



File 185-A000-41
8 August 2003

Regulated Oil and Gas Companies under National Energy Board Jurisdiction

Dear Sir / Madam:

Guidance Notes for Pressure Equipment under National Energy Board Jurisdiction

The Board has approved two sets of Guidance Notes relating to pressure vessels and pressure piping under the Board's jurisdiction:

- Guidance Notes for the Design, Construction, Operation, and Abandonment of Pressure Vessels (3 July 2003) (these Guidance Notes constitute Appendix D of the Guidance Notes for the *Onshore Pipeline Regulations, 1999*), and
- Guidance Notes for the Design, Construction, Operation and Abandonment of Pressure Vessels and Pressure Piping (3 July 2003) (these Guidance Notes will be issued as Appendix 1 of the Guidance Notes for the *National Energy Board Processing Plant Regulations*).

The Board has consulted extensively on these Guidance Notes and has received comments from the Canadian Energy Pipeline Association, the Alberta Boilers Safety Association, pipeline companies under the Board's jurisdiction, the Association of Chief Inspectors for Boilers and Pressure Vessels, and provincial regulatory authorities. The majority of comments we received on the draft Guidance Notes have been incorporated into the final versions.

The Guidance Notes for pressure equipment provide guidance to federally regulated oil and gas pipeline companies which should be considered in conjunction with existing NEB regulations.

In the Guidance Notes, reference is made to the procedures registered with the provincial and territorial authorities. These provisions reflect current informal arrangements. The Board intends to discuss with these authorities the possibility of formalizing these arrangements.

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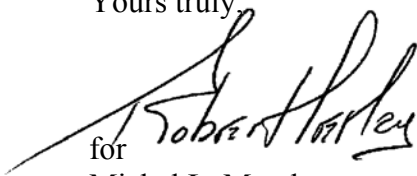
The attached Guidance Notes for the Design, Construction, Operation, and Abandonment of Pressure Vessels (3 July 2003) can also be found on the NEB internet site (<http://www.neb-one.gc.ca>).

The Guidance Notes for the Design, Construction, Operation, and Abandonment of Pressure Vessels and Pressure Piping (3 July 2003) will be issued as Appendix 1 to the Guidance Notes for the *National Energy Board Processing Plant Regulations* once these Guidance Notes have been issued, which we expect to occur by the end of August 2003.

The Guidance Notes for pressure equipment may be updated from time to time.

For any questions on the subject matter please contact Franci Jeglic by telephone at (403) 299-2774 or 1-800-899-1265, by facsimile at (403) 292-5503, or by e-mail at fjeglic@neb-one.gc.ca.

Yours truly,

A handwritten signature in black ink, appearing to read "Robert Harley". The signature is written in a cursive style with a long, sweeping underline that extends to the left.

for
Michel L. Mantha
Secretary

Attachment: Guidance Notes for the Design, Construction, Operation, and Abandonment of Pressure Vessels (3 July 2003)

cc: Canadian Energy Pipeline Association
Canadian Association of Petroleum Producers
Human Resources Development Canada
Provincial and Territorial Regulatory Authorities

*Appendix D to the Guidance Notes for the
Onshore Pipeline Regulations, 1999*

**GUIDANCE NOTES FOR THE DESIGN,
CONSTRUCTION, OPERATION AND
ABANDONMENT OF PRESSURE VESSELS
(3 July 2003)**

Interpretation

1. These definitions apply within the Guidance Notes for the Design, Construction, Operation and Abandonment of Pressure Vessels.

“Act”	means the <i>National Energy Board Act</i> .
“Board”	means the National Energy Board.
“Canadian Registration Number”	means a number allotted to the design and specifications of the boiler or pressure vessel by the provincial or territorial regulatory authority when they are accepted and registered.
“Code”	means CSA Standard B51-latest edition entitled “Boiler, Pressure Vessel, and Pressure Piping Code”, as may be amended from time to time.
“inspector”	means a person recognized by any province or territory, according to the provincial or territorial laws, or by the National Board of Boiler and Pressure Vessel Inspectors, as qualified to inspect pressure vessels.
“maximum allowable working pressure”	means the maximum working pressure that is specified for a pressure vessel by the manufacturer in the plans and specifications accepted and registered by the provincial or territorial regulatory authority and that is set out in the report referred to in paragraph 25(2)(d).

“maximum temperature”	means the maximum temperature that is specified for a pressure vessel by the manufacturer in the design and specifications accepted and registered by the provincial or territorial regulatory authority and that is set out in the report referred to in paragraph 25(2)(d).
“NDT technician”	means a person who performs non-destructive testing and who has been certified in accordance with CAN/CGSB – 48.9712 “Non-destructive Testing-Qualification and Certification of Personnel” or with ASNT-SNT-1A “Personnel Qualification and Certification in Non-destructive Testing” to carry out such testing.
“pressure relief device”	is a relief valve, safety valve, or safety relief valve, and includes non re-closing devices including rupture disks, the capacity of which shall meet the requirements of the ASME Safety Code.
“pressure vessel”	means an unfired, closed vessel which is used for containing, storing, distributing, transferring, distilling, processing, or otherwise handling gas, vapour, or liquid and which exceeds the following service and size limits: <ul style="list-style-type: none">(a) has an internal volume of 42.5 litres (1.5 cu. ft.) or more;(b) is designed for internal gauge pressure of 103 kPa (15 psig) or more; and(c) has an internal diameter of:<ul style="list-style-type: none">(i) 152 mm (6-inch) or more if it is not in water service; or(ii) 610 mm (24-inch) or more if it is water service.

“qualified person”	means, in respect to a specific duty, a person who is recognized by the company, because of his or her knowledge, training and experience to be qualified to perform that duty safely and properly.
“Regulations”	mean the National Energy Board <i>Onshore Pipeline Regulations, 1999, SOR/99-294</i> .

Part 1 - General

2. These Guidance Notes apply to pressure vessels under the jurisdiction of the Board falling within the scope of the Regulations.
3. A company should register the design and specifications of pressure vessels with the registration authority in the province or territory in which they are located.
4. Pressure vessels should meet the requirements of the Code, within six months after the Code has been published, except as otherwise stated in the Regulations.
5. An inspector should inspect pressure vessels according to the Regulations and these Guidance Notes.
6. (1) Every pressure vessel should have at least one pressure relief device or other equivalent fitting set to activate at or below the maximum allowable working pressure of the pressure vessel.
(2) When two or more pressure vessels are connected by unrestricted connecting pipe and are used at a common operating pressure, they should be fitted with at least one pressure relief device to maintain pressure at or below the maximum allowable working pressure of the pressure vessel that has the lowest maximum allowable working pressure.

Part 2 - Operation and Inspection

7. Pressure vessels should be operated, maintained and repaired by a qualified person.
8. (1) The fabrication, alteration and repair of pressure vessels should be carried out in accordance with the Code.
(2) Fabrication, if conducted in a province or territory, and repair welding of pressure vessels should be carried out in accordance with the welding procedures registered by the provincial or territorial regulatory authority.

- (3) Fabrication, if conducted in a province or territory, and repair welding of pressure vessels should be conducted by a welder certified by the provincial or territorial regulatory authority to perform pressure welding.
9. (1) No person should alter, interfere with or render inoperative any pressure relief device attached to a pressure vessel except as allowed by subsection 9(2).
 - (2) A qualified person may interfere with any pressure relief device for the purpose of adjustment or testing in accordance with the company's quality assurance program.
10. An inspector should inspect a pressure vessel prior to initial use and prior to continued use after alterations and repairs to pressure-retaining parts have been made. An inspector should make a report of each inspection in accordance with section 25.
 11. An inspector should inspect every pressure vessel in accordance with sections 13, 14, 17, 23, or subsection 16(1) and make a report of each inspection in accordance with section 25.
 12. A person who operates, repairs or maintains a pressure vessel or any part of it should not inspect the pressure vessel for the purposes of sections 10, 11, 13, 14, 17, 23, or subsection 16(1) .
 13. Pressure vessels, other than buried pressure vessels, that have an assessed corrosion rate exceeding 0.1 mm of metal loss per year should be inspected either
 - (a) (i) externally, at least once every year; and
 - (ii) internally,
 - (A) at least once every two years; or
 - (B) at least once every three years if ultrasonic thickness measurements are performed annually by an NDT technician on representative locations of the pressure vessel;or
 - (b) as determined by the program referred to in subsection 16(1).
 14. Pressure vessels, other than buried pressure vessels, that have an assessed corrosion rate not exceeding 0.1 mm of metal loss per year should be inspected either
 - (a) (i) externally, at least once every year; and
 - (ii) internally,
 - (A) at least once every four years; or

- (B) at least once every six years if ultrasonic thickness measurements are performed annually by an NDT technician on representative locations of the pressure vessel;

or

- (b) as determined by the program referred to in subsection 16(1).

15. If the assessed corrosion rate of a pressure vessel is zero, internal inspection would not be necessary. However, complete external inspections, including nondestructive thickness measurements performed by an NDT technician, should be made on the pressure vessel at least once every two years or as determined by the program referred to in subsection 16(1) and the following conditions should be met:
 - (a) the non-corrosive nature of the service conditions, including the effect of trace components, has been established by at least five continuous years of comparable service experience with the fluid being handled;
 - (b) the periodic external inspection indicates that the condition of the pressure vessel does not warrant any further investigation;
 - (c) the operating temperature and pressure of the pressure vessel does not exceed the lower limit for the creep rupture range of the vessel metal; and
 - (d) the pressure vessel is protected against inadvertent contamination, and there is no evidence of contamination.
16. (1) Sections 13, 14, 15, 22, or subsection 23(b) would not apply where the company chooses to develop a risk based inspection management program for pressure vessels which provides reasonable alternatives to the guidelines in those sections. Pressure vessels should be inspected as provided by the risk based inspection management program.
 - (2) A risk based inspection management program for pressure vessels developed under subsection 16(1) pursuant to subsection 8(1) of the Regulations shall be submitted to the Board for approval.
17. Every pressure vessel should be inspected by an inspector more frequently than is provided for in sections 13, 14, and 15, or subsections 16(1) and 23(b), if it is necessary to determine that the pressure vessel is safe for its intended use.
18. For the purpose of sections 13, 14, 15, 17, and 22, or subsections 16(1) and 23(b), the corrosion rate should be assessed from any actual metal loss observed since the most recently conducted inspection.

19. If a pressure vessel that contains materials hazardous to human health or the environment is to be internally inspected, it should be emptied prior to the inspection and the inspector should be using the appropriate personal protective equipment.

Part 3 - Buried Pressure Vessels

20. The installation of a buried pressure vessel should meet the requirements set out in Appendix A of the Code.
21. Notice of the proposed backfilling should be given to the Board before backfilling is done over a pressure vessel.
22. Test plates, ultrasonic thickness measurements, or other equivalent techniques should be used to provide an indication of external corrosion of a buried pressure vessel. The frequency of inspection should be at least once every three years or as determined by the program referred to in subsection 16(1).
23. Every buried pressure vessel should be:
 - (a) inspected externally before backfilling; and
 - (b) uncovered and inspected internally and externally at least once every 15 years; or
 - (c) as determined by the program referred to in subsection 16(1).

Part 4 - Reports

24. The company should keep and maintain records of pressure vessels to which these Guidance Notes apply.
- 25.(1) A report of each inspection carried out under sections 10 or 11 should be completed by the inspector who carried out the inspection.
 - (2) Every report referred to in subsection 25(1) should include:
 - (a) the name of the inspector and the inspector's affiliation;
 - (b) date of the inspection;
 - (c) the identification and location of the pressure vessel that was inspected;
 - (d) the maximum allowable working pressure and the maximum temperature at which the pressure vessels may be operated;

- (e) a statement as to whether the pressure vessel meets the requirements of the Regulations and these Guidance Notes;
 - (f) a statement as to whether the pressure vessel is safe for its intended use;
 - (g) a list of any defects or deficiencies the inspector has observed in the condition or operating and maintenance practices of the pressure vessel; and
 - (h) any other observation that the inspector considers relevant to the occupational and public safety and protection of the environment.
26. The company should keep readily available every report of inspection for ten years or the last two inspection periods, whichever is longer.

Part 5 - Abandonment

27. An application made by a company under section 74 of the *National Energy Board Act* for leave to abandon a pressure vessel should include the rationale for the abandonment and the measures to be employed in the abandonment.
28. The measures for abandonment should include a statement:
- (a) whether the pressure vessel will be de-registered;
 - (b) whether the Canadian Registration Number will be removed from the pressure vessel; and
 - (c) that all toxic substances will be removed from the pressure vessel.
29. The method of disposal of the pressure vessel should be addressed in the application for abandonment.