

**SCOTGEN (DUMFRIES) LTD**  
**DARGAVEL ENERGY FROM WASTE PLANT, DUMFRIES**

**SITE STATUS REPORT**

**Site Details**

Site Operator: **Scotgen (Dumfries) Ltd.** National Grid Ref: **NY 0141 7730**  
Address: **Dargavel Stores, Dumfries, DG1 3PG** Telephone: **01387 240066**  
Licenses: **PPC/A/1022412 (plus CAR/R/101129 sewage & CAR/L/1033239 abstraction)**

**Background Information**

This Installation is designed as a batch co-incinerator and regulated by means of a PPC Permit to meet the standards required by the Waste Incineration Directive. The site takes hazardous and non-hazardous waste, thermally treating the waste in one of two identical waste lines. Each Line consists of 4 primary combustion chambers (PGC), which generate synthesis gas that is combusted in a secondary combustion chamber (SCC). The hot gas exiting the SCC passes through a boiler pack to produce steam which will ultimately drive a turbine to produce electricity.

A link to the PPC Permit and a comprehensive assessment of the original Application “the Determination Document” can be found via the Public Participation Directive section of our website:

[http://www.sepa.org.uk/air/process\\_industry\\_regulation/pollution\\_prevention\\_control/public\\_participation\\_directive/ppd\\_consultations/closed/a1022412\\_14may09.aspx](http://www.sepa.org.uk/air/process_industry_regulation/pollution_prevention_control/public_participation_directive/ppd_consultations/closed/a1022412_14may09.aspx)

**Commissioning History**

The plant was Permitted in May 2009 and commenced cold (July), then hot (September) commissioning later that year. The first waste (clean wood) was burned in October 2009 and commissioning then progressed to municipal waste in December 2009. Problems then occurred with the superheater tubes of a boiler (attributed to fouling, high temperature and corrosion) and the combustion activities were off-line until commissioning re-started on 11<sup>th</sup> March 2010 with waste again being treated from 29<sup>th</sup> March 2010. The plant was therefore not operational during January, February and most of March 2010. No breaches of permit conditions were recorded between 10<sup>th</sup> December and 11<sup>th</sup> March.

SEPA receive monthly commissioning update reports plus specific commissioning tests reports (as described in Section 3.9.4 of the PPC Permit) as the tests are completed.

The plant is still in the commissioning phase. However, SEPA have written to the Operator advising that the Permit Conditions relating to “operational monitoring requirements” will take effect from 01 November 2010.

**On-going issues:**

- 1) control over the combustion air flows to prevent temperature and oxygen excursions which can lead to emission limit breaches and incident notifications;
- 2) carbon deposits on the burner heads have lead to loss of efficiency and reliability of some burners. Modification to purge fuel lines currently being trialled;
- 3) proposals for a long-term fix to the boiler issues are expected by the end of September and need to be resolved before the turbine can be connected to the system; and
- 4) the ash handling system regularly blocks due to fused material forming in the PCC. Modifications to the ash conveying system have been completed and further alterations to the PCC operating temperatures are now being considered to tackle the issue at source.

## Control of Site Operations

A detailed assessment of the site control, monitoring and interlock systems can be found in the above link to the PPC Permit and the Permit Determination Decision Document. The PPC Permit requires routine monitoring of incoming waste, emissions to air, emissions to water and analysis of the ash residue. There are also daily visual, noise and odour assessments carried out by on-site staff and by SEPA Officers during inspection.

## Reported Incidents

The PPC Permit requires that the cause of each Emission Limit Value (ELV) breach or “malfunction of equipment which had the potential to cause pollution” is reported to SEPA as an “incident” together with details of the emission concentration recorded, the immediate actions taken by the Operator to bring the system back into compliance and details of the system adjustments carried out to minimise the risk of a repetition under similar process conditions.

Since commissioning re-started in March 2010 (data correct to – 05 September 2010) there have been 17 recorded noise complaints, 15 activations of the by-pass stack, 2 failures of the Continuous Emission Monitoring System and 172 short term ELV breaches: 10 VOC / 22 CO / 65 low temp at Secondary Combustion Chamber exit / 66 low O<sub>2</sub> / 2 NO<sub>2</sub> / 2 SO<sub>2</sub> / 1 HCl / 4 dust.

Most of these breaches last a few minutes until the process control systems correct to bring emissions back within range. Such breaches are not unexpected during commissioning as the Operator adjusts the system.

Records for each incident are available for inspection on our Public Register (at East Kilbride).

The only public complaints about site operations have related to noise impact. The source of the noise has been identified - automatic door closers have been fitted to minimise noise breakout from the main process building, broadband reversing alarms have been fitted to site mobile plant and an engineering fix (to reduce low frequency tonal noise associated with the main ID fans) was installed towards the end of August.

## SEPA Regulatory Activity

SEPA closely monitors the operation of the plant, receives commissioning reports and monitoring data submissions, carries out inspections and, where necessary, writes formally to the operator on specific issues. A warning letter regarding waste handling was issued on 27 April 2010. No other formal enforcement action has been taken in relation to the commissioning ELV breaches.

In addition to incident reports (as they occur) and commissioning reports, SEPA also receive quarterly environmental monitoring reports (on emissions to air, waster and ash residue). All reports are available on our Public Register.

SEPA inspect against compliance with the conditions of the PPC Permit and carry out routine waste audits during most site inspections (waste and ash handling is checked ~monthly at present). In addition, SEPA also receive copies of waste consignment / waste transfer notes for all wastes entering the facility on a daily to weekly basis. We also carry out forward audits at the final off-site disposal locations for the site bottom ash residues.

This site is regulated by a Lead Officer (Specialist) from our Process Engineering Unit with assistance from other Process Engineering Unit Specialists and Officers from the Local Dumfries & Galloway Team as necessary. Other SEPA staff provide advice on scientific, policy, access to information and legal matters as they arise. The Lead Officer reports to SEPA through the Process Engineering Unit Manager.

At present the Lead Officer’s workload is largely taken up with regulating this site.

## **Discharges to Air**

The air quality modelling studies (carried out as part of the original PPC Application) and monthly ambient air quality monitoring for NO<sub>x</sub> and SO<sub>x</sub>, at 4 locations around the site, are available on the Public Register at our East Kilbride Office. Quarterly and annual summary monitoring reports of emissions (as detailed in Table 6.1 of the PPC Permit) from process vents are available on our Public Register.

## Dioxins and Furans

Annexes 1 & 3 of Schedule 6 of the PPC Permit specify the dioxin emission limit values for this Installation and how they are to be monitored and calculated. Section 4.2.3 and the Table on page 90 of the Permit Determination Document provide details of guideline values and how these were assessed by SEPA.

The PPC Permit required sampling of soils (for metals, dioxins and furans) at 4 locations around the site prior to commencement of waste burning operations. These samples were taken at the start of commissioning in 2009 and again in early 2010 – results are available on the Public Register at our East Kilbride Office. A further set of samples were taken in late June / early July - results will be placed on the Public Register when they become available.

Soil sampling – following commissioning eight samples are to be taken per year for the first two years of operation, thereafter four samples per year. Air sampling – following commissioning, the PPC Permit requires monthly spot samples of dioxins and furans to BS EN 1948:1997 under normal operating conditions during first year of operation. Initial sampling, prior to conclusion of the commissioning phase, will be available on the Public Register as they become available.

## **Discharges to Land**

There are no disposals to land at this Installation. All ash residues are sampled and analysed prior to disposal. Non-hazardous “Bottom Ash” is taken off-site and disposed of at a local landfill (Auchenlosh) in Dumfries and Galloway. “Fly Ash” is taken off-site for disposal at a suitable hazardous waste landfill sites (Avondale near Falkirk, or one of Augean’s three sites in England).

## **Discharges to the Water Environment**

Process effluent - there are no direct discharges of process effluent to sewer at this Installation. Process effluent (arising from water cooling tower discharges, boiler blow down and cleaning of plant) is removed by vacuum tanker to the main sewer at Locharmoss (under a Trade Effluent Discharge Consent from Scottish Water) which is then treated at Troqueer Waste Water Treatment Plant.

Surface water - this site has an impermeable surface to prevent emissions to groundwater. There are no routes for direct discharge to groundwater from the PPC activities on-site. The site is served by a Sustainable Urban Drainage System (SUDS) which takes surface water run-off – this system would also provide a measure of containment / treatment for any indirect releases of process effluent.

The SUDS contains a lined basin with outlet (rather than a pond) designed to allow surface water to gradually pass through the retention system. The sizing of the SUDS was detailed in Appendix 4 of the original Application and SEPA’s assessment of it can be found on previously supplied link to our PPC Permit and Determination Document.

The PPC Permit requires weekly (pH, suspended solids, conductivity, temperature and hydrocarbons) and monthly (Biological Oxygen Demand) monitoring of the SUDS system by the Operator (on a continuous and weekly basis), reporting of results on a quarterly basis and an annual inspection of the systems which protect groundwater.