

Case Study



Cs-137 Sealed Source Production Facility Decommissioning

Nuvia was chosen to decommission a Caesium Sealed Source production facility comprising of a suite of highly contaminated tong boxes containing manufacturing equipment and waste.

Manufacturing had ceased in 1991 and there was no waste route available to remove the large quantities of Intermediate Level Waste. Viewing windows had become crazed and ventilation had collapsed due to radiation damage. The facility was expected to deteriorate if it was left.

Initial ambient doserates in the facility were 5Sv/h γ , which precluded man-entry. Work began with an Options Study followed by detailed planning. To carry out the work a telerobotic system, a remote waste posting system, two new ventilation systems and a modular containment system were designed and installed by Nuvia.

This equipment was successfully deployed and decommissioning was completed within a metre of a fully operational facility.

All of the boxes and their contents were successfully size reduced and packaged. Doserates on waste packages up to 30Sv/h γ were measured. 2300kg of ILW containing over 150TBq of activity was posted out remotely in 14 litre waste cans for safe storage.

The facility was then remotely decontaminated reducing doserate to approximately 1mSv/h γ . ALARP studies demonstrated that man entry should be used to complete decontamination of the facility.

Manual decommissioning work began by firstly removing the telerobotic system.

A year of manual decontamination and dismantling followed. During this time the equipment used to remotely decommission the facility was removed and disposed of as either LLW or clean waste.

The 7 inch lead shield wall once used to protect operators was also dismantled. Approximately 100 tons of waste was safely dismantled and packed.

Ambient doserates of $7.5\mu\text{Sv/h}\gamma$ were achieved and the area was left free breathing with airborne contamination less than 0.01% of a Derived Air Concentration (DAC).

Scope of Service

- Project management
- Options Studies
- Safety Documentation
- Health Physics Services
- Scheme Design
- Detailed Design
- Manufacture
- Mock up testing and inactive commissioning
- Installation
- Active Commissioning
- Robotic Operations
- Tong Operations

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