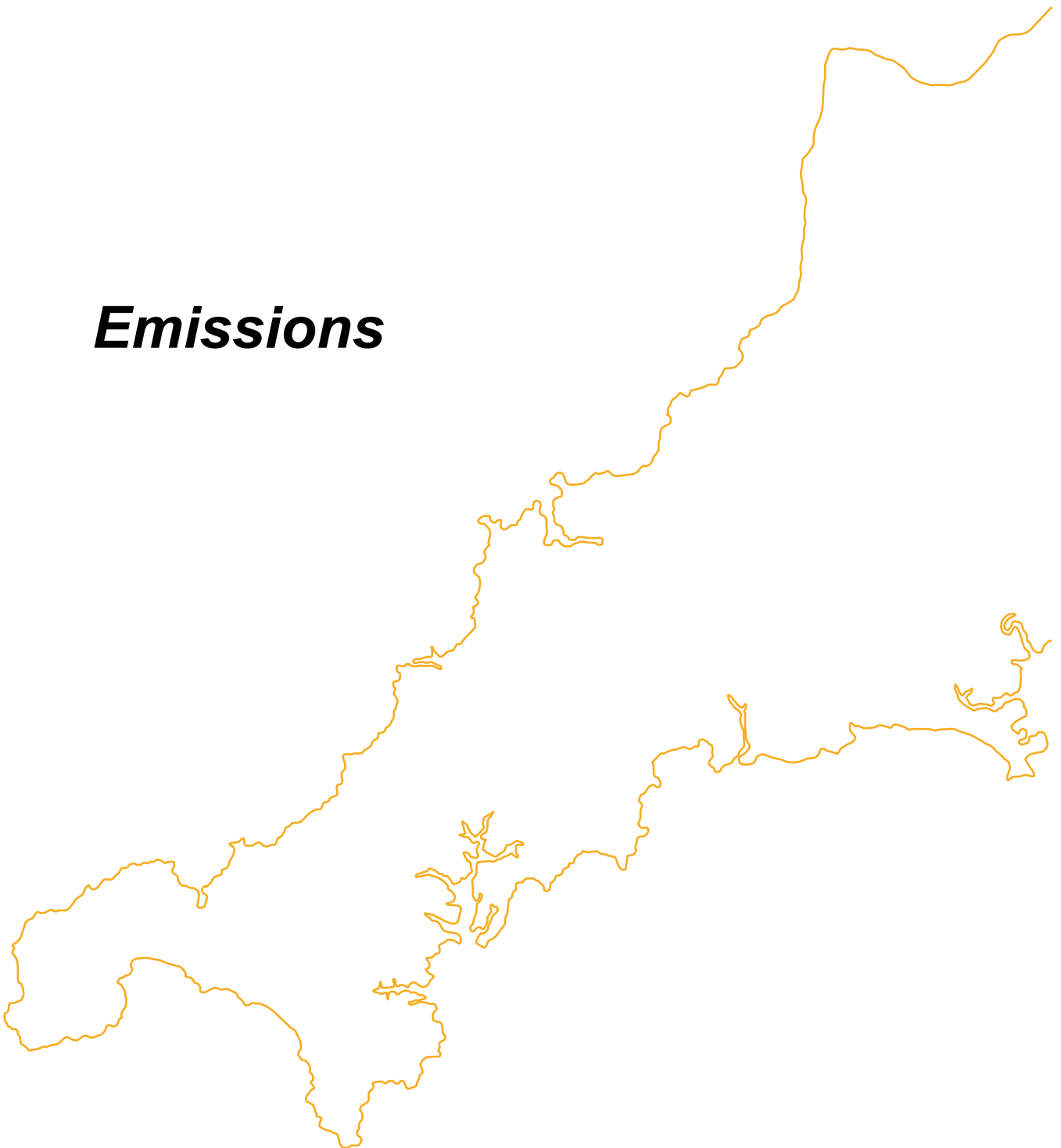




Consultee Response to CERC Environmental Permit Application

Consultee
St.Dennis Anti Incinerator Group (S.T.I.G.)

Emissions



Emissions

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Emissions

KEY FAILURES

SITA's application to the Environment Agency for a permit to operate a mass burn incinerator is fundamentally flawed and therefore a permit should not be issued.

The key failure areas of the application within this section are:

- Abnormal operation.
- Impact significance.
- Accuracy of dispersion modelling.
- Gravitational effects.
- Prevailing wind directions.
- Micro-climate.
- Method of transportation to fly-ash silo.
- Spot monitoring.
- Time allowed for exceedances.
- Persistent 3hr.55min. exceedances.
- Disposal of APCR (fly-ash).
- Transportation distances for APCR.
- Alternative disposal sites.
- Leachate.
- APC monitoring.
- Pre-treatment facilities of APCR.
- Markets for Bottom Ash 'aggregate'.
- Distances for transportation of Bottom Ash 'aggregate'.
- Abundance of existing aggregate.
- Bottom Ash disposal.
- Transportation of Bottom Ash in Carbon Balance calculations.
- Continuous monitoring of specific particle sizes i.e. PM 2.5's.
- Variations in waste stream (heavy metals etc.).
- Exceedances outside monitoring periods.
- Frequency of audits for waste disposal sites.
- Emissions to Groundwater/Sewer or Land.
- Short-cycle CO₂ emissions.

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- Transportation/CO2 emissions of recyclable metals.
- Vehicle type and emissions.
- Creation of secondary particulates.
- Charged/uncharged particles.
- Reliability and effectiveness of fabric filters.
- Particulate matter below 2.5 microns.
- Toxicity of PM 2.5's.
- Quantities of PM 2.5's.
- Predictions for PM 2.5's.
- Flawed data.
- Alternative waste treatment technologies.

Emissions

INTRODUCTION

The following report contains comments and questions that arise from information within SITA's application to the Environment Agency for a permit to operate a mass burn incinerator at St.Dennis.

The permit application is in respect of planning application No.08/00203/WAS to Cornwall County Council.

Further questions and comments in this report stem from tables in the Environmental Agency permit application and information in the above mentioned planning application.

The questions and comments in this report are primarily related to emissions to air, emissions from APCR (Air Pollution Control Residue) i.e. "Fly Ash" and from Bottom Ash transportation.

Emissions

RESPONSES TO VOLUME 1

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Emissions To Air

The principal sources of emissions to atmosphere from the normal operation of the proposed CERC will be from the two 120 metre chimneys and will include carbon dioxide, carbon monoxide, water vapour, oxides of nitrogen, sulphur dioxide, particulate matter, trace metals and organic compounds.

Detailed atmospheric dispersion modelling of the CERC has been undertaken with the plant burning the maximum throughput of waste.

The results show that there is no significant impact to local air quality, human health or site of nature conservation interest.

STIG Response

What is meant by “no significant impact”?

What is the “actual impact”?

If the dispersion modelling shows that the stack emissions, especially particulate matter and trace metals, do not pose any health issues and will not affect the Site of Special Scientific Interest at Goss Moor, does the modelling show where the particulate matter and trace metals will eventually fall to ground, which gravity dictates they must?

Were numerous prevailing winds used in the dispersal modelling and is that data available to the public?

RESPONSES TO VOLUME 2

4. PROPOSED ACTIVITIES

4.6.2 Dry Reactor

Entrained Suspension Reactor

Static Turbulence Generator

STIG Response

What is this? If it is a generator that produces static then it should be called a Static Electricity Turbulence Generator.

How does it make particles stick to it?

If it generates polarised static electricity, then only unlike charged particles will stick to it.

What happens to the others?

Emissions

4.6.3 Powdered Activated Carbon (PAC) Injection System

Heavy Metal Removal

Other heavy metals bind mainly to the fine dust efficiently collected in the fabric filters

STIG Response

Where do the other heavy metals go?

How much is "mainly"?

What happens to dust of less than PM2.5? Do some heavy metals bind to this?

Volatile organic compounds (VOCs), dioxins/furans and PAH removal

Volatile organic compounds (VOCs), polychlorinated dibenzo-p-dioxin (PCDD), polychlorinated dibenzofuran (PCDF) and PAH (polychlorinated aromatic hydrocarbons) are adsorbed by activated carbon and caught in the fabric filter with activated carbon and are sent to a fly ash silo and discharged by trucks.

STIG Response

How is the above "sent" to a fly ash silo?

Is it sealed whilst being "sent" or open to atmosphere?

4.9.5 Start-Up and Shut-Down Procedures

Unavoidable Stoppages

In the event of abnormal operation the operator will:

Reduce or close down operations as soon as practicable until normal operations can be restored.

Initiate the shutdown sequence on those process lines where continuous emission monitors serving them indicate:

a) Any individual continuously monitored emission limit value has been exceeded for 4 hours or more consecutively; or

b) A part of the APC system has failed and any individual continuously monitored emission limit value has been exceeded for 4 hours or more consecutively; or

c) Any individual continuously monitored emission limit is being exceeded and the total time that any emission limit has been exceeded in the last year is more than 60 hours.

STIG Response

Even 1 hour is a long period for toxic emissions to be polluting the atmosphere in mid Cornwall.

Emissions

In the event of abnormal operation why is the exceedance period set so high at 4 hours or more?

Does this mean that a 3hr.55min. exceedance would not be recorded as a breach of regulations?

9.2.2 Air Pollution Control Residues (APCR) (Fly Ash)

At the time of writing this application, no specific commitment has been made regarding the reuse/disposal of the APCR. At the time of plant commissioning, the best option will be considered in terms of costs and environmental impact and will be reported to the EA.

Possible solutions are:

- *Physico-chemical treatment (APC Residues are mixed with acid waste in a physico chemical treatment process that produces a residue that meets the classification criteria for non hazardous waste);*
- *Storage in salt mines; and*
- *Disposal in hazardous landfill site after solidification.*
- *Recycling opportunities will be reviewed regularly.*

STIG Response

In the event of using the first option above, where would this waste be disposed of and what are the transportation distances?

In the event of using option 2 above where are these salt mines and what are the transportation distances?

Waste Acceptance Criteria (WAC) requires that waste must meet specific leaching limits.

What monitoring equipment will be used to check APC residue meets disposal regulations?

What measures will be taken if APC leaching limit values do not comply with disposal regulations?

Are any APC residue pre-treatment facilities included in the incinerator proposal?

9.3 Standards

For 10 years, Bottom Ash has been managed and recycled as a non-hazardous Waste. It is SITA's intention to produce manufacture Bottom Ash aggregate using a Quality Protocol which features a wide range of routine testing against specifications for many applications.

STIG Response

In their planning application SITA states that bottom ash will be transported to local markets. SITA have not disclosed where these markets are.

Where are these markets and what are the transportation distances?

Emissions

Given the abundant current availability of secondary aggregate in Cornwall i.e. residue from the China Clay industry, have more distant markets for the bottom ash been investigated?

If so where are the markets and what are the transportation distances?

What will happen to the bottom ash if no market is found for it?

Why have Lorry emissions from the transport of bottom ash not been included in the carbon balance calculations?

13.3.1 Emissions to Air

The CEMS will monitor the emissions of total particles/dust.

STIG Response

Why are specific particle sizes not monitored especially the most hazardous PM2.5's?

Other substances, namely the heavy metals and their compounds and dioxins and furans will be monitored by taking and analysing extractive samples from the stack at six month intervals (but every three months for the first 12 months of operation)

STIG Response

How does this account for variations in the above pollutants due to variations in the waste stream during the interim periods between sampling?

13.3.3 Emissions of Waste Streams

In accordance with section 33 (Duty of Care) of the Environmental Protection Act 1990, waste disposal contractors will be audited on a regular basis to ensure waste is being properly dealt with. SITA will audit the intended waste disposal sites in order to ensure that the sites are appropriately licensed to receive both the type and quantity of waste generated. These will be repeated on a regular basis.

STIG Response

How often is "a regular basis"?

15.4 Emissions to Groundwater

There will be no emissions to groundwater from the installation.

15.5 Emissions to Sewer

There will be no process emissions to sewer.

15.6 Emissions to Land

There are no direct emissions to land from the installation.

Emissions

STIG Response

So where do the emissions go?

FURTHER QUESTIONS AND COMMENTS

Why have the short-cycle CO₂ emissions from carbon in the waste i.e. biogenic materials, not been included in carbon balance data? Not including them is contrary to IPCC guidelines Chapter 5 where it states that if incineration of waste is used for energy purposes, both fossil and biogenic CO₂ emissions should be estimated.

Regardless of the type of waste treatment plant used i.e. incineration, MBT etc. the recycled ferrous metals would have to be ultimately transported out of the county for re-processing, which would incur emissions. Why have these emissions not been included in the carbon balance data?

In the data source for lorry emission factors used in the carbon balance report, how was it determined that a large lorry has a lower emission factor than a smaller refuse collection vehicle?

Has any emission modelling been done regarding the creation of secondary particulates in the stack due to the ammonia used in the abatement system reacting with sulphurous acid formed when steam and sulphur dioxide combine? Any particulates thus formed in the stack would be beyond the filters.

If no modelling has been carried out, why not?

D3.2 D3.2.2 D4.2 D4.2.1 D5.2 are all tables which state that they do not include statistics for PM_{2.5} and smaller. In the preamble it says that PM_{2.5} is the source of many problems, does this mean that all these tables are inadequate?

D5.2.5 says that PM_{2.5} is predicted to be 30% - 50% of the PM₁₀ figure.

Is this in addition to the PM₁₀ figure, or included as part of it? The variation between 30-50% is very large.

If PM_{2.5} cannot be trapped and therefore measured, how can it be predicted?