

Generic method for the demolition of an above ground gas holder

All site risk assessments to be undertaken by the demolition contractor prior to any phase of this method statement being undertaken

This demolition method statement has been prepared to describe the works involved in the de-watering , dismantling and removal of Gas Holders with a construction being above ground, spiral guided, steel tank.

The scope of works includes for the complete demolition of a gas holder, including residual water and sludge removal, all scrap arising, the back filling to existing ground level and compaction of pits. This document describes the works to demolish and remove from site the holder.

Handover documentation will be provided by the client prior to any works progressing in the area. Site utilities are to be terminated and disconnection documentation is to be provided prior to any demolition works progressing in the area.

All works will be controlled under a permit to work

The holder site will have an asbestos inspection carried out and confirmed, by SGN, asbestos clear; however it may be noted that the pipe work around site may have Asbestos Containing Materials (ACM) within the gaskets. These items will be removed & disposed of off-site in accordance with the current legislative regulations; this work will be carried out under independent documentation and will not impact on the planned demolition.

Lead paint is present on all the holders and health surveillance is to be undertaken for all operatives working on the site. Full adherence with the Lead Regulations and the demolition contractor Procedure for working with lead will be achieved.

PHASE1

De-watering of tank

Discharge from the gasholder shall be passed through a WTU (one larger or two smaller units) located adjacent to this holder. Discharge shall pass by gravity through this WTU to the adjacent site oil interceptor and through this to the public sewer. The WTU shall be fitted with high a high level STOP float valve and an emergency high level overflow to Interceptor. The WTU also incorporates an inlet filter followed by intermediate oleophilic filters plus final compartment GAC gravity filter media (to be utilised dependant upon water

quality).

All discharge sampling shall be undertaken in accordance with SGN Minimum Operating Standard for Gasholder Dewatering and analysed for the required minimum analysis suite as confirmed by the Statutory Authority. This analysis shall be undertaken by an SGN approved laboratory. An initial treated discharge sample will be taken with rapid analysis turnaround (minimum 5 days). Discharge shall not be commenced prior to Client approval of this analysis. Discharge will then continue with further sampling/analysis at 7-day intervals (also rapid turnaround) as required in the above referenced Minimum Operating Standard. Discharge will be ceased at any stage should analysis results breach discharge consent criteria. Appropriate remedial action will be taken immediately to rectify inadequacies and further sampling/analysis undertaken to validate accordingly.

All cable shall be armoured where exposed and located above ground and secured to the gasholder structures where possible. Cable marking tape will be utilised to clearly identify such services.

Treated waters may be collected directly at the WTU discharge point for chemical analysis. A flow meter shall be incorporated into the system to record volumes and rate of discharge. All analysis results will be submitted by AS to DC upon receipt to ensure compliance with the discharge consent.

The final residual water removal shall be passed at a reduced rate through a small WTU with filters replaced regularly as necessary to ensure continued compliance with the discharge consent.

Phase 2

Cutting of access and ventilation

When water has been removed to ground level the demolition contractor will cut access panels and remove roof sections as required

Following the receipt of the permit to works from the client operatives will progress the works in a safe diligent manner in accordance with BS 6187:2000 Approved code of practice for demolition. Following the confirmation of the termination of services operatives will identify the isolation points to ensure they are clear of demolition activities. Copy of isolation certs are held in the site office, issued by SGN.

1. Enclose work area using Heras fencing, work area extents to be formalised on site but to include (wherever possible) an area for processing and loading of waste materials. This area is to be segregated from remainder of site, with a single controlled access point preventing inadvertent access during demolition activities.

2. A horizontal, and vertical hot cut will be made at ground level using Oxy/Propane cutting equipment. This operation shall be carried out under permit and the observation of fire watcher, equipped with charged fire-fighting equipment. This cut will be made to enable the

machine access to be formed. this operation will be repeated at a point 180 degrees from the first opening.

3.The roof sections will be removed using cold cutting equipment ,to allow approximately 30% minimum crown removal. This should supply adequate ventilation. Additional mechanical ventilation will be provided should this become necessary to ensure an adequate supply of fresh air for phase 3.

Phase 3

De- sludging of tank

DC shall have remove an agreed percentage of the gasholder roof prior to commencement of de-sludging operation

DC shall provide and maintain an approved system for man-access onto the holder base.

Upon completion of de- sludging, phase DC shall remove all internal steelwork and tip cups sludge onto top of gasholder base/dumpling for subsequent cleaning.

A written checklist and record of personnel entering and leaving the gasholder shall be kept by the AS Supervisor on the “operations notice board” adjacent to the access way. Additionally, a daily permit to work will be issued and displayed on this notice board.

Gas monitoring will be undertaken during all de- sludging works. Each operative working within the gasholder shall wear a personal gas monitor. This device monitors CH 4, O2 and H2S levels and emits an audible alarm at recommended HSE levels. All personnel working within the gasholder shall also carry an emergency B.A. saver set. Additionally, an outside watchman and a second confined spaces trained outside man shall always be available. An emergency rescue stretcher will be available at all times. Additionally, harnesses will be worn and a lifeline will be available at all times.

Polymer granules are spread manually onto the sludge material in the localised cleaning area and mixed into the material by agitation. Sludge is then either mobilised by hydraulically driven sludge pump or manually collected and transferred to pre-prepared dewatering bags. These bags are located within the cleaned annulus bays around the periphery of the gasholder base. The sludge dewaterers by gravity over a short period after which it may be topped up again for further de-sludging. Removal of dewatering bags for disposal/storage is possible after 24-48 hours.

A sample of treated polymerised sludge shall be taken by AS prior to commencement of de-sludging works to ascertain sludge classification. This analysis shall determine whether or

not the material is acceptable for disposal to landfill (most probably hazardous landfill). Upon receipt of waste analysis results, dewatered sludge shall be consigned for disposal to suitable licensed facility. All sludge disposal consignment notes to be signed by DC site representative and green copies retained on site.

The excavator will then continue to cut the skins away; using the same vertical cuts until there is a complete opening to the holder. The excavator will remove any ancillaries (access steps, etc...) as they are encountered. Where any old cast iron mains are present the joints will be broken out to allow the gaskets to be set aside separately for disposal as ACM waste.

Once an opening of between 90° & 120° degrees has been formed a ramp into the holder and stable working base will be established using, if required, a suitable fill material; *any open edges will be protected using "heras" type panels*. The excavator will then work its way onto the holder footprint, shearing & removing sections of any remaining roof structure ahead of its progression until removed entirely. **AT NO TIME WILL THE EXCAVATOR BE BELOW ANY SECTION OF ROOF OVERHANG.**

Once on the holder footprint, the excavator will continue to make vertical cuts in each of the inner skins, folding each layer toward the centre of the holder. The excavator will work either side of the original opening as appropriate to maintain progress. *Following inspection for residual contamination, the phased (approx. 20m lengths) hot cutting around the base at ground level will enable the excavator to progressively remove the exposed sections of outer skin using the same vertical shearing and "folding/rolling" as described.*

Following complete removal of all above ground wall and cups the excavator will pause to allow second stage/final clean by specialist sub-contractor (covered under separate method statement) before working its way out of the base, removing any fill material and remaining steel base using its shear to make all necessary cuts.

Phase 4

Holder demolition

Exclusion zones will be established to restrict entry to the individual work areas; Heras fencing will be used to segregate the site set up from the main area of works. Additional fence is available on site to form supplementary zones if necessary. This will be monitored by the site manager.

Edge protection will be erected at all live edge situations to prevent falls from height. Heras fence is to be used and positioned minimum 1.2 m from the edge to be protected

; WHILE THE HOT CUTTING IS TAKING PLACE THE EXCAVATOR WILL NOT BE WORKING ON THE HOLDER ROOF

A demolition excavator, equipped with shearing attachment, will then proceed to make vertical cuts from roof line to ground level in the outer skin. The removed material will be "folded/rolled" by the excavator and set aside for loading to skips.

Phase 5

Boiler house demolition

1. Following receipt of isolation certificates for the services running into and out of the structure, the area will be fenced using "Heras" type panels to segregate the work area.
2. A demolition excavator, equipped with an appropriate attachment will be used to remove the boiler flue followed by the roof sheets and load to skips.
3. Working from outside the footprint of the structure, the excavator will continue to work the walls down to ground level. Starting at eaves level, on the corner closest to the excavator, processing the concrete panels and reducing the wall height evenly on both elevations.
4. Once the two elevations are reduced in height at an angle of approx. 45° degrees to the remaining corners, the excavator will re-position on one side to repeat the operation on a third elevation while also reducing the previously angled face to slab level.
5. This process will be repeated on the forth corner and elevation, with the excavator finally reducing all walls to slab level.
6. Throughout the operation the excavator will be sorting the arisings by waste stream (wood, concrete, none recyclable, etc...) and loading materials as appropriate to prevent excessive stockpiling.

Phase 6

Reinstatement of area

Any excavation left after the demolition will be reinstated using a suitable, inert backfill and compacted in layers until ground level is reached.