ERVIA CCS PRE-FEED STUDY

Emissions List- Dublin

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Holds

HOLDS	Description	Responsibility
N/A		

Glossary

Term	Definition
CCS	Carbon Capture and Storage
CCGT	Combined Cycle Gas Turbine
CPF	Central Processing Facility
FEED	Front End Engineering Design

References

1. Ervia CCS Pre-FEED Study Basis-Dublin, MDE 1234-RPS-01-DX-RP-Z-0001
2. Relief Load Summary, MDE1234-BEC-03-DX-CA-Z-CA0006
3. CO_2 Vent Stack Process Datasheet, MDE1234-BEC-03-DX-SP-Z-SP0012
4. Ammonia Vent Stack Process Datasheet, MDE1234-BEC-03-DX-SP-Z-SP0018
5. Design of Earthworks, Drainage, Network Drainage, Attenuation & Pollution Control (Transport Infrastructure Ireland (TII), DN-DNG-03066, March 2015)

1 INTRODUCTION AND SCOPE

1.1 Project Background

Ervia is assessing how Carbon Capture and Storage (CCS), located close to large-scale CO_2 emitters can play a role in reducing Ireland's CO_2 emissions. A technical feasibility study on the potential for large-scale CCS in Ireland was completed by Ervia in 2020.

The general location of Poolbeg Power Station in Dublin was selected for a Central Processing Facility (CPF) for liquefaction, storage, and export of CO_2 overseas via a new marine jetty. The CPF will cater for CO_2 captured at 3 emitter locations (Dublin Waste to Energy (Covanta), Poolbeg Power Station and ESB Dublin Bay (Synergen) CCGT). A new CO_2 gas pipeline gathering network will transport CO_2 from the emitters to the CPF.

Ervia has appointed RPS / Bechtel to carry out a Pre-FEED study that involves a detailed assessment of the key CPF, pipeline and storage infrastructure necessary to condition, compress, transport and store liquid CO_2 at Dublin Port for subsequent loading onto ships for export. (Note: The scope of this project does not include the carbon capture facilities at each emitter).

1.2 Scope

The purpose of this document is to develop emissions list for Ervia Dublin CCS Project.

2 EMISSIONS

2.1 Air Emissions

2.1.1 Carbon Dioxide (CO_2) Emissions

During normal operation, there are no CO_2 emissions expected from the facility. CO_2 emissions will occur during upset or emergency scenario or when Essential Power Generation Package will be running in case of power failure.

For CO_2 emissions from facility during upset or emergency scenario, refer to Relief Load Summary (Ref. 002) and CO_2 Vent Stack Process datasheet (Ref. 003).

2.1.2 Ammonia (NH_3) Emissions

During normal operation, there are no NH_3 emissions expected from the facility. NH_3 emissions will occur during train de-inventory into Refrigerant Storage Drum (V-2301) or during upset or emergency scenario.

The ammonia emissions during train de-inventory into Refrigerant Storage Drum (V-2301) will happen during shutdown of a train (expected to be once in 4 years (Ref. 001). The amount of NH_3 emissions during one train de-inventory is approximately 270 kg/hr of NH_3 into vent stack for approximately 3 hrs with an approximate total emissions of 810 kg.

For NH_3 emissions from facility during upset or emergency scenarios, refer to Relief Load Summary (Ref. 002) and Ammonia Vent Stack Process datasheet (Ref. 004).

2.2 Liquid Effluents

2.2.1 Hydrocarbon Contaminated Effluent

There is no continuous generation of potentially contaminated process water from the facility.

Any spillages during refuelling of diesel tanks for the electric generator package will be contained within a bunded area and removed using vacuum truck connection. Any contaminated run-off will be captured in the hydrocarbon interceptor at the storm water retention sump for off-site disposal at an authorised disposal facility.

Storm water will be collected within a dedicated surface water drainage network and discharged at a designated location that has been approved at planning stage.

2.2.2 Ammonia Spills

Kerbing will be provided in areas handling liquid ammonia to contain any accidental leaks from process equipment and unloading area. Preliminary consequence modelling has demonstrated that only minor quantities of released liquid ammonia will reach ground level. The majority of ammonia either vaporises upon release or is released as aerosol/mist.

2.2.3 Oil Spills

Minor spills during normal operation and maintenance of compressor (lubrication oil), fire water pump (diesel, lubrication oil from engine), emergency generators (diesel, lubrication oil from engine), hydraulic power unit (for loading arms) will be contained in respective skid baseplates which will be provided by equipment vendor as part of the standard design.

2.3 Sanitary Waste

Sanitary wastewater will be collected in a septic tank and removed from site by vacuum tanker for disposal in an authorised wastewater treatment facility.