Hargreaves Industrial Services

CASE STUDY

Associated British Ports – Immingham

Biomass Silo Inspections & Maintenance

OVERVIEW

Associated British Port's renewable fuels terminal at Immingham can discharge and store 200,000 tonnes of wood pellets in eight silos. The facility can handle 6 million tonnes per year with two dedicated continuous ship unloaders and fully automated enclosed conveyors which transport the biomass to the silos for storage. A reclaim system delivers high volumes of cargo for onward transit by rail. The silos were constructed and commissioned in 2014 and routine maintenance has now become due. ABP engaged Hargreaves to undertake the cleaning out, electrical and mechanical inspections and subsequent remedial works to biomass storage silos No5 to No8.

AIMS AND OBJECTIVES

To safely access the silos to undertake electrical and mechanical inspections on the equipment inside ensuring compliance with all relevant safety and environmental legislation, particularly; Dangerous Substances Explosive Atmospheres (DSEAR), Control of Substances Hazardous to Health (COSHH) and ATEX Regulations.

WHAT WE DID

Hargreaves assembled a dedicated site team to undertake delivery of the following;

- Entry and exit systems to include management of confined space working arrangements
- Removal of any residual biomass from within the silos
- Electrical inspection of vibrafloor motor(s) to include repairs / replacement, if required

- Visual inspection and repair (if required) of proprietary vibrafloor panels. These works were undertaken by the original equipment supplier – Vibrafloor – who Hargreaves worked with closely throughout the duration of the project.
- Mechanical inspection of silo pressure relief valves VI. Mechanical Inspection of vacuum relief valves
- Safety Management of the work area.

At the time of opening the silos it was not known exactly how much residual biomass remained in the silos and the location of this residual biomass, despite them being fully emptied prior to works commencing. We gained controlled access through the silo doors, initially removing any build-up of material directly behind the access door using a vac tanker to pump out the material. Following removal of all the build-up material, the access doors were fully opened, and the team safely entered the silo. Any remaining material was then loosened and emptied using the vibro floors. Once the silo was fully emptied, we were able to carry out the inspections.

OUTCOME

All works were carried out in line with programme with each silo taking three weeks to empty and carry out any inspections and repairs. All 4 silos were safely emptied, and inspections were completed to stiffener plate bolts, sensors, cable way and valves and membrane. We also made repairs to damaged vibrafloor plates, replaced the membrane and made ducting repairs.