Building Summary Report – Calder Blower Houses

Building Description

The Calder blower houses are two sets of four identical buildings, originally associated with power generation at Calder Hall on the East of the Sellafield site.

The blower houses contain redundant equipment previously used to circulate coolant gas through the reactors and are designated 'long' (4 No.) and 'short' (4 No.), with both a long and a short blower house for each of the 4 reactors. The long blower houses incorporate an additional bay to accommodate redundant back-up generation plant.

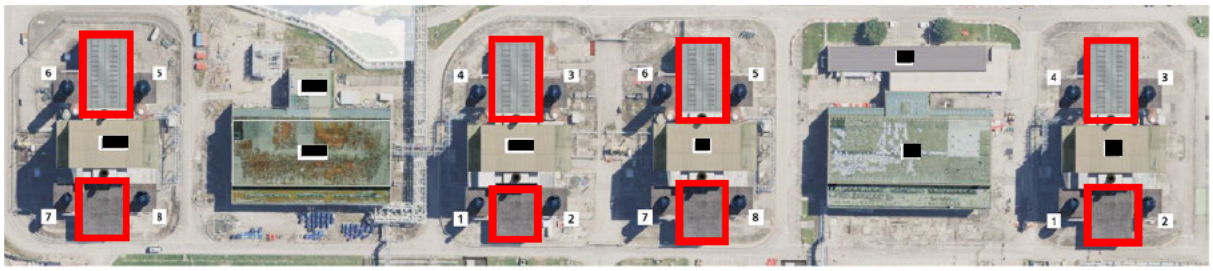

Figure 1 Plan View of Calder estate, Blower Houses Highlighted

Construction of the blower houses started in 1953 and they were operational from 1956-2003.

The blower house buildings are steel framed and clad with a combination of double skin masonry to c.1.0m height with the remainder in cementitious corrugated sheet. The buildings abut but are structurally separate to the reactor buildings and heat exchanger bases (pump houses).

Figure 2- View on 'short' blower houses, highlighted

The long blower houses are 33.0m long, the short blower houses are 23.0m long. Both blower houses are approximately 18.5m in width.

Reason for Demolition

The blower houses are redundant and serve no purpose. Maintaining the blower houses is both unnecessary and a waste of money, it also puts people at risk from undertaking avoidable maintenance works.

The land occupied by the blower houses is valuable and will make the subsequent demolition of the remaining Calder structures easier by providing useful space on which to locate demolition machinery.

Method of Demolition

The demolition of the blower houses will be undertaken by Erith, an accredited National Federation of Demolition Contractors (NFDC) contractor.

Prior to demolition commencing, all small plant items and equipment will be removed. Larger plant, such as oil pumps, generators, and blowers, will be drained of fluid prior to demolition commencing.

The site will be secured with a temporary 'Heras' type fence to control access and egress during demolition. The method of Demolition will be progressive, removing one bay at a time ensuring stability throughout the operation. The final bay will be tied to the reactor building structure to ensure lateral stability throughout demolition.

An internal gantry crane, 1 per blower house, will be removed after the gable is dismantled. The crane will be pulled off the gantry rails using a suitable tracked excavator. Other larger items of plant will be removed prior to demolition (generators) or as improved access is provided by demolition (blowers etc.).

Demolition will be undertaken using long reach machines following any asbestos strip required as directed by a R&D (refurbishment and demolition) asbestos survey. Asbestos will be removed prior to demolition unless removal poses a greater risk than post demolition treatment. Bulk asbestos has already been removed from the blower houses in previous phases of work. All licensable asbestos work will be undertaken by licensed demolition contractors.

Asbestos cement cladding constitutes the bulk of remaining asbestos in the blower houses. Cladding will be carefully removed by hand and double bagged before being placed into a suitable segregated container for transport to an off-site disposal facility.

Redundant trenches will be cleared and back-filled, active trenches will be protected by a suitable and sufficient floor plate.

Any loose radiological contamination of the building will be removed prior to demolition. Where decontamination is not possible, waste will be segregated and directed to an appropriate waste route dependant on classification.

All infrastructure within the vicinity of the area is owned and operated by Sellafield Ltd. Nearby drains will be protected against material ingress and services protected as required. A series of electrical cable ducts run between the long and short blower houses.

The blower houses will be removed to the existing ground floor level and the interface with adjoining facilities made good to re-establish weather tightness.

Environmental Impact

Cumulative arisings from the demolition the 8 blower houses are estimated as;

Material Non-rad	**Quantity (Te)**	**Trucks (20Te)**	**Chemical Classification**	**Destination**
Ferrous metal	3600	180	Non-hazardous	AVS Cumbria Metals, Flimby
Mixed and non-ferrous metal	64	4	Non-hazardous	Cyclife, Lillyhall
Concrete	200	11	Inert	Cumbria Waste, Lillyhall
Asbestos (cement)	25	3	Hazardous	Various
Felt	3	1	Hazardous	Various
Glass	8	1	Non-hazardous	Cumbria Waste, Lillyhall

Waste is expected to be non-rad free release and will be subject to survey before release from the Sellafield site. Any waste found to be radiologically contaminated will be embargoed and sentenced to a suitable alternative waste route.

Waste removal to off-site disposal and recycling facilities is estimated to require up to six 20.0Te HGV vehicles per day. HGVs associated with blower house demolition will leave Sellafield site via the main gate and will be timed to avoid rush-hour traffic. At six HGV movements per day, HGV traffic associated with blower house demolition will contribute 33 days of additional traffic load, between 4-5 days per blower house. The blower house demolition works should start and finish within 12 calendar months.

Dust generation is not expected to be significant; the structure is predominantly a steel frame requiring minimal concrete dismantling. Access roads local to the Calder facility are in good order and vehicles will not be tracking over unmade ground.

Demolition activity hours will be 0700-1900 Monday-Thursday. Weekend working may occasionally be required, but will be limited to prep for demolition activities such as cable re-routing and asbestos strip.