

## Document checklist: Buried pressure vessels design registration

### Required documentation

1. **Design data:** ASME code specification, material specifications, pressure ratings, temperature ratings and type of service.
2. **Drawings:** showing dimensions, construction and welding details of the proposed vessel design.
3. **Calculations:** for ASME code.

Applicant must select one of the following methods to satisfy the additional registration requirements for a buried pressure vessel design, and include the additional identified technical content with their application for registration.

### Specific installation – determined external loads

1. An installation design, signed and sealed by a professional engineer, and that identifies the maximum external load imposed upon the vessel under all foreseeable circumstances, including:
  - Weight of the materials surrounding the vessel.
  - Loads from nearby structures.
  - Loads from vehicle traffic above the vessel.
2. Pressure vessel calculations demonstrating that the pressure vessel can withstand the maximum external load identified above (in point '1') while there is a vacuum condition within the vessel.

#### Note:

Vessels registered for specific installations will have notes added to the registration letter that identifies the following:

- Installation design to which the registration is limited; and
- maximum permissible external loading.

### Generic installation – assumed external loads

Applicant must supply the following additional technical content with the vessel design.

1. A manufacturer's installation procedure that is supplied to the installer/owner, identifying:
  - the maximum permissible external load that the vessel has been designed to withstand;
  - the recommended installation configuration from which the design assumption for maximum permissible external loading has been derived.

An installation configuration may include:

- Maximum depth to which the pressure vessel is buried.
  - Material types and properties that may surround the vessel.
  - Layer thicknesses of materials that may be installed above or around the vessel.
  - Any limitations for vehicles or weights that may be applied from above ground.
2. Installation calculations, signed and sealed by a professional engineer, demonstrating that the installation configuration identified in the manufacturer's installation procedure results with the identified maximum permissible external load.
  3. Pressure vessel calculations demonstrating that the pressure vessel can withstand the maximum external load identified above (in point '2') while there is a vacuum condition within the vessel.

Note:

1. Technical Safety BC recommends that a statement similar to the following be included within the manufacturer's installation procedure:  
*The vessel is designed for a maximum permissible external load of X. The installation must ensure that, under all foreseeable circumstances, the external loading applied to the vessel will not exceed X.*
2. Vessels registered for generic installations will have notes added to the registration letter that identifies the:
  - Manufacturer's installation procedure to be followed by the owner/installer.
  - Maximum permissible external loading.
3. Other governments or agencies may also have requirements that the applicant will need to address prior to their installation or operation of a buried pressure vessel. An acceptance from Technical Safety BC should not be mistaken as an approval for use by any other organization.
4. Technical Safety BC recommends that installers/owners of buried pressure vessels may contact their local municipalities and fire departments.