

Restoration of the RAF Catapult Pit



Background

The Catapult Pit was constructed at RAF Harwell in the late 1930s to house a prototype pneumatic catapult system designed to assist the take-off of bomber aircraft. The structure, which was below ground, originally consisted of a 30m diameter turntable and two 85m launch trenches.

The pit was never successfully used to launch aircraft and was backfilled by UKAEA in the 1950s after using it as a transit store for waste materials.

Located near the main entrance to the Harwell site, the catapult pit is on land which is accessible to the public.

Site investigation by UKAEA in 1997 showed a small quantity of uranium ore might be present in the pit.



Objectives

To restore the Catapult Pit to a safe and clean state – removing any residual risks to the public, ground water and the environment.



Key challenges

- Removing the chemical and radioactive materials from the pit.
- Ensuring that the original Catapult Pit is in sound structural condition and that no damage occurs to it during remediation.
- Minimising impact to the public and users of the Harwell site and the local roads and footpaths.

Solution

The pit was excavated in 300mm layers and thoroughly examined for contaminants, any contaminated materials were then removed in 150mm layers and disposed of through the appropriate off-site facilities. Representative samples from every 3m³ were taken for on-site laboratory analysis to ensure waste was correctly consigned.

Excavation and waste handling was carried out inside two temporary weatherproof structures (50m x 50m x 6m high), one over the former turntable and the other which was moved across the site as the trenches were excavated.

The work, which was of low hazard to workers and the public, was carried out using proven techniques. Precautionary safety measures and careful working practices minimised exposure to contaminated dusts.

A temporary 2.5m fence was erected to control site access and the public were kept at a distance of 30m from the work. Hygiene control stations were used to monitor personnel, plant, equipment and waste materials. Four air-monitoring stations were set-up on the perimeter of the site to measure any discharges, whilst the environment inside and outside the weatherproof structures was also regularly monitored for chemical and radioactive materials and dusts.



Outcome

- UKAEA has successfully removed all the waste material in the pit.
- The structure of the Catapult Pit was exposed for the first time in 50 years and was proven to be sound.
- RAF restoration enthusiasts visited the 'exposed' pit to gather information.
- The pit has been backfilled with clean materials, top soil, grass-seeded and the land is once again available for use as a sports field.

Key facts

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| • Total soil shifted | 5,100 tonnes |
| • Diameter of turntable pit | 30 metres |
| • Depth of pit | 3 metres |
| • Length of trenches | 85 metres |
| • Analysis of pit | 1,600 radiological samples
1,000 chemical samples |
| • Excavated waste | 4 half-height ISO containers and 6 two hundred litre drums of low level waste. The majority of the waste was natural uranium |

Timescales

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| • Start of site work | February 2002 |
| • Completion of site work | June 2002 |

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