



EPA Report on the investigation of the Lime spill incident which occurred at the Dublin Waste to Energy Facility, Poolbeg on 7th June 2017.

Summary

Dublin Waste to Energy Limited (hereafter referred to as DWtE) commenced incineration of waste at their facility located at Pigeon House Road, Poolbeg, Dublin 4 on the 1st June 2017. An incident involving the release of lime occurred at the facility on the 7th June 2017 which resulted in ten contractors attending the Emergency Department at St. Vincent's Hospital.

Based on its investigation of the incident, the Environmental Protection Agency (EPA) concluded that:

- The incident occurred because of inappropriately fitted door seals
- The quantity of lime released was 1-2 cubic meters
- There was no release of lime from the building
- There was no public health or environmental impact associated with the incident
- The lime was collected and disposed of off-site as hazardous waste, and
- DWtE made process modifications and improvements to the plant following the incident.

The EPA approved the recommencement of waste incineration at the site on 7th July. The EPA was satisfied with the corrective actions undertaken by DWtE and with their protocol for resuming operations. The Health and Safety Authority lifted its prohibition notice on the 3rd July.



Section 1: Introduction and Scope

1.1 Purpose

The purpose of this report is to:

- Describe the incident which occurred on the 7th June 2017
- Provide a summary of the investigations undertaken and the corrective actions implemented, and
- Provide the EPA's assessment of the environmental and public health impact of the incident.

1.2 Dublin Waste to Energy facility

The DWtE facility is located at Pigeon House Road, Poolbeg, Dublin 4. The facility holds a licence issued by the EPA to accept up to 600,000 tonnes of non-hazardous household, commercial and industrial waste. The plant consists of two incineration lines - Line 1 and Line 2. The waste accepted is incinerated and the energy recovered is used to generate electricity for export to the national grid.

Further details regarding the licence and plant operation are provided in the Appendix.

1.3 Environmental Protection Agency Regulatory Role

The EPA is responsible for the environmental licensing and enforcement of major industrial and waste management operations in Ireland.

The EPA's enforcement role is to ensure that operators comply with their licence conditions, and to ensure that emissions from an activity do not endanger human health or harm the environment. The EPA achieves this by promoting compliance through guidance and assistance, monitoring compliance through inspections, and taking enforcement sanctions where necessary.

1.4 Health and Safety Authority Regulatory Role

The Health and Safety Authority is responsible for ensuring that those affected by work activities are protected from work related injury and ill-health by enforcing the requirements of occupational health and safety law.



Section 3: Particulars of the Incident

3.1 Lead up to the Incident

DWtE started accepting waste on a commercial scale on the 26th May 2017 and started incinerating waste in Line 1 on 1st June 2017.

DWtE experienced a number of incidents in the first week of operation (between the 1st June 2017 and 7th June 2017) which resulted in problems maintaining the combustion plant temperature above 850°C. These incidents are not directly relevant to this report and are the subject of separate enforcement action.

The incident, to which this report relates, was recorded under incident notification reference no. INCI012230.

3.2 Incident timeline

On the evening of 7th June 2017 DWTE were in the process of restarting waste incineration following an incident relating to the loss of temperature.

At approximately 22.45 a spill of lime took place at the baghouse filter unit in the Air Pollution Control Hall. The Air Pollution Control Hall contains the plant and equipment through which combustion gases are cleaned prior to discharge to atmosphere. DWtE confirmed that the spill was first noticed by contractors working in the area. The contractors contacted the Health and Safety Manager and were advised to evacuate through the Product Storage Area. The ten contractors were evaluated by an on-site medic at the construction compound. Following this evaluation, the contractors attended St. Vincent's Hospital Emergency Department for assessment. DWtE confirmed that the Commissioning Manager was notified of the incident and he inspected the area of the incident within 30 minutes. DWtE erected barriers to cordon off the affected area and to restrict access.

At approximately 2am on 8th June 2017 a nurse from St Vincent's Hospital Emergency Department contacted the EPA on the out-of-hours telephone line. She advised that ten people had presented to the Emergency Department following an incident at DWtE. Shortly after receiving the call from St. Vincent's Hospital the EPA contacted DWtE to get information about the incident. DWTE confirmed an incident had occurred and an investigation had been initiated.

The EPA contacted the facility again on the morning of the 8th June 2017. DWtE's Environmental Manager provided an outline of the circumstances of the incident and the actions taken to date. He confirmed that DWtE would submit an incident notification to the EPA and advised the inspector that the Health and Safety Authority were on-site. The Environment Manager informed the EPA that the Health and Safety Authority had instructed DWtE not to carry out any clean-up or remedial operations prior to the Health and Safety Authority completing its on-site investigation. Access was restricted by the Health and Safety Authority. DWTE formally reported the incident to the EPA later that day (Incident Notification Reference No. INCI012230).



3.4 Incident Investigation

An EPA Inspector visited the DWtE site on 8th June 2017 (Site Visit Report Reference No. SV12228). During the site visit the EPA confirmed the details and timeline for the incidents which had occurred on the 7th June. DWtE outlined to the EPA that the lime spill was localised and the estimated quantity of lime material lost from the spill was approximately 1 to 2m³.

The EPA held a meeting with DWtE representatives on-site on the 9th June 2017 in relation to the lime incident and the earlier loss of incineration plant temperature incidents. The EPA instructed DWtE not to resume waste incineration operations, until a protocol for resuming operations following a breakdown was agreed with the Agency (requirement of Condition 3.19.1 of the Licence). Separately, the Health and Safety Authority issued a prohibition notice on 9th June 2017 requiring DWtE to cease activity, including incineration, at the site.

The EPA met with representatives of the Health and Safety Authority on 14th June 2017 to discuss the incident and the notices/instructions issued to DWtE.

DWTE Investigation

Following the incident DWtE commenced an investigation into the cause of the incident as required by their licence. They identified that the spill had occurred from access hatches on the baghouse-filter hopper. Based on a review of documentation they identified that the baghouse access hatches had been supplied without the necessary seals. Seals were subsequently installed on the access hatches prior to the commencement of waste incineration. Following the incident, DWtE identified that the seals had been installed incorrectly on the outside channel instead of the inside channel of the hatches.

In addition, DWtE identified that, immediately prior to the incident on 7th June 2017, there was an error on the valve controlling the recirculation of lime from the baghouse. The error resulted in greater volumes of lime being recirculated to the baghouse.

The volume of lime in the hoppers was such that it exceeded the level of the access hatches. The fault in the placement of the seals on the access hatches and the volume of lime resulted in the lime spillage.

3.5 EPA Evaluation of the Incident

The EPA carried out several site visits and meetings with DWtE as part of its incident investigation. The purpose of the site visits and meetings was to:

- Confirm if there was any direct pathway by which lime could have been released to the external environment during the incident
- Validate incident reports provided by DWtE in relation to the nature, source and cause of the incident, and
- Observe the implementation of corrective measures.



The EPA identified exits and drainage systems as potential pathways by which lime material could have been released from the building to the external environment. In particular, the EPA identified 3 external exits from the main building as follows:

- Outer roller door at the Production Storage Area
- North exit door, and
- Exit door at bottom of ramp area.

EPA inspectors reviewed CCTV recordings of the Product Storage Area taken prior to, during and after the incident and a phone camera recording taken during the incident on 7th June 2017. The recordings confirmed that the lime spill was localised. The recordings also confirmed that ten construction personnel evacuated the Air Pollution Control Hall through the Product Storage Area prior to exiting the building. There is no evidence of release of lime to the Product Storage Area as they exited. There is no evidence that either the north exit door or the exit door at the bottom of the ramp area were used at the time of the incident. The inspectors were satisfied that there was no release of lime from the building through the external exits.

An EPA inspector also inspected the baghouse filter area, source of the spill within the Air Pollution Control Hall. The inspector confirmed there are no drainage gullies in the vicinity of the baghouse filter area. Therefore, there was no pathway by which lime could exit.

DWtE reviewed their Mechanical Electrical Completion (MEC) records to confirm to the Health and Safety Authority and the EPA that plant and equipment had been installed correctly. The MEC records are documentary evidence of inspections, remedial actions taken, and outstanding issues for all plant and equipment installed on-site. The review of the MEC records undertaken by DWtE identified that some issues needed to be rectified/completed prior to the re-commencement of waste incineration. The EPA reviewed and evaluated a number of the MEC records, in particular those related to the hatch seal installation, and abatement infrastructure.

Section 4: Assessment of Environmental Impact

Based on the investigation the EPA makes the following determination:

- The incident occurred because of a failure to install baghouse access hatch seals correctly;
- The lime spill was localised and there was no direct pathway to the external environment; and
- Lime was collected and subsequently disposed of as hazardous waste.

Based on the above information and on the observations made during the site inspections, the EPA is satisfied that no lime escaped from the building and therefore there was no impact on public health or the environment resulting from the incident.



Section 5: DWtE Corrective Actions

The licensee completed the following corrective actions in response to the incident:

- All seals on the baghouse access hatches have been placed in the correct location on the inside channel of the hatch to ensure integrity of the hatch.
- The error in the programming of the controls for the recirculation valve has been fixed. A lower recirculation dosing valve opening limit of 60% has been applied for start-up. This is to ensure less material is in the filter/reactor circuit and therefore a lower build-up of material in the baghouse hoppers.
- A full review of over 30% of the site Mechanical Electrical Completion (MEC) records, associated with the incinerator Line 1 and hot testing/commissioning activities. A desk-based review of all other MEC records was undertaken by DWtE prior to recommencing waste incineration.
- Lime associated with the incident was collected from the bag house filter area. The waste collected, 2040kgs, was exported from the site as hazardous waste, and
- A protocol, in accordance with Condition 3.19.1 of the licence, to resume incineration operations was submitted and subsequently agreed by the EPA.

Section 6: Conclusions

DWtE has fulfilled the requirements of Condition 9.3 of the licence regarding the incident.

The EPA concluded that:

- The release of lime because of inappropriately fitted door seals.
- The quantity of lime released was 1-2 cubic meters.
- There was no release of lime from the building.
- There was no public health or environmental impact associated with the incident.
- The lime was collected and disposed off-site as hazardous waste, and
- DWtE made process modifications and improvements to the plant following the incident and established a protocol in accordance with Condition 3.19.1.

The Health and Safety Authority lifted their prohibition notice on the 3rd July 2017.

The EPA notified DWtE, on the 7th July 2017, that it approved the recommencement of activities.



Supporting Documentation

The following incident notification, site visit reports and meeting records are available on the DWtE public file which can be viewed at the EPA's office by appointment.

- Incident notification report reference No. INCI012229 concerning maintaining Line 1 combustion chamber at greater than 850°C received on the 08/06/2017.
- Incident notification report reference No. INC012229 concerning the lime spill received on the 08/06/2017.
- Site visit report (reference No. SV12228) of the site visit carried out on 08/06/2017.
- EPA meeting record with DWtE representatives at the DWtE facility on the 09/06/2017.
- EPA meeting record with Health and Safety Authority on the 14/06/2017.
- Site visit report (reference No. SV12248) of the site visit carried out on 15/06/2017.
- EPA meeting record with DWtE representatives at the DWtE facility on the 04/07/2017.

Details of the DWTE Facility

The Dublin Waste to Energy facility is located at Pigeon House Road, Poolbeg, Dublin 4. The facility operates under an Industrial Emissions Licence (Reg. No. W0232-01) initially granted by the EPA to Dublin City Council on the 1st December 2008, and subsequently transferred to Dublin Waste to Energy Limited on the 31st October 2014.

The licence was amended by the EPA on the 7th January 2014 to reflect the requirements of the Industrial Emissions Directive and a Technical Amendment A was issued on the 11th April 2017 to provide for a minor change to the licence.

The facility can accept only non-hazardous household, commercial and industrial waste. Up to 600,000 tonnes of waste will be incinerated per annum and energy is recovered in the form of steam. Electricity is generated from the steam and exported to the national grid. Heat may in the future be exported to a district heating scheme.

The incineration plant has two individual incineration lines designed to accept a total of 600,000 tonnes of waste per annum in total. The activity involves the following infrastructure: waste acceptance area and bunker, combustion chamber, generator to produce electricity, ash collection and storage, combustion gas abatement plant and two emission stacks. The main emissions from the activity are emissions to air and cooling water emissions to surface water.