

Tank Integrity & Revalidation



Capabilities

With its engineering pedigree dating back to 1790, Whessoe has developed its technical excellence by working for the oil and gas, refining, petrochemical, nuclear, water, power and offshore industries. Whessoe's specialist expertise is now in the storage and handling of liquid gases in both refrigerated and pressurised form.

Our capabilities include:

- Revalidation of tankage and associated facilities
- Decommissioning / inspection / modification / recommissioning
- Scoping and feasibility studies
- SI studies
- Plant configuration
- Tank and vessel design.

Revalidation of tankage and associated facilities

With many of the world's refrigerated storage facilities in their third decade of service, both authorities and operators are concerned about the integrity of these facilities and need them to be revalidated. Whessoe has the theoretical and practical expertise to carry out this revalidation on LNG, LPG, ethylene and ammonia storage.

Decommissioning / inspection / modification / recommissioning

This type of work is often required for a number of reasons - a change of purpose, operating deficiencies, cold spots etc. The key to success in undertaking this work though lies in forward planning, complying with procedures, stringent safety requirements and experience - and Whessoe has a proven track record in carrying out this work on LNG, LPG and ammonia storage tanks.

LNG

Starting with the world's first commercial LNG import terminal and regasification plant at Canvey Island in the UK, and continuing to present day terminals both on and offshore, Whessoe has been continuously involved in the LNG industry for over 40 years. Our engineers were co-authors of a number of the original patents for the LNG storage industry, and our staff

continue to sit on the code committees that drive the LNG industry forward towards increasingly safe practices and greater technical excellence.

Lox and Lin

Small single containment tanks for the storage of liquid oxygen and liquid nitrogen. Because of the small size, stainless steel is used for the prime container. Whessoe has designed and constructed numerous Lox and Lin tanks over the years and we have the experience to conduct reviews, inspection and modifications to these tanks.

Ethylene and ethane

With similar technical requirements to LNG, the storage and handling of ethylene has long been a speciality of Whessoe. Over a period of 40 years, we have been responsible for the construction of 26 ethylene tanks and terminals.

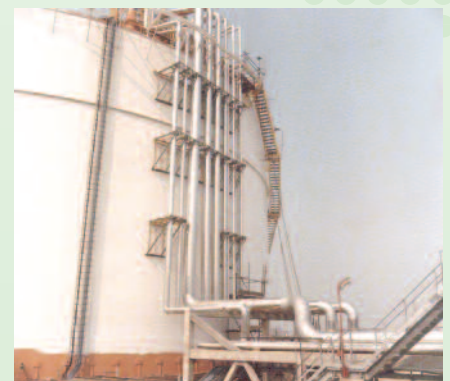
LPG

Whessoe has experience in the storage and handling of LPG in both its refrigerated and pressurised state. Pressurised storage expertise exists for both spherical and mounded storage options. For environmental, safety, operating and technical reasons, mounded storage is becoming more widely used and in many countries is the only solution allowed. The Mariveles import and distribution terminal in the Philippines, designed, built and commissioned by Whessoe, is a prime example of this type of storage.

Refrigerated LPG storage is normally used in association with bulk shipping. With more and larger LPG refrigerated ships becoming available, the size of refrigerated tanks is also increasing, with tanks in excess of 40,000m³ being the norm. Our recently completed LPG facility at Jamnagar, India, fits into this category.

Ammonia

The storage of NH₃ in its refrigerated form is prone to problems of stress corrosion cracking. By careful selection of materials and welding techniques, together with careful control of a number of other variables, Whessoe has developed the technology to eliminate this problem.



Storage tanks and plant

Decommissioning / modification / revalidation / recommissioning

PROJECT	CONTRACT TYPE	CLIENT	LOCATION	YEAR
Procedures and inspection of propane storage tank	Inspection services	GASCO	Abu Dhabi	2009
Feasibility to assess the impact of converting propane storage tanks to butane service	Study	GASCO	Abu Dhabi	2008
Decommission ammonia tank, modifications, inspect, revalidate, re-commission	Full scope	JPMC	Jordan	2008
Study and design for sphere modification of nozzles to suit change in service	Study	Shell	Stanlow, UK	2007
LPG tanks external blast analysis	Study	BP	Grangemouth, UK	2006
Technical revalidation of LPG tanks	Study	BP	Grangemouth, UK	2003
Assistance on RBI review for 22,000m ³ ammonia storage tank	Study	BP	Hull, UK	2003
Ethylene tank decommissioning	Decommissioning	BPC	Philippines	2003
Decommissioning, modification, revalidation and recommissioning of LNG tanks	Full scope	Lattice	Isle of Grain, UK	2002
Study for ethylene tank decommissioning	Study	BP	Philippines	2002
Study into revalidation of LNG tanks converted from peak shaving to base load	Study	Lattice	Isle of Grain, UK	2001
Decommissioning LPG tanks, modify and re-commission	Full scope	HACE	China	2001
Review ethylene tank decommissioning procedures	Study	BP	Barry, UK	2000
LIN tank design revalidation	Study	BOC Gases	UK	2000
Technical assistance decommissioning/ recommissioning butane tank	Study	Mobil	Coryton, UK	1998
Cut down, revalidate, rebuild and commission propane sphere	Full scope	Shell	Philippines	1998
Decommission ammonia tank, inspect, revalidate, re-commission	Full scope	JPMC	Jordan	1998
Repairs to ballast tank No 02	Full scope	Phillips	Seal Sands, UK	1996
Decommission and recommission ammonia tank	Decommissioning recommissioning	BP	Hull, UK	1995
Technical assistance on revalidation of ammonia tank	Study	BP	Hull, UK	1995
Study of blast damage and refurbishment of ambient storage tanks	Study	Texaco	Milford Haven, UK	1995
Conversion and revalidation of two tanks to column supported	Conversion	Texaco	Milford Haven, UK	1993
Repairs to sphere T1054	Full scope	Shell UK	Shell Haven, UK	1992
Modification to sphere	Full scope	Enichem	Grangemouth, UK	1992
Validation and conversion of existing ethylene tank to propylene service	Validation conversion	Finaneste	Antwerp, Belgium	1991
Rebuild of 80ft sphere to BS 5500	Rebuild	Amoco	Pembroke, UK	1991
Decommission, modify and re-commission existing LOX tanks for LIN service	Full scope	British Gas	Westfield, UK	1989
Removal, modification and re-certification of LPG storage vessels	Full scope	Conoco	Hull, UK	1987
Revalidation of pressure relief capacity	Study	BP	Baglan Bay, UK	1987
Revalidation of process plant, pressure vessels, columns and floating roof tanks	Revalidation	Phillips	Seal Sands, UK	1987
Single skin propane tank converted to double skin by addition of alloy inner tank	Conversion	Phillips	Seal Sands, UK	1985