard presented by the Installation and the activities;*
  - *the risks to areas of population and the environment (receptors);*
  - *the nature of the installation and the nature of the activities and the relative difficulty in deciding and justifying the adequacy of the risk-control techniques.*
- *C - Identification of the techniques necessary to reduce the risks. The following techniques are relevant to most Installations:*
  - *there should be an up-to-date inventory of substances, present or likely to be present, which could have environmental consequences if they escape;*
  - *storage arrangements for raw materials, products and wastes should be designed and operated to minimise risks to the environment;*
  - *physical protection should be in place where appropriate (e.g. barriers to prevent damage to equipment from the movement of vehicles);*
  - *there should be appropriate secondary containment (e.g. bunds, catchpots, building containment);*
  - *where the Installation is located on a floodplain, consideration should be given to techniques which will minimise the risk of the flooding causing a pollution incident or making on worse.*
  - *security systems to prevent unauthorised access should be provided where appropriate;*
  - *there should be formal systems for the logging and recording of all incidents, near-misses, abnormal events, changes to procedures and significant findings of maintenance inspections;*
  - *the roles and responsibilities of personnel involved in incident management should be formally specified;*
  - *clear guidance should be available on how each accident scenario might best be managed (e.g. containment or dispersion, to extinguish fires or to let them burn);*
  - *communication channels with emergency services and other relevant authorities should be established, and available for use in the event of an incident;*
  - *appropriate control techniques should be in place to limit the consequences of an accident, such as isolation of drains, provision of oil spillage equipment, alerting of relevant authorities and evacuation procedures;*
  - *personnel training requirements should be identified and training provided;*
  - *the systems for the prevention of fugitive emissions are generally relevant, and in addition, for drainage systems, spill contingency procedures should be in place to minimise accidental release of raw materials, products and waste materials and then to prevent their entry into water.*

- *process waters, potentially contaminated site drainage waters, emergency firewater, chemically-contaminated waters and spillages of chemicals should be contained and, where necessary, routed to the effluent system and treated before emission to controlled waters or sewer; sufficient storage should be provided to ensure that this can be achieved.*

3.2. Identification of Hazards and Assessment of Risks Associated with the Installation's Activities

3.2.1. Those activities at the Installation where accidents or abnormal operations could result in releases to the environment are identified in Appendix A. For each type of relevant operational activity at the Installation, the associated hazards have been identified, together with an assessment of the risk posed by the hazard.

3.2.2. The risk assessment has been based on the likely frequency of occurrence of the event (based on experience of operating the Installation to date), what substance(s) could be released to the environment, the quantities of any such substances that could be released, the environmental fate of any substances (taking into account possible pathways and receptors), the effects of any such releases on the receptors identified and the risk reduction and control measures in place. In all cases, the scale and nature of the operations at the Installation have been taken into consideration.

3.2.3. There are several substances at the Installation if released to the environment could pose a pollution risk. A full inventory is kept on site and is reviewed for relevance annually (as a minimum). Materials kept are:

- Lead Oxide and Lead Compounds.
- Lead Contaminated Water
- Sodium Hydroxide
- Calcium Hydroxide
- Sulphuric and other mineral acids.
- Industrial Methylated Spirits.
- Cylinders of various gases
- Methyl Methacrylate and epoxy resins
- Ferric Chloride.
- Miscellaneous oils and small amounts of cleaning chemicals.

3.2.4. There is a risk of materials leaving the site and entering the environment should they come in contact with flood water. These areas, and their potential risks are as follows (note, risk scenario is assumed at 0.75m water height):

Pasting Area (Zone 1)

This area is purpose designed for the floor areas to be wetted to allow lead compounds to drain to a containment sump (the area is sloped). This sump is drained to the effluent treatment plant ("ETP") for processing. It is considered that any build up of contaminants within the sump would be released within floodwater, as the sump is on a lower level.

Additionally, there are several chemicals utilised within the ETP process which are stored in this area; however, it is considered that current containment would suffice.

Waste Management Area

There are several containment and storage facilities within this area.

- Lead Dross/Scrap Plates/Batteries - Stored within lidded plastic bins. Items in larger containment (i.e. high sided steel skips) will be protected from flood water.
- Lead Sludge – Stored in lidded bins – risk of empty or partially filled bins floating/capsizing, releasing contents to water.
- Oil Water mixture - Stored in on average 10 x1m^3 IBC's. Lower risk for contents release to water, as storage area is in a portable, bunded, secure chemical cabinet. It is considered that a 1 tonne IBC would not float away or release contents.

Oxide Mills

Lead oxide is manufactured at the Site - High purity lead is converted to grey lead oxide in Cell 1 in four high temperature oxide mills; designated 'Oxide Mill 1' 'Oxide Mill 2', 'Oxide Mill 3' and 'Oxide Mill 4'. The capacity of Oxide Mill 1 and 2 is approximately 14 tonnes per day, Mill 3 approximately 24 tonnes per day and Mill 4 is approximately 26 tonnes per day. This area is considered high risk due to the amounts of lead which could potentially be released to the environment in the event of a flood. There is also the potential for lead dust within this area to be released to water. It should be noted however, that the control of lead within the area is in accordance with the Control of Lead at Work 2002; so it is estimated that minimal amounts of lead dust etc, would collect on surface areas within the Oxide Mill building.

3.2.5. In Section 3.3., general pollution prevention measures are stated which are applicable to daily operations across the whole of Enersys Site. In the high risk areas (Section 3.3.3.) the specific associated contingency and mitigation measures in place at the Installation are described. Details of plan co-ordinators are mentioned where relevant.

3.3. Flood Procedures

3.3.1. General Instructions

Enersys Newport are signed up to Natural Resources Wales' advance warning system – *Floodline Warnings Direct*. Warnings are issued by telephone to the Health, Safety and Environment Manager; the relevant NRW department has the appropriate telephone number. Enersys is in operation 24 hours a day.

The flood risk to the Enersys site is 'tidal'. It is expected that an accurate prediction of flood risk and the specific time of occurrence, can be made and subsequently relayed through a warning.

The recipient of the warning shall raise the alarm and co-ordinate the relevant actions in the relevant areas.

Flood warnings are typically issued by Natural Resources Wales between four to sixteen hours in advance. There are 3 flood level warnings:

- **Flood Alert** - *Flooding of low lying land and roads is expected. Be aware, be prepared, watch out!*
- **Flood Warning** - *Flooding of homes and businesses is expected. Act now!*
- **Severe Flood Warning** - *Severe flooding is expected. There is extreme danger to life and property. Act now!*
- **All Clear** - *Flood Watches or Warnings are no longer in force for this area.*

3.3.2. Pollution Prevention Measures

Throughout the Site, the following pollution prevention measures are in place and would also greatly minimise the risk of hazardous substances entering floodwaters:

Fixed bulk storage tanks

All bulk storage tanks are above ground. It is considered that all storage tanks would remain fixed and retain their contents. Suitable bunding is provided for all tanks, therefore giving additional protection against floodwaters. All openings of tanks will be checked, closed and secured on receipt of a flood warning.

IBC Storage

All IBCs must be stored securely in bunded areas of the Site. It is considered that full IBCs will remain where they are situated. Any near-empty IBCs may be dislodged from their storage areas, but are expected to retain their contents.

Oil/Small chemical storage

There are designated storage areas for oil and smaller amounts of chemicals (i.e. non-bulk). All drums and other containers of hazardous products or oils are

checked before putting into storage areas, to see if they are suitably closed, sturdy and leakproof. These substances are kept in purpose built lockable containment, and are located both externally and internally. On receipt of alarm, members of the Emergency Response Team (ERT) will ensure that:

- Smaller containers of chemicals are locked in their individual storage units to prevent floating away, and minimise the risk of knocking into surfaces which would damage and potentially puncture them.
- Where there are two tiers within the storage containment, (when sufficient room allows) containers will be moved to the top tier, away from water levels.

Raw Material Storage Area (s)

Lead oxide and lead in ingot form are stored within secure areas. Lead ingots do not pose a pollution risk in this scenario. Lead Oxide could enter floodwaters and cause contamination if not properly secured within their designated containment.

Waste Storage Areas

Hazardous waste is stored within enclosed skips, high enough to ensure debris and litter is not carried away from the storage areas. Hazardous waste storage areas have the potential to cause pollution to floodwaters (see Section 3.3.) if all wastes are not within their designated storage receptacles/skips. To minimise the risk posed by hazardous waste, minimal waste is stored at the Site.

3.3.3. Prevention Measures in Risk Areas

These procedures are in accordance with the scenario of a two hour warning, and a flood water depth of 0.75m (worst case).

Waste Management Area

This area is where wastes, including hazardous waste streams, are stored whilst awaiting recycling. Enersys has assessed the items and substances stored within this area to pose the most risk for potential release of contaminants to floodwaters. In this event, suitable physical flood protection measures will be put in place.

Oxide Mills/Storage Silos

Lead is generated in Oxide Mills and stored in 'silos' within the Oxide Mill building. These pose potential pollution sources. It is considered that the storage silos are situated at a height which is deemed to be above risk level. The Oxide Mills are situated above risk levels.

Pasting Area

Upon receipt of alarm, the floor areas will be washed down to ensure all potential contaminants are washed to the storage sump (to minimise dispersal). Enersys has assessed this area to pose a potential risk for release of contaminants to

floodwaters. It is considered that further investigations are required to choose and implement suitable physical flood protection measures, to barrier the area. These are discussed further in Section 4.5.3.

3.3.4. Flood Management Roles and Responsibilities

- It is the responsibility of the Health, Safety and Environmental Manager and the Site Incident Controller to watch for flood warnings and be prepared to notify other staff.
- It is the Site Incident Controller role to raise the alarm, and direct and oversee the work of the Emergency Response Team.
- It is the responsibility of Senior Management of Enersys to post information about flood procedures to be followed by all staff members.
- Senior Management of Enersys will appropriately train ERT Members, Duty Managers and any relevant staff on the flood/pollution prevention procedures set out.
- In a flood it is the responsibility of every member of staff to ensure they do not place themselves or any other person at risk. All persons on site are empowered to raise the alarm and the emergency response procedures will be activated including shut down and evaluation.
- The role of ERT Members is to help shut down the business, put flood defences in place (where appropriate), and safely remove pollution risk. ERT Members shall work in teams where practicable. It is also their responsibility to ensure they have access to items of clothing which identifies them as ERT Members (high visibility jackets etc).

3.3.5. Flood Training

The appropriate time will be taken to secure the site and shut down operations to minimise pollution risk. Enersys recognises that appropriate flood training minimises the amount of time required to take effective action, to allow staff to work quickly and efficiently to protect themselves, the business and the environment.

Appropriate staff training will also help to ensure organised and safe evacuation of the Enersys Site, should this be necessary. Appropriate flood response training will be incorporated into site emergency response evacuation procedure and will cover:

- Detailed training for ERT Members, Site Incident Controller, Evacuation Assembly Point Co-ordinators, Evacuation Sweepers, Evacuation Runners and Security Guards indicating each individual's responsibility for securing the Site on a flood alert, specifically, securing any physical barriers (flood protection products) at the Site. This training level will be more detailed than training for general staff and will be repeated on a regular schedule.

- Flood awareness training for all other Site personnel will focus on procedure response, securing the areas of risk highlighted and general awareness of:
    - Flood warning codes and what they mean;
    - How staff will be informed about a flood warning;
    - What to do when a flood warning is received;
    - How to contain and secure areas deemed a 'risk';
    - Flood dangers and safety tips;
    - Evacuation procedures and routes.

3.3.6. Site Services

Enersys have assumed a worst case scenario when assessing pollution risk from the loss of site services (electricity and gas) in that these services would be completely lost during a flooding event. It has been assessed that loss of Site Services would not present an additional pollution risk. There are many lead-containing release points to air at the Installation. These release points are abated and are electricity-dependent; however, all processes would cease and so no emissions would occur.

3.3.7. Emergency Telephone Numbers

In addition to the emergency telephone numbers included within the Emergency Response Control Plan (see Section 4.4.3.), the following numbers are applicable for up-to-date flood information:

- NRW Floodline ~~**0845**~~ **988 1188**
  0345

3.3.8. Flood Procedures Review

EnerSys shall review relevant procedures in line with the management system to ensure that:

- All staff understand their responsibilities in the event of a flood;
- Any new members of staff have received the appropriate training;
- Any changes to the process or the physical layout of the Enersys Site are accounted for;
- All the names, titles and telephone numbers in the plan are current;
- All staff are briefed on any changes to the plan.

3.3.9. Arrangements Post Flood

It is considered that any shallow flooding would drain to the reen drainage channel, to the perimeter of the Site. This would potentially create an increased build up of any contaminants within the interceptor, as it is designed to process waters prior to release to discharge point. Specialist contractors would be employed to empty and clean the interceptor and ensure it is working effectively before the commencement of operations.

Additionally, Enersys representatives shall undertake a full Site walk-over to assess if any further specialist clean up operations shall be implemented. Relevant layout

maps and chemical inventories shall be utilised to target areas where hazardous/potentially polluting substances are stored.

4. ACCIDENT MANAGEMENT CONTROL MEASURES AND PROCEDURES

4.1. Introduction

Accident management control measures and procedures at the Installation are based on a combination of suitable management measures and procedures and robust physical infrastructure arrangements. There are controlled procedures in place at Enersys which make up the Emergency Action Plan (see Section 4.4.3.); these procedures are in place to control both safety and environmental risk. Relevant procedures are:

- Emergency Response Instruction Procedure (Spills)
- Spill Preventative Control and Countermeasures Plan
- Chemical Waste Disposal Procedures
- Health and Safety Policy for Emergency and Fire Precautions

An overview of the main arrangements at the Site are detailed below.

4.2. Roles and Responsibilities

4.2.1. The Environmental and Health & Safety Manager has overall day-to-day responsibility for incident management at the Installation. In the event of an incident that could have significant environmental consequences, the UK Director will assume responsibility for management of the incident. In their absence, the Incident Site Controller shall be responsible. Where appropriate, the Emergency Response Team will be initiated to assist in the management of the incident.

4.2.2. Roles and responsibilities of all personnel involved in accident management are formally specified in the 'Emergency Response Control Plan' ("ERCP"). The management system document details the exact operational requirements for accident management and contains actions to be taken both to prevent accidents and mitigate any related consequences.

4.3. Incident Recording and Reporting

4.3.1. Enersys Newport has made all key personnel aware of the procedures for contacting the relevant emergency services and external bodies, e.g. Natural Resources Wales, Welsh Water, Newport Council and suppliers of gas and electricity etc. Relevant contact numbers are distributed to the identified key personnel.

4.3.2. As part of the Site management systems, Enersys log and record all incidents, near-misses and abnormal events that occur at the Installation. The EHS Manager has responsibility for ensuring that all such incidents, near misses and abnormal events are recorded and reported to Natural Resources Wales where applicable.

4.3.3. All persons at the EnerSys Site are made aware of the procedures for raising an alarm, and/or reporting an incident at the site, as part of Enersys' EPR Permit and management system requirements.

4.4. General Control Measures and Procedures

4.4.1. Substance Inventory

An up-to-date inventory of substances used at the Installation is maintained at the Site. The substance inventory shall be reviewed within the EMS as part of the requirement to ensure continual compliance with legal requirements (Clause 4.5.2. of BS EN ISO14001:2004). This shall be updated annually, or when a new substance is utilised in operations.

4.4.2. Uncontrolled Discharge of Pollutants to Air

Abatement equipment is serviced within a preventative maintenance schedule. This ensures abatement is working to optimum efficiency.

Release point (stack) abatement is measured for correct operation by pressure indicator devices and plant personnel monitor the equipment daily. Any anomalies are reported and investigated immediately. Records of monitoring are kept.

Release points emissions are monitored by external contractors.

4.4.3. Emergency Response Control Plan (OPS380)

The Emergency Response Control Plan (ERCP) has been developed to minimise hazards / injury to human health and the environment from any unplanned /

uncontrolled events. The action described in this plan shall be implemented immediately whenever an event could threaten human health or the environment.

The Plan covers issues such as fire, chemical spills and natural disasters and has been developed to provide immediate instruction should the event arise. This scenario could also occur in the event of point source (stack) abatement failure, equipment malfunction, or the unloading, transference and storage of relevant raw materials at the site. The procedural steps for reporting any (relevant) unplanned releases to NRW are documented and a copy of the correct reporting form – *Schedule 1 – Notification of Abnormal Emissions* is available to all relevant personnel.

4.4.4. Spillage - Emergency Response Instruction Procedure (OPS384)

A controlled procedure which forms part of the management system covers scenarios for minor and major spillages. Briefly:

Minor -

- Confine and contain the spill, protect drains, protect water course.
- Evacuate the area depending on type of chemical spilled.
- Report the spill to the immediate manager who will assess the spill.
- Determine what the spill consists of and clean up the spill.
- Complete clean up if safe and trained to do so. Complete incident report form.
- Turn in the waste along with the report form to the waste management area for authorised disposal.
- Assess and replenish all materials used in clean up.

Major

- Sound the emergency evacuation via break glass, emergency procedure will be initiated.
- Evacuate the area.
- Isolate at source if safe to do so.
- Contact The Site Incident Controller and Security on telephone ext. 0375/0376 giving precise details such as location, type of substance etc.
- All present ERT members to meet at the designated area (Gatehouse) where details of the report spill will be conveyed. An assessment will then be made on procedures that will need to be followed.
- Complete clean up.
- Follow-up with an inspection of the spill site by ERT members.
- Complete incident report form.
- Assess if spill is reportable to NRW as part of EPR Permit requirements. If it is, the appropriate reporting form must be completed by the EHS Manager along with relevant information detailing incident.
- Send the waste to the waste management area securely for correct disposal.
- Assess and replenish all materials used in clean up.

Additionally, many Enersys personnel have received appropriate, specialist training with regards to spill response, and the use of all mitigation equipment on site. These training records are available for viewing.

4.4.5. Preventative Maintenance Schedule

Enersys Newport recognises that pre-planned, preventative maintenance ("PPM") is vital for ensuring optimum performance of site equipment and infrastructure, which, in turn, will reduce the risk of avoidable accidents taking place.

There is a comprehensive PPM schedule at the Installation, and all maintenance is undertaken by suitably trained personnel. This is in accordance with Enersys' EPR Permit condition 2.3.5.

4.4.6. Evacuation Plans

An evacuation plan is incorporated within the Emergency Response Control Plan (OPS380). Evacuation routes and assembly areas are listed in each area of the Site. These items are in plan and written instruction forms.

4.5. Improvement Measures

4.5.1. Updating of Emergency Response Control Plan

EnerSys Newport shall update the relevant Emergency procedures every two years. The initial site induction process includes environmental awareness (undertaken as part of Enersys' ISO14001 requirements) with the appropriate emergency procedures presented to all personnel.

4.5.2. Improvements

A physical defence barrier review will be carried out in line with the emergency evacuation response procedure.

4.5.3. Physical Flood Defence Arrangements

Upon consultation with Natural Resources Wales Flood Defence Department, it is considered that the scenario of 0.75m height flooding would be 'worst-case'. This is because some protection is afforded from the raised embankment which runs between the River Usk and the Enersys Site.

APPENDIX A

HAZARD IDENTIFICATION AND RISK ASSESSMENT

Nature of Accident/ Abnormal Occurrence	Hazard	Risk Reduction Techniques in Place	Assessment of Risk	Contingency & Mitigation Measures in Place
1. Hazardous Materials Storage, Handling and Transportation				
Chemical and Oil Transportation [across site]	Spillage or failure of containment could potentially result release to storm water drains, and hence interceptor – potential to reach surface water (reen) Potential to contaminate land &soil.	Transportation across Site is kept to a minimum. When undertaken, transportation is generally undertaken in amounts of 1 tonne (IBCs) or less. Site personnel responsible for transportation are trained in chemical handling procedures, and relevant spill response procedures. Condition of containers is subject to ongoing visual inspection.	High	Specialist spill absorbent materials kept at site. Spill training for each type of spill has been given to many employees across site. Clean- up procedures for minor chemical and oil spills shall be undertaken in accordance with the materials usage instruction.
Bulk Chemical Storage	Spillage or failure of containment could potentially result in release to storm water drains, and hence interceptor – potential to reach surface water (reen)	Chemical tanks are bunded to retain 110% of capacity, or are double skinned. Bunds are visually inspected for signs of contents release/leak. Tank design accounts for the Physio-chemical properties of substances stored (to prevent corrosion). Training is given to prevent tank overfill during a filling operation, and sufficient ullage is obtained before a batch filling to prevent overspill. Telemetry in place on acid tanks. Protection is afforded to soil from leaks as tanks are placed on appropriate surfaced areas.	Medium	When designing Site Layout- consideration has been given to how access will be achieved during an emergency. Material specific clean-up procedures will be initiated and carried out by the Emergency Response Team – in accordance with Spill Procedure – OPS384
Product Transference – Above Ground Pipework	Corrosion of internally located pipework, and risk of release of hazardous substances.	Selection of correct/most appropriate pipework for substance being transferred (minimise corrosion). Preventative Maintenance schedule.	Medium	Material specific clean-up procedures will be initiated and carried out by the Emergency Response Team – in accordance with Spill Procedure – OPS384.

Nature of Accident/ Abnormal Occurrence	Hazard	Risk Reduction Techniques in Place	Assessment of Risk	Contingency & Mitigation Measures in Place
1. Hazardous Materials Storage, Handling & Transportation (cont.)				
Non-Bulk Chemical and Oil Storage	Spillage or failure of containment could potentially result release to storm water drains, and hence interceptor – potential to reach surface water (reen)	Non-bulk process chemicals are delivered and stored in small containers, minimising large releases. Lockable bunded storage is provided. Integrity of chemical storage areas is visually inspected as part of the PPM schedule. Integrity of containers is checked prior to placing into storage.	Low	Clean- up procedures for minor chemical and oil spills shall be undertaken in accordance with the materials usage instruction. Stores of appropriate clean-up response materials are held on site and staff have been given relevant training in their usage. For larger spillages, specific clean-up procedures will be initiated & carried out by the Emergency Response Team – in accordance with Spill Procedure – OPS384.
2. Drainage System Failure				
Complete failure of process effluent drainage system.	Failure of containment leading to discharge of potentially contaminated water to ground, and, possibly, groundwater.	Effluent drainage system is known to be constructed of materials appropriate for contents which are processed. Specialist integrity surveys of Site drainage have been undertaken.	Medium	If a total drainage failure was detected. The processes at Enersys would cease (certainly, processes which generate effluent) & Senior Mgt would assess whether appropriate structural repairs are feasible. NRW would be contacted to discuss whether further pollution assessment is required (i.e. soil, groundwater monitoring).
Failure of storm water drainage system oil & chemical interceptor.	Failure of containment leading to discharge of oil/chemical and lead to ground & groundwater.	Interceptor is routinely emptied and inspected.	Low	A specialist waste disposal contractor will be used to pump out contamination from the interceptor.

Nature of Accident/ Abnormal Occurrence	Hazard	Risk Reduction Techniques in Place	Assessment of Risk	Contingency & Mitigation Measures in Place
3. Fire				
Fire at Installation	Uncontrolled emissions to atmosphere.	210 portable fire extinguishers located throughout the Enersys Site. There are four banks of C02 media dedicated to the Cominco, Concast, strip mill and Strip Mill Processes. Two gaseous fire suppression systems Sprinkler system covering 80% of site Fully addressable fire alarm system Water hose reels situated across Site. Documented fire warden training for 90 fire wardens, fire evacuation carried out in each area at least annually.	Appropriate fire training is delivered to all Enersys staff. Due to the nature of substances used and stored at the Installation, the following substance specific mitigation measures are in place: **Solvent Fires** – Solvent fires can usually be extinguished by the proper use of dry chemical or carbon dioxide extinguishers. Placing the lid on the container tightly enough to exclude air can often snuff out fires in small containers of solvents. If a lid is not available, a piece of sheet metal or other similar non-combustible material will suffice. **Gas Fires** – The most effective means of extinguishing a gas fire by closing a valve in the gas supply line, thereby shutting off the fuel supply. Sign and arrow should identify building gas valves. Gas fires can also be extinguished by the proper use of carbon dioxide or dry chemical extinguishers. Serious consideration should be given to allowing gas fires to burn until the source of gas can be stopped to prevent possible explosions. **Chemical Fires** – Chemical fires can be of many different sorts and often-special methods of fire fighting must be used. For example, a metal fire (sodium, titanium, magnesium, potassium and lithium) should be smothered with dry sand, graphite, salt or inert gas in confined areas, **never with water**. **Electrical Fires** – If possible, first turn off the power to the motor or other electrical equipment. If power cannot be turned off call the engineering department immediately. Use carbon dioxide or dry chemical on electrical equipment **never water**. Electrical equipment involved in fires should not be returned to operation until inspected or repaired.	
Firewater	Release of firewater to land, the surface water drainage systems and hence surface water (reen)	Interceptor tank will provide limited storage for firewater. Limited protection will be afforded to ground and groundwater as Site is covered by hardstanding.	Low	The fire service would be consulted as to whether a controlled burn, and hence reduce the production of firewater, would present a reduced environmental risk.

Nature of Accident/ Abnormal Occurrence	Hazard	Risk Reduction Techniques in Place	Assessment of Risk	Contingency & Mitigation Measures in Place
4. General Emergencies				
Loss of Main Site Services (gas and electricity).	Given the nature of the operations at the Installation, it is considered that there are no significant environmental consequences that would arise from a power supply failure.	Ongoing control by operational staff. Processes with lead-containing emissions to air would cease in the event of total power failure.	Low	Operational staff will put installation equipment in a safe condition, and ensure that it is safely restarted when the supply is restored.
Vandalism	Given the nature of the operations at the Installation, it is considered that there is minimal environmental consequences that could arise from vandalism.	Security staff are in operation 24 hours a day. Site is well fenced and secured. Minimum amounts of external storage which potential vandals could access. New CCTV system (can also be viewed remotely)	Low	
Noise caused through emergency event, faulty plant equipment, or site vehicles.	Resulting in noise nuisance for neighbouring premises.	Plant equipment located internally, minimising potential for noise to be heard beyond installation boundary. Installation located within an industrial area. Deliveries/vehicle movements are restricted to certain times of day. Complaints, investigation and reporting mechanisms in place to locate and cease noise emissions.	Low	In the event of a noise emission, investigative steps will be undertaken to establish source. Any faulty equipment shall be immediately shut down. Complaints will be followed up and appropriate documentation retained. If applicable, NRW will be notified using the reporting mechanism identified within the Permit. Where operator or procedural error is identified as the cause, a CAR (corrective action report) will be issued as part of the EMS protocol.

Nature of Accident/ Abnormal Occurrence	Hazard	Risk Reduction Techniques in Place	Assessment of Risk	Contingency & Mitigation Measures in Place
5. Emergency releases to atmosphere				
Unplanned release of pollutants to air	There are several permitted release points to air at the Installation. In the event of abatement failure, pollutants from the process (including lead) could be released to atmosphere	Abatement equipment is serviced within a preventative maintenance schedule. This ensures abatement is working to optimum efficiency. Release point (stack) abatement is measured for correct operation by pressure indicator devices and plant personnel monitor the equipment on a regular basis. Any anomalies are reported and investigated. Records of monitoring are kept. Release points emissions are monitored by external contractors.	Medium	Enersys will notify NRW according to the terms of its EPR permit if a detection of any substance is found to exceed permitted limits. In the event that plant equipment or abatement is identified as the cause of the emergency release, Enersys will notify NRW according to the terms of its EPR permit. As part of mitigation investigations, Enersys shall evaluate if appropriate preventative maintenance and/or operator training is in place.
Release of lead oxide/dust/ particulates	Unloading and moving of certain materials and waste streams across the installation could result in the occurrence of dust/particulate release.	Unloading of relevant raw materials (those which have the potential to cause pollutant/ dust/particulate release) is done undercover. Site vehicles moving materials around site are covered. All relevant storage areas are internal.		The operator will notify NRW in the event of a fugitive release which may cause significant pollution. Where operator or procedural error is identified as the cause, a CAR (corrective action report) will be issued as part of the EMS protocol.