

Weymouth Gas Holder Demolition

April 2015



SGN

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Weymouth Gas Holder Demolition

This document aims to provide some background information about the gas holder, its current status and to clearly describe the process SGN will adopt for dismantling the holder station at Weymouth.

About the gas holder

The holder is a spiral wound, water-sealed, three lift holder with a fully above ground tank.

The lifts are like concentric rings within each other with the innermost ring known as the crown; the crown is the highest lift. At present all three lifts are docked in the base tank that's currently full of water.



Current status of the holder site

Following gas safety regulation, it is necessary to isolate the holder from the live network.

This process involves sealing off the pipes entering the gas holder. We will then purge the tank with liquid nitrogen to displace the natural gas methane. Once the holder contains 100% nitrogen, inspection plates in the crown are opened so the nitrogen is released and gradually replaced with fresh natural air.

The holder at Weymouth was isolated in 2013.

Live operational equipment

The site has a live pressure reduction installation (PRI). The PRI is located adjacent to the large white building on the south side of the holder.

The live installations are vital to the towns gas supply and will be protected and kept live throughout the demolition process.

Safe Working Practice

Hazard Demolition Risk Assessment (HAZDEM)

A meeting is held with subject matter experts and interested parties to consider every risk associated with the holder demolition.

There is a prescribed list of over 40 generic risks and a number of specific risks associated with the holder in Weymouth. The group will establish the risks in each category and then decide what controls should be put in place to ensure we execute a safe and environmentally acceptable demolition programme.

Tender preparation

The demolition programme will be undertaken by a specialist gas holder demolition contractor. There are six contractors who have been approved and appointed onto a framework contract for removal of gas holders across the SGN network.

A tender document is produced containing the requirements and additional stipulations outlined from the initial HAZDEM meeting.

Pre-tender meeting for demolition

The six contractors are invited to a formal meeting where the programme will be shared, particular requirements outlined and a visit to site.

The contract

The contract will be awarded not just on the tender price but also on technical innovation. Technical innovation focuses on methods that are more acceptable in safety and environmental terms.

The contract used is the Institution of Civil Engineers New Engineering Contract (NEC) Option C and all works will be fully compliant with Health & Safety at Work Act 1974 CDM (Construction Design & Management) Regulations 2015 and British Standard BS 6187- 2011 Code of Practice for Demolition. The project is notifiable to the Health & Safety Executive and a copy of the notification will be formally displayed at the entrances to the site.

Hours of work

Working hours will be restricted to

07:00 hrs to 18:00 hrs Monday to Friday
08:00 hrs to 13:00 hrs on Saturday (if required)

Vehicle movement (lorry removal)

10:00 hrs to 15:30 hrs Monday to Friday

Site lorry movements

100-120 lorry movements anticipated over the 10 – 12 weeks of mechanical deconstruction

Project supervision

The main contractor will have responsibility for all works on the site including security. We'll provide you a list of contact details prior to project start date

The site has critical operational equipment that must be kept live throughout the programme. An engineer will attend site daily to ensure all aspects of the project are delivered and that the live equipment is protected.

Stakeholder engagement & communications

A Stakeholder Engagement Manager will support the demolition programme. Responsible for preparing and owning the programmes communications plan, engagement activities and making sure all parties are advised and well informed.

The works programme

The project will be delivered in three phases as follows

Phase ONE - De-watering

Duration: 30 days

Mid August – mid September

Before we can start to dismantle the holder, there is 16,500 m³ (9.8 metres) of rain water that needs to be removed.

This is a quiet operation, where water is taken from the holder, directed through a water filter system with controlled release into the main foul sewer system.

Phase TWO – De-sludging process

The bottom of the tank contains a build up of sludge.

A chemical will be introduced to the sludge that will dry up the water content and compact into a dry cake. The cake will be removed and taken in sealed containers to an approved waste disposal site. The site will be determined by a WAC test (waste acceptance criteria) and will meet with Environment Agency guidelines

Mechanical deconstruction

Duration: 10 – 12 weeks

Mid September - late November 2015

Phase THREE – Removal of holder

The structural demolition starts with the crown being removed. Cold cutting will be required at this stage to ensure there is no ignition potential from any trapped gasses beneath the crown.

There will be an emergency rescue plan in force at all times whilst operatives are either harnessed on the crown or whilst in man-riding cage.

When the tank has had the crown and its supports removed, two holes will be cut through the tank and lift walls one for the machine to access the tank and the other for personnel.

The steel work will be cold cut using mechanical shears on the arm of the demolition rig. It will be cut into sections, flattened and put in waste skips. The process will continue until all the structure and base has been removed.

Environmental concerns

Noise

Quiet techniques will be used where possible but there will be a certain amount of noise that cannot be avoided, this will be only during the advised working hours.

Dust

The hot cutting and shearing methods produce little dust. If the weather turns to a long period of dryness the contractor will use fine mist sprayers for damping down to reduce dust.

Fumes

The dry gas holder will have a particular hydrocarbon smell but it is unlikely this will have an effect on local community. If the smell were to linger a mobile odorizer that sprays a fresh air smell will be used.

Vibration

The engines to the plant (cranes and demolition rig) all have low vibration values.

Ecology

A site survey has found no animals or plant life of any special merit.

Water and groundwater

The water from the gas holder will be pumped through the cleaning and filtration unit and fed into the foul sewer system on site. The demolition process doesn't use water so water use is kept to a minimum.

Lighting

The working hours will only be daylight hours so no demolition process will require task or general floodlight lighting out of work hours.

Vermin

The welfare facilities used on site will be modern and a strict control on hygienic food practices will be observed so the possibility of the works attracting vermin is remote.

Waste Steel

All the steel from the tank, lifts, columns etc. will be recycled and once processed, used again. It will be transported off site in skips. The movement of waste vehicles will only be allowed between **10:00 hrs in to 15:30 hrs** weekdays.

No demolition waste traffic movements will take place outside school hours or in Weymouth's peak traffic flow times. The waste will be going to approved waste centres and all waste certification for every load will be kept and filed in the Health and Safety File.

Waste

The waste sludge from the gas holder base will be taken to an appropriate and approved waste disposal site. Any other waste will be taken to a waste disposal site... waste will be classified with EWC (European Waste Catalogue) code and tonnage recorded and kept in project Health and Safety File

Final site clearance

The site will be left as an operational site with all security fences intact and the ground level.