

# **GM/00592 Greatham Replacement Boilers**

## **Environmental Permit Variation – Summary of EMS and Accident Management Plan**

### **Summary of Environmental Management System**

Venator Greatham Works has an Environmental Management System (EMS) which is certified to ISO14001:2015 (certificate reference 78899). The EMS undergoes six monthly independent audits by the BSI to ensure compliance with the standard and periodic (typically every 3 years) EHS audits by Venator's Corporate EHS function to ensure compliance with legislation and Corporate EHS procedures. There is also a site audit programme which covers the key EHS and Quality procedures and systems.

The EMS includes the Greatham Site EHS Charter which is signed by the Senior Management Team, outlining their commitment to EHS. The EMS operates at three different levels:

#### **Level 1 - Environmental Manual**

This is a framework document providing an overview of the EMS and describing compliance with the ISO14001 standard. It also contains various appendices which contain key aspects of the system including:

- Appendix A – Register of legislation;
- Appendix B – Register of environmental aspects. This lists and ranks the activities which may have an effect on the environment;
- Appendix C – Environmental objectives;
- Appendix F – Register of EHS complaints and information requests;
- Appendix I – Internal Audit Matrix ;
- Appendix K – Registers involving Air, water and land protection – Abatement equipment, list of stacks, bunding and refrigerants
- Appendix L – MCERTS Monitoring Manual.

#### **Level 2 - Procedures**

These summarise different aspects of operations, monitoring and other systems which may impact on the management of the environment. The procedures cover systems such as plant operation and maintenance, monitoring of emissions, liquid effluent and waste management, trip and alarm systems, incident management and investigation, training, EHS external complaints and emergency response.

#### **Level 3 – Work Instruction**

These contain more detailed instructions for a specific tasks or operations, some of which will relate to the environment. They are gathered together into different operating manuals. For example, the Effluent System Operating Manual includes work instructions on how to operate the liquid effluent Neutralisation Plant and how to respond to high/low pH alarms.

Records of equipment maintenance and repairs are kept mainly kept electronically in the site's SAP Accounting system. This system is also used to create and generate routines for ongoing operational and I/E maintenance of individual equipment items.

### **Management Plans**

The site has procedures for managing waste taking account of the Waste Hierarchy. Waste Management Plans are produced for events such as maintenance shutdowns or specific projects.

The site doesn't currently have specific management plans for dust, environmental noise or odour so the EMS doesn't contain such plans. The site hasn't experienced off-site problems with any of these issues and management plans haven't been required by the Environment Agency. In the case of dust, some process emission points have continuous compliance monitoring to ensure that abatement equipment is working effectively and that emissions are kept to a minimum.

### **Changes due to the Replacement Boilers Project**

Changes to the existing EMS will be managed as part of the Project. There are already procedures and work instructions in place relating to the existing boiler plant. However, some of the procedures will need revision and new work instructions will be needed for plant operations, plant start-up and shutdown and continuous emissions monitoring. A series of new SAP maintenance and I/E routines will also be needed for the Replacement Boilers. Below are examples already identified where changes to the EMS will be needed.

#### **(i) Level 1**

A review of the EMS against the LCPD BAT Conclusions for EMS (section 10.1.1) will be needed. The Conclusions indicate that various management plans may be needed. A summary report of the review findings will be produced including the reasons why some of the management plans may not be necessary. This is already known in some cases and the relevant issues are discussed below.

The environmental aspects relating to boilers will be reviewed, particularly those involving air emissions.

The Emissions Points Register will need updating to include the new Boiler Stack. There won't be any new emission points to water.

#### **(ii) Level 2**

Revisions will be needed to procedures for the 'Monitoring and control of gaseous effluent by area teams' and 'Notification to Statutory Authorities of a breach of statutory emission limits or release of substances likely to cause harm'.

#### **(iii) Level 3**

New work instructions will be needed for the operation of the Replacement Boilers (including the associated steam system) and the management and calibration of Boiler plant CEMs. The existing boilers don't have CEMs for compliance monitoring.

#### (iv) Management plans

Under normal operating conditions, the new boilers won't produce significant amounts of waste, so a specific waste management plan won't be needed. Any waste generated by the boilers will be managed following the relevant site procedure.

The Replacement Boiler Plant will operate on natural gas, so it is not anticipated that there will be a need for dust or odour plans. Vendor information on the new boilers indicate that they shouldn't generate significant noise at the nearest sensitive receptors (Greenabella Marsh SSSI and SPA) except for occasional safety equipment testing e.g. relief valves. However, the new boilers could potentially produce more noise than the existing boilers because they will have a more open structure and are 100m closer to the nearest sensitive receptor.

### **Site Accident Response and Prevention Plan**

Venator Greatham Works is a top tier COMAH which has a detailed accident response and prevention plan. The plan isn't covered in a single document; instead, different aspects are covered in a range of related procedures.

Most releases to the environment are controlled and contained by the Area Process Team. However, if they cannot contain the release, the Internal Emergency Plan is instigated. This has two levels of response for (i) Site Emergencies and (ii) Major emergencies. The responses are described in procedure TGM/EHS/400 which also contains attachments to guide the responders. These include:

- TGM/EHS/400A – Actions to be Taken in the Event of an incident involving a loss of containment into the on-site Storm Water System;
- TGM/EHS/400C – Emergency call-out personnel contacts;
- TGM/EHS/400D – External contact list;
- TGM/EHS/400L – The response to a site emergency alarm by the Emergency Response Team;
- TGM/EHS/400M, 400N and 400O – Ecological Emergency response plans;
- TGM/EHS/400P – Response to a flood warning.

When an incident is escalated to a major emergency, the Emergency Services are contacted and the Major Emergency Tactical Team (METT) is mobilised. This team consists of experienced Venator personnel covering a range of roles (e.g. Site Controller, EHS, Technical) and who are on call 24-hours a day. They undergo ongoing response training through desk top and live role play exercises.

All incidents involving an abnormal release to the environment are investigated following procedure TGM/EHS/103 - Reporting and investigation of injury accidents, environmental incidents, near misses and other losses. The depth of the investigation depends on the seriousness of the incident.

If an environmental permit condition has been breached, the incident is reported following guidance in procedure TGM/EHS/610 - Notification to Statutory Authorities of a breach of statutory emission limits or release of substances likely to cause harm.

## **Changes due to the Replacement Boilers Project**

Greatham's hazard study process highlights any potential accidents which may result from a new project installation. These will be reviewed against our current incident response systems and if any additions or changes are identified, our systems will be revised accordingly.

For the Replacement Boilers Project, no changes to the measures already in place have been identified. The potential for fire or explosion due to natural gas remains one of the highest risk accidents. This risk is reduced in the Replacement Boilers Plant which will be installed in the open air with no enclosures. The burners of the existing Boiler Plant are enclosed within a building, increasing the risk of any gas leak leading to higher concentrations of natural gas. The Area Classification for the gas installation for the project has been assessed as Zone 2NE.

The other major accident potential is boiler explosion to due low water level.

The project HAZOP / Detailed PHA studies have been used as the basis for identifying Safety Instrumented Functions (SIF) associated with the boilers. A LOPA has been completed for each SIF in a manner consistent with the requirements of Venator procedure EHS-406 based on the identified safety or environmental consequences. The LOPA study excluded assessment of business consequences such as equipment damage and associated production loss.

The only chemicals which will be used in the Replacement Boiler Plant will be water treatment chemicals. These are already in use at the existing Boiler Plant, so a new hazard isn't being introduced. The chemicals are stored in internally banded Portafeed systems; to date we have no experience of these systems failing and releasing chemicals to the on-site drainage systems.

The dosing system is being re-located to facilitate demolition of the existing boiler plant following successful commissioning of the replacement boilers