

70153-SWIP ADDENDUM NOTE

Paragraph coding as per the SCDC Part A2 Application Form

C Waste types and activities

C1 Waste types to be incinerated

Complete Table 1 to provide a complete list of waste types to be incinerated in the plant (use a separate sheet if required):

Table 1:

| Waste code: | Description: | Source: | Quantity (T per annum) |
|---|--------------|---------|------------------------|
| Please refer to document 70153-Supporting Technical Information and in particular 70153-DOSSIER SEVEN [A] and SEVEN [B] | | | |

C2 Delivery and reception of waste

Provide a description of the proposed waste reception and handling arrangements, including:

- C2.2 how you will prevent or minimise the pollution of land, air and water.
- C2.3 how you will prevent or minimise noise and odour and other potential risks to human health.
- C2.4 how the mass of received waste will be measured.

Doc Reference: Please refer to document 70153-Supporting Technical Information and additionally note that waste minimisation, noise & odour control, etc. are established and ongoing practices that accord with the EA's Permit EPR/MP3930BE (as Varied) and that will remain in-place once the SWIP becomes operational. Associated VETSPEED policies and ISO 9001, 14001 plus 45001 accreditations for quality, environmental and health & safety management systems are available for inspection & review by the SCDC

C3 Information about waste arriving at the site

Provide details of how information about waste being accepted on site will be collected and checked. You must include:

- C3.2 how you will check the documentation accompanying the waste.
- C3.3 how you will confirm the suitability of the waste for combustion, including physical and (as far as practicable) chemical information.
- C3.4 how you will determine the precautions to be taken in handling the waste.
- C3.5 the sampling of waste to be undertaken to check that the documentation is accurate.

Doc Reference: Please refer to document 70153-Supporting Technical Information and please note that Identification Procedures are established and ongoing practices that accord with the EA's Permit EPR/MP3930BE (as Varied) and that will remain in-place once the SWIP becomes operational; this includes a Working Plan and Operating Procedures that will be available for inspection & review by the SCDC.

70153-SWIP ADDENDUM NOTE
Paragraph coding as per the SCDC Part A2 Application Form

D The small waste incineration plant

D3 Secondary combustion temperature and residence time

Provide a secondary chamber residence time calculation or equivalent information from the manufacturer and state how this will be demonstrated on commissioning:

Document reference: Please refer to document 70153-Supporting Technical Information and in particular TABLE 3 at Page 10 of 17 together with Appendix One that accompanies this ADDENDUM NOTE. Residence times will be demonstrated/proven at time of SWIP commissioning; in this regard, the Applicant recommends that MCERTS/UKAS sampling and analysis for polychlorinated dioxins+furans would be an appropriate method of demonstrating that residence times/temperatures are adequate.

D4 Energy recovery

Provide a description of the proposed energy recovery from the incineration process, including measures taken to recover the heat generated during the incineration process as far as practicable through the generation of heat, steam or power:

Document reference: Please refer to document 70153-Supporting Technical Information and please note that the plant will incorporate an energy recovery and generation system that will maximise the use of the heat that is exhausted from the incineration process.

The complete system will comprise of the following:

- A dedicated waste heat recovery boiler configured to utilise the heat from the flue gases as these exit the Secondary Combustion Chamber and convert this into low pressure hot water at a temperature of around 110°C. Whilst doing so the process also cools the flue gas temperature to a level that is compatible with the downstream flue gas treatment and abatement system.
- The generated hot water is then drawn through a distribution pump set that will convey the hot water to a dedicated Organic Rankin Cycle Unit (ORC) or to an air blast cooling radiator, both of which will ensure that the water temperature is reduced by around 12°C prior to be returned to the waste heat recovery boiler, where it is then reheated back to 110°C.
- The ORC unit is configured to recoup as much heat as is practical from the delivered hot water and in doing so will generate in the order of 100kWe of electrical energy. This energy will be directed into the site infrastructure as a renewable source.
- To cater for periods when the ORC unit is not in use the heat within the recovered hot water will be dissipated by means of an air-cooled radiator, which is configured to reduce the water temperature by the same margins as the ORC unit and thus allow the seamless continuation of the incineration process.

70153-SWIP ADDENDUM NOTE

Paragraph coding as per the SCDC Part A2 Application Form

D5 Monitoring

Provide full details of the proposed emissions monitoring, including continuous monitoring, recording systems and periodic extractive monitoring. If any monitoring has been undertaken please provide the details of emission concentrations and quantify in terms of mass emissions and emission limits in Annex VI of the Industrial Emissions Directive. If no monitoring has been undertaken please state this:

Document reference: Please refer to document 70153-Supporting Technical Information and please note that the treated and abated exhaust gases would be continuously monitored prior to being directed to atmosphere. The monitoring system comprises of probes that are located within the exhaust duct or chimney itself which are connected to inlet points of dedicated analysers, which are mounted within a floor standing cabinet which itself is located within a dedicated area within the incinerator hall. For the analysis of the solid particulate matter a tribo-electric probe is used and this sends electrical signals to a dedicated control and display unit. The gaseous flue gas analysis utilises extractive sampling techniques where the flue gases are preconditioned to ensure that the individual analysers are subject to a sample, which is dry and free from particulate matter.

The sample is extracted from the monitoring point by a continuous diaphragm pump, which can be regulated to ensure that an accurate flow rate is maintained. The sample is drawn through a heated probe, mounted to the monitoring point, and transferred through heated pipework in order to maintain the sample gas above dew point conditions.

Downstream of the probe but prior to each analyser the sample gas is rapidly cooled by a refrigerated cooler such that all water vapour is removed.

Once conditioned the sample gases are then passed to a series of bespoke monitors for the continuous measurement of the following parameters:

- Carbon Monoxide
- Organic Compounds
- Nitrogen Oxide
- Nitrogen Dioxide
- Sulphur Dioxide
- Hydrogen Chloride
- Oxygen, both wet and dry
- Chimney Stack Pressure
- Chimney Stack Temperature

The analogue signals from the analysers are interfaced with the control and monitoring systems in order to provide normalised and averaged density readings and recording of the measured parameters. The readings would also trigger response actions within the control system to adjust the rate of sorbent powder or liquid additions to the abatement systems.

70153-SWIP ADDENDUM NOTE

Paragraph coding as per the SCDC Part A2 Application Form

D6 Prevention of operation in certain circumstances

Describe how in the case of a breakdown or where the secondary combustion chamber temperature is less than 850°C **and/or 1,100°C** you will reduce or closedown operations as soon as practicable until normal operations can be restored.

Low Secondary Chamber Temperature Monitoring

The temperature within and at the outlet of the Secondary Combustion Chamber (SCC) is constantly monitored by the control system to ensure that the actual flue gas temperature is maintained above the permitted levels at all times. Primarily the temperature values are used to regulate the auxiliary fuel input via the dedicated secondary chamber burners in order to maintain the desired temperature profile throughout the chamber.

However, the temperature values are also used to provide process interlocks that will control, allow or inhibit the introduction of waste materials into the Primary Combustion Chamber. These interlocks will be set for the specific waste types but predominantly for what is deemed as Hazardous Waste or Non-Hazardous Waste (all as described elsewhere). For clarity the interlocks will ensure that no Hazardous Wastes can be introduced unless the SCC temperature is above 1,100°C whereas no Non-Hazardous Wastes can be introduced unless the SCC temperature is above 850°C.

Detail the systems to be employed to prevent the feeding of waste into the plant until the secondary combustion chamber is at least 850°C **and/or 1,100°C** during operation or in the event of the failure of waste gas cleaning systems:

Document reference: Please refer to document 70153-Supporting Technical Information and in particular to 70153-DOSSIER EIGHT

D7 Minimisation of residues

Provide a description of the techniques/measures to be used to minimise the amount and harmfulness of any residues from the incineration process, including any proposed recycling:

Document reference: Please refer to document 70153-Supporting Technical Information; additionally please see the above data with respect to critical control over the primary and secondary combustion chamber processing temperatures and associated residence times. Below are listed the design predictions for residue quantities for each of the SWIP's calculated waste-type incineration scenarios:

- Scenario 1 – 240 kg hr⁻¹ sharps waste: 23.52 kg hr⁻¹ or 0.047 m³ hr⁻¹
- Scenario 2 – 338 kg hr⁻¹ clinical waste: 19.45 kg hr⁻¹ or 0.039 m³ hr⁻¹
- Scenario 3 – 412 kg hr⁻¹ design mix: 20.88 kg hr⁻¹ or 0.0334 m³ hr⁻¹
- Scenario 4 – 531 kg hr⁻¹ animal waste: 23.24 kg hr⁻¹ or 0.0310 m³ hr⁻¹

70153-SWIP ADDENDUM NOTE

Paragraph coding as per the SCDC Part A2 Application Form

D8 Disposal of residues

Provide a description of the techniques/measures to be used to dispose the residues which cannot be prevented, reduced or recycled in conformity with national and Union law:

The overall scope will provide for separate collection and storage to segregate the ash from Haz Waste and Non-Haz Waste incineration scenarios. This aspect of ash segregation is being written in to the existing Working Plan and will be issued to the SCDC within 3-months of first operation of the SWIP.

The actual fate of the different types of ash will be determined based on Laboratory analyses and aligned to the receiving waste disposal Site's conditions of licence.

D9 Accidents and incidents

Describe the action you propose to take in the event of accidents or incidents involving the incinerator. You should describe each type of incident and the appropriate response:

The site operates in conjunction with the Local Fire Prevention Service; the level of liaison is excellent.

There is a Business Continuity Plan that is under constant review that covers all foreseeable aspects of breakdown, power cuts, maintenance, general failures, redistribution of wastes to other licensed operations, etc. that is available to the SCDC for inspection & review

D10 Waste waters

Describe the precautions to be taken against the pollution of the soil, surface water or ground water. In particular, describe the containment arrangements for contaminated rainwater run-off from fire-fighting operations:

Document reference: Please refer to document 70153-Supporting Technical Information and note that all these pollution prevention-control issues are already comprehensively addressed by provisions to accord with the EA's Permit EPR/MP3930BE (as Varied) and that will remain in-place once the SWIP becomes operational.

The flue gas cleaning and flue gas abatement system is a 'dry operation'. The flue gas abatement system will use a combination of proprietary sorbent/reagent materials in order to treat and neutralise the pollutants that are entrained within the flue gases as they pass through the system.

The intended reagents will be a urea solution that is used to reduce NO_x compounds, sodium bicarbonate powders that will neutralise acidic compounds and powdered activated carbon that will absorb and reduce heavy metal compounds and dioxin+furan compounds.

70153-SWIP ADDENDUM NOTE
Paragraph coding as per the SCDC Part A2 Application Form

E Management and training

E1 Competent persons

Describe how the person who will be responsible for the day to day operation of the incineration plant will be selected and trained, and how that person's competence to operate the plant will be checked and reviewed:

The official VETSPEED Chain of Responsibility is fully documented. This documentation is under constant review. The documentation will be available for inspection & review by the SCDC at all times.

All Operators are trained to WAMITAB protocol; the Principal Site Operations Manager holds the associated Certificate of Technical Competence.

All in-house training is refreshed annually and recorded.

A specific training course will be provided to deal specifically with the SWIP; this is currently in the process of development. This will be appropriately incorporated into the annual refresher sessions.

E2 Environmental management systems

Describe the management systems to be used to ensure that you comply with the conditions of an environmental permit if the application is granted. In particular describe:

- E2.2 the schedule of maintenance covering all plant and equipment at the installation.
- E2.3 record keeping systems covering the acceptance of waste, recording of maintenance, records of emission monitoring, training.
- E2.4 how employees are to be trained in their responsibilities in respect of compliance with the conditions of an environmental permit if it is granted.
- E2.5 notification of relevant bodies in the event of an incident or abnormal emissions.

VETSPEED has its own Engineering Department on-site with fully documented maintenance plans.

The ISO 14001 Environmental Management System is available for inspection & review by the SCDC.

Record keeping is fully electronic, with auto back-up.

Reporting to Regulators is as per the existing Permit; any amendments resulting from the new SWIP Permit will be incorporated with 3-months of first operation of the SWIP.