Condition 1.4 request – Heavy Fuel Oil Storage Tanks and Bunds at Moneypoint

ESB Generation & Trading

Date: 13/02/2025

1. Introduction

Due to the growing demand for electricity and slow build out of renewables, Eirgrid had approached ESB (Electricity Supply Board) about maintaining the existing Moneypoint units in operation in the period after 2025, and a Targeted Contracting Mechanism (TCM) agreement was signed on the 14th of August 2023.

At present Moneypoint Generating Station operates primarily as a coal fired power station. It is proposed to convert its primary fuel source to Heavy Fuel Oil (HFO) from late 2025 until the end of 2029. The Station will act as an out of market generator of last resort and will operate only when required by the Transmission System Operator (EirGrid) for security of supply reasons.

ESB has received planning permission from An Bord Pleanála for the project under ABP-319080-24, which includes the development of the storage tanks and associated works relevant to this request. Technical Amendment B of P0605-04 was granted on the 7th of February updating licence conditions and emission limit values to ensure the installation is operated in line with best available techniques (BAT) conclusions for large combustion plants (CID 2021/2326/EU).

This submission aims to outline the proposed developments/modifications required to facilitate the conversion to Heavy Fuel Oil (HFO) combustion and seek agency approval for these developments/modification under a Condition 1.4 request to the Industrial Emissions Licence (IEL).

1.1. The Project

The project comprises of the installation of 2 no. new HFO storage tanks with 25,000 tonnes capacity in each tank, these will be located within the footprint of 2 no. existing bunds. The works will require the expansion of the volume of the current bunds and alteration of the existing structures to meet with the current standards for secondary containment of substances harmful to the environment. The purpose of the additional HFO storage capacity is to enable the full conversion of the power station generation from coal to HFO for the remainder of its operational life.

1.2. Site Location

ESB Power Station Moneypoint Kilrush, Co. Clare.

Figure 1 below shows an aerial view of the site with the two existing HFO tank bunds highlighted in the red box.

2. Project Design Specifications

2.1. Bund Design

The tanks will be installed within an existing HFO tank farm and will involve the construction of new reinforced concrete bunds to provide the increased capacity associated with the additional tanks. Ancillary site work will include access routes for vehicles and personnel, storm water drainage, demolition works, extension and rehabilitation of existing bunded areas, and services tie-ins to existing site infrastructure.

The required bund containment capacity has been calculated in accordance with CIRIA C736, accounting for the following:

- tank inventory equivalent to the tank overfill volume/rated capacity
- 24hr pre-event rainfall (10%AEP)
- 90min rainfall during the event
- 8-day post-event rainfall
- Fire water (cooling and firefighting)
- 250mm freeboard for surge

A net storage capacity of more than 120% of the largest tank is provided in each bund. Detailed capacity calculations are provided in Appendix A.

The structural design of reinforced concrete elements will be completed in accordance with the latest revision of the European Standard IS EN 1992-1-1:2023 *Eurocode 2 – Design of concrete structures – General rules and rules for buildings, bridges, and civil engineering structures* with reference to the recommendations of the EPA *IPC Guidance Note on Storage and Transfer of Materials for Scheduled Activities (2004)* and CIRIA publication C736 *Containment systems for the prevention of pollution.*

2.2. Drainage Design

The existing drainage system in the bunds is predominantly an underground piped system. Proposed upgrades include the decommissioning of the existing system by removing and / or sealing of lines that link to station drainage, refer to engineering drawing: 1772-DC-1007 for details. All existing underground drainage pipes to be sealed shall have a CCTV inspection and be flushed clean prior to filling with cementitious grout / pump mix concrete.

The proposal is for a new watertight concrete channel drainage system, leading to a collection sump (reference drawing 1772-DC-3020) incorporated in the floor of the bunds, before being pumped onward over the new bund wall to a new connection on the existing drainage system external to the bunds.

The sumps will be fitted with 2 no. pumps (duty and duty standby). The pumps will be fitted with hydrocarbon detection probes to suit site and EPA licence requirements. The pumps will be automated via flow switches, however, the operating flow rate of the pumps will be managed to ensure that the capacity of the existing drainage system outside the bunds is not exceeded while minimising water build up on the bund floor. The control of the pumps will be interconnected with the fire alarm system and Common Plant control system (DCS) for the HFO storage area so that, should this be activated, the pumps will automatically shut down and prevent discharge of any contaminated bund water via the surface water drainage system. Similarly, if hydrocarbons are detected by the sump probes, the system will shut down and a manual reset will be required. The sump pumps in each bund will have an independent control station with both remote (DCS) & manual control functionality

2.3. Pipe Work Design

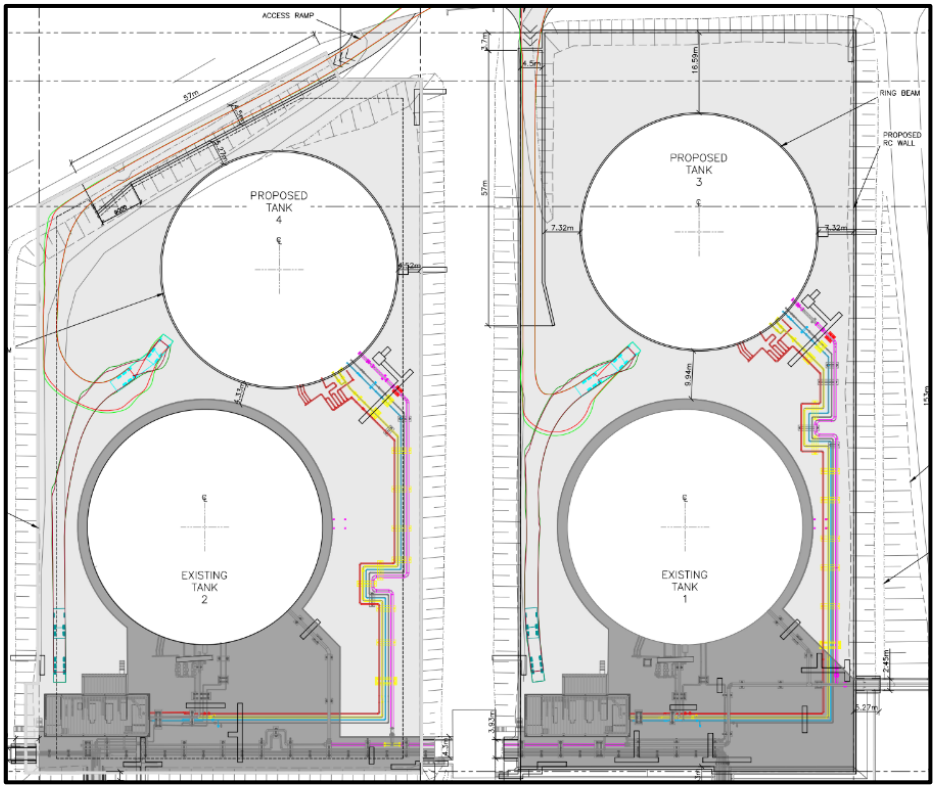
All pipework design will be in accordance with ASME B31.1 with dimensional standards according to ASME. A PED assessment for each pipe system will be made in accordance with PED (2014/68/EU). All equipment specified will be in accordance with the dimensional standards specified in ASME B31.1. Where necessary other equipment with rated pressure/temperature designs will be designed, constructed, and tested in accordance with ASME B31.1. All system design and pipe routing will be carried out in line with national and international applicable codes and standards.

2.4. Tank Design

2 No. site built, and erected steel bulk storage tanks erected to: EN 14015 “Specification for the design and manufacture of site built, vertical, cylindrical, flat-bottomed, above ground, welded, steel tanks for the storage of HFO at ambient temperature and above. The outer shell of the tanks shall be fully painted to give a high durability (15-25 years). Coating specification shall be for a service environment classified by EN ISO 12944-2 as C5. The final colour of all paintwork shall be Dusty Grey RAL 7037.

2.7. Aerial Photo

2.8. Design Layout



3. Environmental Control Measures

As outlined in the project design specification:

The new bunds wall will be designed in accordance with CIRIA C736 and meet EPA requirements, including EPA IPC Guidance Note on Storage and Transfer of Materials for Scheduled Activities.

Due to the presence of existing buildings and services infrastructure within the bunds which will be operational for the duration of the project, it is not deemed to be safe to carry out a hydrostatic test on the proposed bund structures. A hydrostatic test is also not deemed to be practicable due to the scale of the bund structures with 4.40m high walls and more than 10,500m2 floor area equating to a net volume of more than 35,000m3.

All drainage channels and sump within the bund will be hydrostatically tested as per EPA requirements.

The overall watertightness and integrity of the bunds will be proven through rigorous inspection and record keeping during construction stage to ensure compliance with the bund designs and the final integrity and water tightness of the proposed new HFO bunds will be determined on the basis of a detailed inspection and structural survey by an specialist Engineer on completion of the site works.

The drainage system will be upgraded such that all surface water will collect in a bund sump which will be fitted with 2 no. pumps and appropriate controls in accordance with site and EPA licence requirements (hydrocarbon detection probes), before connecting into the existing station drainage network leading to Oil Interceptor No. 1 and then discharging to emission point SW2.Pump flow controls will be formalised in Station Operation Procedures to ensure the discharge is managed in accordance with the IE Licence conditions for emission point SW2.

The 2 No. site built, steel bulk HFO storage tanks shall be fabricated, erected, examined, tested, and inspected in accordance with BS-EN-14014-2014 and ISO28300-2008.

Each tank is equipped with 2 No. flange mounted level transmitters, radar type and 1 No. High-High-level switch, fork type. The level transmitters and switch are connected to Moneypoint main control room for alarm and shut down functionality.

The piping systems shall be fabricated, erected, examined, tested, and inspected in accordance with ASME B31.1.

There are 2 no. emergency ventilation hatches mounted on nozzles on the roof of each tank. These vents will protect the atmospheric tank from overpressure in line with ISO 28300:2008 requirements.

4. Conclusion

The proposed project is critical to allow Moneypoint Generating Station support the Transmission System Operator (EirGrid) in ensuring security of supply. Due to the requirement for additional storage of Heavy Fuel Oil (HFO) at Moneypoint. The purpose of the additional HFO storage capacity is to enable the full conversion of the power station generation from coal to HFO for the remainder of its operational life.

The potential environmental impacts from the project have been examined in the Moneypoint HFO SoS EIAR assessment, has no significant adverse impacts on the environment arising from the development have been identified.

Existing bund walls and floor will require modification during the works to enable installation of the new concrete bund wall and floor. The existing bund remediation and bund integrity during construction phase will be monitored and controls detailed in the project CEMP, Construction Phase Environmental Plan. Further detail will be provided to the EPA prior to commencement of works.

ESB are requesting approval from the Environmental Protection Agency under Condition 1.4 of the IEL for the installation of 2 no. new HFO storage tanks with 25,000 tonnes capacity each to be located within the footprint of 2 no. existing bunds. The expansion of the current bunds and alteration of the existing structures to meet with the current standards for secondary containment of substances harmful to the environment.

Project completion is currently scheduled for quarter 4 of 2026.

Appendix

Bund Volume Calculation 1772-TC-0001-R2:

Layout Drawings

01 Strategic Site Location Map

02 Aerial Photo

03 Overall Civil Site Layout

04 Overall Drainage Plan

05 Access Platform Locations