

Case Study

Construction and Operation of the Low-Level Waste Vaults at Dounreay

At the Dounreay site a sustainable solution was required for local disposal of the low-level waste (LLW) generated from the site's decommissioning mission. Upon Amentum's arrival as part of the Dounreay Site Restoration Ltd (DSRL) Parent Body Organisation (PBO) in 2012 we managed the construction project for the unique near surface disposal vaults adjacent to the site. The two vaults, at a capital construction value of £30m, were the first to be commissioned to manage LLW. They have been a cornerstone of the site closure contract.

Optimised waste management is critical to the successful delivery of any decommissioning programme, representing a significant cultural shift from operations. Implementation of a "waste informed decommissioning" approach has supported this with Amentum taking a leading role in this approach at Dounreay, with senior managers running the waste directorate to drive forward the approach and implementing improvements to the way in which waste is managed, from generation through to disposal".

Each of the LLW vaults cover approximately 1.8 hectares and are 11 metres from top to bottom, providing a safe disposal route for 80% of Dounreay's LLW. The largest vault is 80x50 metres, the second vault only slightly smaller. Each vault consists of a reinforced concrete floor slab founded on bedrock with reinforced concrete walls and sheltered by a portal frame cover building, and the drainage and pumping systems ensure that the vaults remain dry during the waste emplacement phase. Since operation of the vaults began in 2014, over 200 half-height ISO containers have been consigned to the vaults for disposal. Once all the vaults are filled, they will be capped, closed and monitored for a period of time. After this period, and time for radioactive decay, there is no requirement for any institutional control as there will be little, or no, hazard associated with the waste and an engineered closure cap will continue to deter any accidental human intrusion into the vaults.



From top: Beginnings of construction and below, the completed construction of vaults.

Key Achievements

- Ensured environmental compliance and delivered best value for the cost and programme.
- Implemented new processes to optimise waste management, and stop the production of 'orphan wastes', allowing decommissioning projects to access open and efficient waste routes.
- Managed backlog of legacy wastes disposed of to the vaults in line with modern quality requirements.
- Decreased the amount of rework and 'waste rejections' leading to more efficient waste consignment.
- Reduced the waste volume destined for disposal by implementing the waste hierarchy to use alternative waste routes, presenting environmental benefits and extending the life expectancy of the LLW disposal vaults.

About Amentum.

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