MOTT MACDONALD

Eign IED Permit Application

Accident Management Plan

December 2023

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Contents

1 Introduction 1
1.1 Overview 1
1.2 Environmental Management System 1
1.3 Accident Management Plan 3
1.4 Site Location 3

2 Process Description 5
2.1 Incoming Wastewater and Sludge 5
2.2 Sludge Treatment 5

3 Accident Management Techniques 8
3.1 Loss of Containment 8
3.1.1 Gas Escape 8
3.1.2 Liquid Escape 8
3.1.3 Material Storage 9
3.1.4 Odorous Emissions 9
3.1.5 Vandalism and Unauthorised Access 10
3.1.6 Physical Protection Measures 10
3.2 Fire 10
3.3 Flooding 11
3.4 Incident Response Review 11
3.5 Tabular Accident Management Plan 12

4 Competency and Training 14

5 Distribution and Revisions 16

6 Health and Safety 17

7 Non-compliance Procedures 18

A. Emergency Procedures 19

Figures

Figure 1.1: Eign STC Site Location and Layout Plan 4

1 Introduction

1.1 Overview

This Accident Management Plan (AMP) has been prepared by Mott MacDonald, for the Dŵr Cymru Welsh Water (DCWW) who are applying for a varied bespoke environmental permit for the Eign Sludge Treatment Centre (STC) in line with the requirements of the Environmental Permitting Regulations 2016, as amended ('the EP Regulations') and NRW guidance 'How to Comply with your Environmental Permit' v8 Oct 2014. The AMP covers environmental accident management techniques, training information and emergency procedures.

1.2 Environmental Management System

DCWW have an Environmental Management System (EMS) Policy. In line with the EMS Policy, the Eign STC will be operated in accordance with the DCWW Quality Management System (IMS).

DCWW have established and maintained documentation that defines and describes how the IMS is established, implemented, and maintained in accordance with ISO 9001:2008 and ISO/IEC 17025:2005 and monitoring emissions to air, land and water (MCERTS) Standards.

The system is structured on the organisation's strategic business areas, business processes and customer requirements.

DCWW has not established an ISO 14001:2004 for Eign Wastewater Treatment Works (WwTW), although the ISO 14001 guidelines are observed and followed at the Site and DCWW will extend the scope of accreditation to include it, where applicable.

The EMS is not integrated with the IMS at present. However, certain system procedures and operating procedures are shared by both systems.

Demonstrable procedures are outlined in the DCWW Environmental Policy dates April 2020 and the Site Operating Manual and IMS.

Scope of the Environmental Management System

The SP (1) 01 - Master Asset List contains all IMS sites and shows all certified Environmental (ISO 14001) sites.

Environmental Aspects and Impacts

EN (2) 01 - Environmental Aspects and Impacts Register

Consideration of environmental aspects covers, not only 'operational' activities, but also the auxiliary operations such as maintenance. Also included are abnormal situations such as shut down, start up, emergencies and special project trials.

The starting points for environmental aspects is the initial environmental review and this is a systematic examination of the company's activities to identify associated issues and includes:

- Operation or process activities – each operation is listed and evaluated as to the actual or potential impact that it has on the environment (positive or negative). Operations are broken into significant activities.
- Emissions and discharges – for each operation, process or activity, emissions/discharges are identified by the environmental media to which discharges occur, e.g. ambient air, controlled waters, or land.
- Pollutants – for each emission source, the pollutants of concern are identified.

- Use of raw materials – the use of all materials, including raw materials and types of energy fuel is examined, quantified, and classified as unavoidable, preferred, and avoidable use.
- Nuisance – all other effects, caused by the organisation's activities, such as noise, vibration, odour, steam, dust etc. are considered.

Each environmental aspect is carefully analysed to identify the actual affect it has, or may have, on the environment. While most impacts cause pollution directly or indirectly, it is recognised that some company activities may have effect on the environment. These are considered separately as a special case, as even small benefit may be significant and warrant attention.

The impacts for each environmental aspect are determined by reference to records of measurements, monitoring, surveys, reports, legislations, and codes of practice.

Environmental Procedures Overview

EN (3) 02 – Waste Management

This procedure defines waste management principles and guidance for the legal disposal of waste. This procedure goes into specific detail of the handling of Hazardous and Non-Hazardous Waste including the use of a Hazardous Internal Waste Transfer Form – ENF005 and the reporting of Fly Tipped Waste.

EN (3) 03 – Delivery Handling and Storage of Oils and Chemicals

This procedure defines in general terms the duties and responsibilities involved with the receipt and handling of chemicals, oils and fuels. This procedure goes into detail about the normal and abnormal operations of the delivery/receipt/handling of chemicals and oils and states the requirements of regulations around the storage of fuel and oil, both for fixed tanks and mobile bowsers.

EN (3) 04 – Environmental Incidents – Near Miss

This procedure defines the requirements necessary to deal with and report environmental incidents and must be used in conjunction with the DCWW Emergency Incident Response Handbook available from Senior Managers. This procedure gives examples of possible causes of incidents and explains the appropriate corrective and preventative actions to be taken.

EN (3) 05 – ISO AND EP Sites

This procedure applies to sites that hold ISO 14001 certification. However, the procedure itself will be extended to apply to all Industrial Emissions Direct (IED) permitted sites, whether or not they are accredited under ISO 14001. It details what is included with a Site Initial Environmental Review and Local Site Environmental Management Plans, along with waste management, role responsibilities and information on the Annual Review – ENF 008.

An overall review of the IMS takes place every 12 months, and on other occasions as required, by Senior Management. There is a regular programme of audits covering all aspects of the IMS and EMS; they are included on the Internal Audit Programme operated by the Business

Assurance team and audited by the Environment Agency (EA) on a frequent basis. In addition, the EMS and IMS are subject to audit by the inspection and certification company SGS (for accreditation purposes) every 6 months.

DCWW produces an annual report on environmental performance and where required attend local action group meetings.

One of the key tasks for DCWW during the permit determination process is the development of the management system arrangements for the STC Site to cover all STC operations as well as the quality and environmental aspects.

In 2020, DCWW updated their Asset Management Policy Statement, Environmental Policy Statement, Heath Safety and Wellbeing Policy Statement, Information Security Policy Statement, and Quality Policy Statement.

1.3 Accident Management Plan

The Site operates under a set of site-specific Emergency Procedures which is incorporated into DCWW's Environmental Management System (where applicable) to prevent and manage environmental related accidents. The Emergency Procedures includes an inventory of substances stored at the site, details on storage facilities, inventory of pollution prevention equipment (spill kits and fire extinguishers), inventory of waste and storage capacities, contact details of internal contacts, national and regional (where appropriate) contact details of emergency services and environmental regulators. The Emergency Procedures are distributed to key staff, to supervise the implementation of the Plan, and shared with external contacts (emergency services and the NRW). The Emergency Procedures are accompanied by a site plan that identifies the locations of designated storage areas (and their maximum storage capacity), location of spill kits and fire extinguisher and storage locations and hazards posed by chemical substances.

The Emergency Procedures (Appendix A) reference procedures to comply with environmental legislation and protect the environment and human health in regard to potential accidents:

- Spill prevention and management, and operation of safety valves
- Procedure for recovering spilled product
- Procedures for the prevention of overfilling vessels, management of plant and equipment failures
- Fire prevention and responses to fires, including fire water containment procedures
- Security measures to prevent unauthorised access, arson and vandalism
- Competence, training and awareness requirements
- Monitoring and measurement requirements
- Record keeping procedures for the recording of incidents, accidents and near misses
- Emergency procedures to notify relevant authorities, emergency services and neighbours

1.4 Site Location

The site comprises Eign Sludge Treatment Centre (STC) that is situated within the wider Eign Wastewater Treatment Works (WwTW). Site address: Outfall Works Road, Hereford, Herefordshire, HR1 1RY.

The site is bounded by a meander in the River Wye from north-east. Public footpaths run parallel to the River Wye. Past this bounding, there are residential areas to the north and south. To the west and east there are grasslands.

The nearest sensitive receptors to the site are residential developments which are located approximately 430m to the northeast of the site and 650m to the northwest. The nearest commercial/industrial facilities are located approximately 370m to the southeast of the Site.

River Wye is both a Site of Special Scientific Interest (SSSI) and Special Area of Conservation (SAC) and lies approximately 5m from the site. A Site of Importance for Nature Conservation (SINC) is located adjacent to the site.

The location of the STC is shown in Figure 1.1.

Figure 1.1: Eign STC Site Location and Layout Plan

Emissions Ref	Emissions Points	Assets Ref	Assets	x	y
A1	CHP 1	1	CHP 1	352070	238844
A2	CHP 2	2	CHP 2	352070	238844
A3	Boiler 1	3	Boiler 1	352060	238856
A4	Boiler 2	4	Boiler 2	352070	238844
A5	Gas Flare Stacks	5	Gas Flare Stacks	352112	238847
A6	Gas Flare Stacks	6	Gas Flare Stacks	352114	238845
A7	Generator 1	7	Generator 1	352085	238867
A8	Generator 2	8	Generator 2	352079	238873
A9	OCU	9	OCU	352088	238809
A10	Digester 1 Wessoe Valve	10	Digester 1	352110	238800
A11	Digester 2 Wessoe Valve	11	Digester 2	352098	238791
A12	Gas Bag Wessoe Valve	12	Gas Bag	352101	238821
		13	Cake Silo	352035	238901
		14	Centrifuges	352035	238891
		15	Strainpresses	352092	238850
		16	Sludge Thickening	352064	238851
		17	Thickened Sludge Tank	352088	238856
		18	Screened Sludge Tank 1	352098	238842
		19	Screened Sludge Tank 2	352085	238833
		20	Centrifuge Feed Tank	352123	238785
		21	SBR Balance Tank	352109	238776
		22	SBR Basin 1	352136	238769
		23	SBR Basin 2	352123	238759
W1	Centrifuge Centrate	24	Centrate discharge point	352022	238877
W2	Thickener Liquors	25	Sludge thickener Liquor Discharge	352079	238853
W3	Storm runoff	26	Site drainage discharge point	352041	238858
W4	SBR treated effluent	27	SBR discharge Point	352115	238755
W5	Digester bund storm runoff	28	Disgester bund discharge point	352143	238726
W6	Foul drainage emission point	29	STW inlet pump station	351999	238822
W7	Storm returns emission point	29	STW inlet pump station	351999	238822
		30	Digester Bund return pump station	352127	238801

2 Process Description

2.1 Incoming Wastewater and Sludge

The Works provides sewage treatment for the catchment of Hereford and the surrounding area, with a population equivalent of approximately 50,000. The incoming sewage is conveyed to the works via a number of offsite pumping stations, rising mains and gravity mains. The full flow to treatment (FTFT) of the works is 861l/s, 287l/s of which is treated on site and the remining 574 l/s is diverted to Eign's sister site at Rotherwas after screening and de-gritting. The site also receives tankered cess waste and imported sludge. Both indigenous and imported sludge is treated at the Eign STC.

2.2 Sludge Treatment

The combined indigenous and imported sludge held in the Screened Sludge Tank is thickened to approximately 7-8% dry solids. The thickening process can be carried out using either a Simon Hartley Belt Thickener or an Alfa Laval Drum Thickener. Both of the thickening machines are located within the sludge processing building and the selection of the duty machine is made manually.

The thickened combination of indigenous and imported sludge held within the site Thickened Sludge Storage Tank is fed to the Anaerobic Sludge Digesters for full treatment.

Indigenous sludge is pumped from the wastewater treatment works primary settlement tanks to 2 No. covered raw sludge holding tanks which also receive imported sludge via road tankers. The sludge is screened in 2 No. strain presses and thickened by either a drum or belt thickener, prior to pumping to a covered thickened sludge tank. Digestion is conducted in 2 No. Digestors for 10 to 14 days. The sludge is then discharged to a digestate tank prior to dewatering and export offsite.

The digestion system constantly produces biogas from the primary digester from where it is piped to the works gas holder, which has a capacity of 400m3. The gas holder and gas system is maintained at a constant pressure by the Duty/Standby air blowers, which maintain the outer membrane of the gas holder at a design pressure of 200mm water gauge. The Primary Digester contents are maintained at a constant temperature by the circulation of digesting sludge through the three spiral heat exchangers, which operate on a Duty/Duty/ Standby regime. The heat exchangers have four feed pumps, two dedicated to each Primary Digester and they operate on a Duty/Standby basis. The heat exchangers are fed with hot water / cold water direct from the works two dual fuel boilers (operational by either Biogas or Gas Oil). Mixing in the Primary Digesters is carried out using biogas injected under pressure into a distribution network of nozzles located within the digester. The biogas is pressurised using 6 No. gas compressors.

Any Biogas that is produced that is in excess of that required to operate the boilers and supply the mixing system is burned using the site waste gas burner.

Gas is utilised in 2 No. spark ignition CHP units rated at 1.725MW thermal input each with an electrical generating capacity of 0.716MW each and a thermal generating capacity of 0.722MW. There are also 2 No. dual fuel hot water boilers with 570kW thermal input and 400kW output on standby to provide standby heat and utilisation capacity when a CHP is not in operation. In the absence of sufficient levels of biogas to run the boilers, the boilers can use diesel as a fuel to generate the steam for the digesters. There are also two low level gas flares capable of burning biogas at a rate of 200 Nm3/hr and 400 Nm3/hr respectively.

The primary digested sludge that is displaced by the incoming raw sludge overflows into the Centrifuge Feed Tank, where it is allowed to cool and is mixed using an external mixer ready for further processing in the Centrifuge Building.

Each Alfa Laval Decanter Centrifuge is designed to raise the percentage of dry solids in the sludge from approximately 3.5-5% to approximately 25%. The Centrifuge, by means of a rapidly rotating centrifuge bowl, removes additional water from the sludge before continuously discharging the processed sludge into an inclined Screw Discharge.

The Potable Water Storage Tanks and Transfer Set provide water to the Centrifuge Polymer Make Up and Dosing Plant located in the Thickeners Building which supplies diluted polymer for injection into the Centrifuge inlets to aid dewatering. Also connected to the Centrifuge inlet is the washwater connection.

The preparation and dosing of the polyelectrolyte is fully automated using equipment supplied by the suppliers of the polyelectrolyte.

An antifoaming agent is introduced to the centrate discharge underneath the Centrifuges.

A by-pass facility enables raw sludge to be pumped directly from the Screened Sludge Tank to the dedicated Centrifuge for dewatering. The second Centrifuge processes digested sludge from the Final Sludge Holding Tanks.

After the dewatering process, the centrate discharges into drain pipes feeding the Centrate Diversion Chamber. This diverts the flow to the Centrate Collection PS, pumped to the SBR Balance Tank.

A single Odour Control Unit (OCU) is installed at the site which is designed to extract odours from the 2 No. Raw Sludge Holding Tanks and Sludge Thickening Building. The OCU comprises a biofilter as a first treatment stage followed by a polishing carbon filter, and a 4m discharge stack. The biofilter removes odorous components from the airstream by a process of absorption and microbial breakdown. The carbon filter then removes residual odorous components by a process of adsorption onto the activated carbon media.

The biofilter is continuously irrigated using final effluent which is recirculated through the media with a partial bleed off to waste. The system is fitted with duty and standby fans which draw air through the biofilter and carbon filter. By-pass provisions are in place to enable both stages to be isolated for maintenance. Following treatment, the treated air is discharged through a 4m height stack.

Refer to 100123523_MSD_ProcessFlow_EIG for a schematic of the sludge treatment process and for the 100123523_LocationLayoutPlan_EIG for the Site layout and location of the sludge treatment assets.

The Eign STC IED permit will include:

- 2 No. Digesters (2,354m^3 each)
- 1 No. Digestor feed tanks/thickening sludge tank (478m^3)
- 1 No. Digestate/digested sludge tank (1,564m^3)
- 1 No. Belt press (18-30m^3/hr)
- 1 No. Drum press (18-30m^3/hr)
- 1 No. Centrifuges (50m^3/hr each)
- 1 No. Cake silo (240m^3)
- 1 No. Emergency cake bay (200m^3)
- 2 No. Raw sludge tank/screened sludge tank (1,000m^3 each)

- 1 No. Odour Control Unit (OCU)
- 2 No. Boilers (input of 570kW and 400kW)
- 2 No. Boiler exhaust stack
- 2 No. CHP engines (thermal rated input of 1.725MW each)
- 2 No. Biogas flare stack
- 1 No. Gas holder

The two existing CHP units and boilers on-site are fuelled by biogas, and are currently operated under the existing permit. The CHPs (thermal rated input of 1.725MW each) and boilers (thermal rated input of 570kW and 400kW). Therefore, the Site does not need to be permitted under the scope of the Medium Combustion Plant Directive (MCPD) until 1 January 2029 because each medium combustion plant is less than 5MWth.

3 Accident Management Techniques

3.1 Loss of Containment

3.1.1 Gas Escape

Loss of containment of gaseous materials at the STC could result in the escape of biogas or other gases to the atmosphere around the site. In order to minimise the potential for accidental releases of gas from the Plant the following measures have been adopted:

- The gas holder is a double membrane consisting of an inner and outer membrane of double-sided PVC-lined fabric. The stored gas is contained within the inner membrane. The space between the inner and outer membranes is filled with air under pressure by duty/standby blowers, which run continuously. The exterior dimension of the gasholder remains constant.
- All pipework at the site used for the transfer of gaseous products has been manufactured to the appropriate British Standard using appropriate grade materials and all pipe joints and seals are also designed to meet the required British Standard.
- Regular monitoring of storage vessels, pipework and gas levels is undertaken to ensure no fugitive emissions are being released.
- Storage vessels and pipework are subject to regular visual inspection to ensure the structural integrity of the system remains uncompromised.
- All staff with responsibility for the handling or transfer of gaseous materials receive appropriate training for their role.
- All staff on site receive training in site emergency procedures and the actions to take in the event of discovering a gas leak as part of their mandatory site induction training.
- The gas system has safety pressure release valves, which are designed to prevent over pressurisation of the system. Gas emissions from this point are monitored on telemetry with immediate call-out of staff to remedy.
- A waste gas burner is incorporated to deal with excess biogas and is the first point of relief for excess gas or pressure.

In the event of a loss of containment of gaseous materials at the site the Emergency Gas Plan will be followed. Preventative measures incorporated into normal operations include a risk assessment in accordance with the Dangerous Substances and Explosive Atmosphere Regulations 2002 (DSEAR) that will be periodically reviewed and updated against the latest DSEAR regulations and guidance to ensure best practice is adopted at the Plant. DSEAR zoning is shown in Appendix B.

3.1.2 Liquid Escape

Failure of the liquid containment systems at the STC could potentially lead to reagents and effluents discharging to surface waters and ground waters in proximity to the site. Potential risks associated with this have been reduced through the implementation of the following measures:

- The storage vessels for all liquid materials for sludge treatment on-site are double skinned or bunded to 110% capacity and have been manufactured to the required British Standard using appropriate grade materials;
- All pipework at the site used for the transfer of liquids has been manufactured to the appropriate British Standard using appropriate grade materials and all pipe joints and seals are also designed to meet the required British Standard;

- Regular monitoring of storage vessels, pipework and fluid levels is undertaken to ensure no fugitive emissions are being released;
- Storage vessels, bunds and pipework are subject to regular inspection by site operational and maintenance teams to ensure the structural integrity of the system remains uncompromised;
- Spill kits comprising suitable materials for the containment of liquid spills have been placed appropriately throughout the site for the use of all staff;
- Site surfaces surrounding liquid storage areas and transfer pipes are constructed of impermeable material and equipped with appropriate drainage structures to prevent escape of fluids to surface waters or groundwaters;
- All staff with responsibility for the handling or transfer of liquid materials receive appropriate training for their role; and
- All staff on site must receive training in site emergency procedures and the actions to take in the event of discovering a liquid spillage and the use of spill containment measures as part of their mandatory site induction training.

3.1.3 Material Storage

All chemical tanks and stores must be clearly labelled and marked with appropriate warning signs and all delivery points must be kept locked except when in the presence of a Works team member.

The levels of raw materials are checked and recorded.

During deliveries of material to site, special care is taken to ensure that all storage tank levels and contents are checked in order to prevent the accidental overfilling of tanks or the inadvertent mixing of substances. Specific measures are in place for the discharging of sludge from delivery tankers to reduce the risk of overfilling of the tank and spillages during discharge.

The following are requirements for deliveries on site:

- Each direct delivery must be checked for the correct quality and strength and to ensure that no damage etc. has occurred in transit.
- Supplier's Advice Notes must be checked, to ensure that the goods match the documentation, and then signed.
- Retained copies of Supplier's Advice Notes are filed in the Reception Building.
- All chemical deliveries must be supervised by nominated personnel as detailed on the current list.
- Chemical deliveries must be recorded and must include a declaration that they conform to the required standard, either on the delivery note, or as a separate certificate of conformance.
- Appropriate training is provided to personnel involved in receipt and handling of deliveries and specific procedures for the filling of tanks have been developed within the Plant management systems.

3.1.4 Odorous Emissions

The Eign STC has a an Olfasense odour control unit (OCU) to mitigate the risk of odour. This is a two-stage treatment system, with a wet biofilter as the first stage and carbon polishing filter as the second stage. The system also has duty and standby fans with a design flow rate of 1.5m^3/s. The OCU extracts from the sludge thickening building and sludge balance tanks. Media life and condition is reviewed on a regular basis although it is anticipated that media should last

a minimum of two years. Regular inspection of site storage facilities and pipework is undertaken to ensure that the structural integrity of the system remains intact.

Regular site inspections and sniff checks are undertaken by the site team to ensure that no significant fugitive emissions of odour likely to cause pollution of the environment, adversely impact human health or significantly reduce the amenity of the local area are present. In the event of an accidental emission of odorous material from site storage facilities or pipework, the source of the emission will be isolated, investigated and, if required, operation suspended until the source of the emission has been sealed.

3.1.5 Vandalism and Unauthorised Access

Vandalism and unauthorised access to plant infrastructure and work areas has the potential to result in:

- Damage to plant infrastructure and equipment;
- Increased risk of injury to personnel; and
- Uncontrolled release of fugitive emissions of gaseous, liquid or solid materials to the environment.

Operations and Maintenance (O&M) activities at the STC occur on a continuous basis and high levels of site security are maintained to prevent unauthorised access to plant infrastructure and work areas. In light of this the potential for vandalism is considered to be effectively minimised. The following measures have also been adopted as security measures:

- On arrival at site, visitors must sign the visitor's book located in the entrance to the AAD office building and also announce their arrival to staff in the control room located on the first floor.
- The site is manned 24/7.
- CCTV is installed across the site.
- Fencing has been erected around the site boundary to prevent unauthorised access.
- Lighting has been incorporated to provide increased visibility and deter intruders.
- Warning notices have placed at site access points.
- Regular inspections of the perimeter fencing are undertaken to identify areas of damage and maintenance is undertaken where required.

3.1.6 Physical Protection Measures

The Site has been designed to include protection of structures to minimise accident / incident issues. Potential risks associated with this have been reduced through the implementation of the following physical protection measures:

- All pipework at the site used for the transfer of gaseous products has been manufactured to the required British Standards using appropriate grade materials and all pipe joints and seals are also designed to meet the required British Standard; and
- Storage vessels and pipework are subject to regular inspection, by the site team to ensure the structural integrity of the system remains uncompromised.

3.2 Fire

Operational activities at the STC are such that the potential for fire and explosion exists. However, the local Fire Service has not carried out any risk assessment investigations on site. Potential hazards arising from fire and explosion at the Plant include:

- Uncontrolled release of pollutants from equipment, plant and infrastructure;

- Uncontrolled release of pollutants from material stores; and
- Loss of containment of contaminated firewater.

Fire extinguishers are placed throughout the STC, and operations staff are trained in their use for escape purposes only in order to minimise the risk to life posed by fire and explosion. However, the emergency policy is to evacuate the building in the event of a fire. Staff are informed during induction of the emergency procedures at the Plant to be followed in the event of fire incidents at the site. There is automatic gas escape and fire detection equipment installed which initiates a shutdown of processes if activated.

3.3 Flooding

The River Wye is located 5m north-east of the site boundary. The site is located within Flood Zone 3 – an area with a high probability of surface water flooding. The site also lies in an area with the potential for groundwater flooding of property situated below ground level and at the surface.

Initial screening has undertaken to determine the flood risk for the Site. The data utilised for this study was published online by the Environment Agency and related to the flood risk from surface water, rivers and the sea.

Activities are managed and operated in accordance with a management system and management plans, and procedures implemented include (but not limited to) the removal and clean-up of spilled waste material, including sludge, cake etc. and other pollutants (which may also include removal used spill kits and mobile bunds) before these could enter any flood waters if an event was to occur.

The site access is prone to flooding at a river level of 5.2m, which occasionally happens during prolonged heavy rainfall events and storms. This is not known to cause issues with site operations, other than accessing the site temporarily. During times of flooding, it is known that flood waters affect the filter beds and access road. When the site access is flooded the site is immediately evacuated and monitored remotely.

Changes to the site are expected through the requirement to construct secondary containment around the sludge-related tanks, in order to meet BAT, which may impact on flood pathways or sensitive receptors. A flood risk assessment (FRA) (defined here as a detailed assessment involving bespoke hydraulic modelling work) is to be required and is currently preparation for this is being undertaken. The results of the FRA and accompanying Flood Management Plan will determine the level of mitigation, management and control required for the site during a flood event and procedures will be developed from the recommendations. This AMP will be updated accordingly.

3.4 Incident Response Review

Following the occurrence of any incident identified above, the incident will be logged within the company health and safety system and a review of the incident response and applicable emergency procedure will be undertaken. This review will assess:

- The cause of the incident;
- The effectiveness of the response measures;
- The effectiveness of the emergency response management team;
- Lessons learned;
- Recommendations for improvement.

If appropriate, the findings of this review process will be escalated and will inform immediate or future investment decisions and planning and revisions of the Accident Management Plan.

3.5 Tabular Accident Management Plan

Hazard	Likelihood	Consequences	Controls	Actions
Loss of containment – gas leakage	Low	Uncontrolled loss of pollutants from plant / infrastructure Loss from installation materials stores Adverse impact on human health Adverse impact on local ecology	Appropriate training Bunding of storage containers Sealed drainage & impermeable areas Pipework & fitting to appropriate British Standards Regular monitoring & inspection Spill kits available All chemical deliveries are supervised and receipts kept.	See appropriate emergency procedure in Appendix A
Loss of containment – liquid leakage	Low	Uncontrolled loss of pollutants from plant / infrastructure Loss from installation materials stores Adverse impact on human health Adverse impact on local ecology Loss of amenity in local area	See above section Auto-shut on some filling systems. Overflows to site return system	See emergency procedures in Appendix A COSHH assessments
Vandalism	Low	Uncontrolled loss of pollutants from plant / infrastructure Loss from installation materials stores Adverse impact on local ecology Loss of amenity in local area	Site boundary fence and security measures CCTV & site lighting Smartwater marking of some plant items	
Unauthorised access	Low	Uncontrolled loss of pollutants from plant / infrastructure	Signing in and out, and visitors must announce their arrival to a member of Operations personnel.	
Equipment / plant failure	Medium	Uncontrolled loss of pollutants from plant / infrastructure	24/7 telemetry 24/7 control room and access to standby personnel Regular proactive and reactive maintenance	Work instructions
Fire	Low	Uncontrolled loss of pollutants from plant / infrastructure Loss from installation materials stores Adverse impact on human health Adverse impact on local ecology Loss of amenity in local area Loss of containment of fire water	Appropriate training (fire awareness) Fire extinguishers available in area. Bunding of storage containers Sealed drainage & impermeable areas Pipework & fitting to appropriate British Standards Regular monitoring & inspection Spill kits available All chemical deliveries supervised	Work instructions

Hazard	Likelihood	Consequences	Controls	Actions
			All major plant is continually monitored on telemetry.	

4 Competency and Training

Staff at the installation have the competency to manage and operate activities without causing pollution. Competency is ensured through the appropriate training of all staff, covering:

- Awareness of the regulatory implications of the Environmental Permit and AMP for the activity and their work activities;
- Awareness of all potential environmental effects from operation under normal and abnormal circumstances;
- Awareness of the need to report any deviation from the Environmental Permit;
- Prevention of accidental emissions and action to be taken if accidental emissions occur.

All staff are aware of the implications of activities undertaken including the operation of the Site. Staff have clearly defined roles and responsibilities. Skills and competencies necessary for key posts are documented and records of training needs and training received for these posts maintained.

All DCWW Wastewater Treatment Works Operators are put through rigorous training to ensure competence for the role. Initially all operatives will complete a Level 2 Wastewater Treatment Processes Programme which is 9-days' duration. This consists of units from the Certification and Assessment Board for the Water Industry (CABWI) Diploma in Water Engineering with written assessments and covers all basic aspects of the wastewater process. Six to twelve months later, the Operators will complete the Level 3 Competent Operator Programme.

An "Advanced Digestion – Technical Operator" Knowledge and Skills Framework has been developed to identify all the relevant training required for the role. Through monthly one to ones with line managers and the annual Performance Management Review Process it is ensured that operations staff can demonstrate the knowledge and skills identified or are put forward for further training to develop the competency, if needed.

Training in the actions to be taken in the event of an accident or emergency is provided to all Operator and Contractor staff working on site as part of their mandatory site induction procedure. All staff are required to demonstrate their understanding of the AMP, and the actions and procedures contained therein, prior to undertaking any activities on-site. It is the responsibility of the site manager to ensure that all staff members have received this training.

Regular installation drills are undertaken to ensure that all staff are aware of the actions to be taken in the event of an accident or emergency and those staff with specific responsibilities are fully versed in their duties.

Copies of the AMP are available for the review of all staff.

DCWW is currently working on an accredited Competency Management System under the Competent Operator Scheme, and hopes to have this completed in the next 6 months. The Scheme will develop technical competency courses and skills to demonstrate that personnel have the appropriate technical skills and knowledge to manage the activities undertaken. This will be independently certificated and audited, through a third-party certification body (currently identified as LRQA) to ensure it meets the requirements of the Version 5 Competence Management System Standard, developed by Energy & Utility Skills. The Competence Management System (CMS) will enable Operators to demonstrate technically competent management on the basis of corporate competence and employees' individual competence. Individual competence remains a key component with each employee having the relevant technical competences required to carry out their role. It is expected that DCWW will gain an

accredited CMS by end of October 2022 for all four of its currently permitted sites and two site applying for environmental permits, including Afan.

5 Distribution and Revisions

Master copies of the AMP are made available to all staff as part of their induction package and available on Sharepoint (DCWW Document system) for staff to review.

Review of the AMP will be undertaken following any accident or emergency or after a period of not more than every three years; whichever is the sooner. It is the responsibility of the site manager to ensure that this review is carried out. Should a need for earlier review be identified, e.g. following an incident, a change in working practices or equipment at the installation, this shall be undertaken by the Installation EMS Manager.

6 Health and Safety

DCWW has a comprehensive H&S management system. This includes numerous instruction and guidance procedures. All staff are trained in elements of H&S appropriate to their role.

All operations within the works are subject to the provisions of the Dwr Cymru/Welsh Water Health and Safety Manual.

Safety equipment such as breathing apparatus, gas bottles, and harnesses is located at the Chester WwTW. Personal gas detectors are carried on Company vehicles.

The training records are held electronically within the SAP HR module and are administered by the Training Dept.

7 Non-compliance Procedures

Routine operation of the installation is subject to the conditions of the site permit which details various requirements for actions and reporting for both routine and non-compliance.

The permit sections include:

Section 1 - Management of Installation

General management of the site, including handling and disposal of wastes

Section 2 Operation of Installation

General operation of permitted activities and improvements

Section 3 Emissions and Monitoring

Routine monitoring of all emissions (e.g. odour), including annual reporting of specified point emissions (e.g. various specified exhaust gases from CHPs)

Section 4 Records and Reporting

An important section that includes the reporting of non-compliance with any permitted element. The major elements of concern would be:

- Loss of containment of gaseous substance
- Loss of containment of liquid substance
- Equipment / plant failure causing loss of gas or liquid – inclusive of routine emissions monitoring.

Any losses or failures to comply with these areas require immediate notification to the Environment Agency, followed by “Schedule 6, Part A Notification” by email or paper means. The Part A must be submitted within 24hrs of detection of failure. “Part B” notification would then follow giving supporting information as soon as practicable.

Handling of the incidents on site will be in line with relevant internal incident and accident procedures. These are all subject to audit via internal and external audit protocols.

A. Emergency Procedures