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NEW ZEALAND GAS CODE OF PRACTICE

for

MAINTENANCE AND SAFETY OF

CNG REFUELLING STATIONS

Issued by the Secretary of Commerce in accordance with the Gas Act 1992

THE GAS ACT 1992

APPROVAL OF GAS CODE OF PRACTICE

FOR

MAINTENANCE AND SAFETY OF

CNG REFUELLING STATIONS

Part IV of the Gas Act 1992 ("the Act")

On the second day of February 1993, the Secretary of Commerce acting pursuant to section 37 of the Act issued the Gas Code of Practice for Maintenance and Safety of CNG Refuelling Stations ("the Code").

On the fourth day of February 1993, pursuant to section 39 of the Act the Secretary published in the Gazette a notice of intention to apply to me for approval of the code, and there has been consultation with such persons (or their representatives) as will be affected by the Code and they have had the opportunity to consider possible effects and comment on those effects.

The comments concerning those effects have been considered and, where necessary, amendments were made to the Code.

Therefore pursuant to section 39 of the Act, I, John Luxton, Minister of Energy, have this day approved the Code as attached to this approval, which Code shall come into force on the first day of April 1993.

Dated this 18th day of March 1993.

John Luxton
Minister of Energy.

COMMITTEE REPRESENTATION

This Code of Practice for Maintenance and Safety of CNG Refuelling Stations was prepared by the Ministry of Commerce, Office of the Chief Inspecting Engineer (Gas).

The following were represented on the working party which was responsible for the preparation of this Code of Practice:

Gas Association of New Zealand
New Zealand Natural Gas Vehicles Association
Natural Gas Corporation

REVIEW

This Code of Practice will be revised as occasions arise. Suggestions for improvement of this Code are welcome. They should be sent to the

Office of the Chief Inspecting Engineer (Gas)
Ministry of Commerce
PO Box 1473
Wellington

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FOREWORD

Since 1980 the CNG sector of the gas industry has operated under a regime involving the voluntary use of Codes of Practice. The early codes were specifically directed towards the design, construction and installation of CNG facilities and were progressively upgraded to reflect the evolution of the CNG business and technology.

The codes were developed into New Zealand Standards as follows:

NZS 5425 Code of Practice for CNG Compressors and Refuelling Stations

- Part 1 On Site Storage and Location of Equipment
- Part 2 CNG Compressors
- Part 4 CNG Trickle Fill Stations on Commercial and Industrial Premises (publication due 1993)

The purpose of this code is to address the matters associated with the maintenance and safety of CNG refuelling stations. It should be read in conjunction with the NZS 5425 series of codes. It is intended that CNG operators could adopt this code as a means of compliance with the statutory requirements for the maintenance and safety of CNG refuelling stations.

1 SCOPE, REFERENCED DOCUMENTS, INTERPRETATIONS, GLOSSARY AND GENERAL

1.1 Scope

1.1.1
This code sets out the requirements for maintenance and safety of CNG refuelling stations including:

(a) the maintenance of CNG equipment and plant
(b) the safety inspections and tests to be performed
(c) the holding and availability of records for inspection
(d) the training of personnel
(e) the requirements for emergency plans and procedures.

1.1.2
This code does not cover:

(a) Aspects of routine repair, servicing and maintenance of CNG plant and equipment that are not directly related to safety but which would, nevertheless, be undertaken by a prudent operator; or
(b) The metering of CNG, the calibration and checking of CNG metering devices, or the maintenance of CNG metering records.

1.2 Reference documents

Gas Act 1992
Gas Regulations 1993
NZS 5425 Code of Practice for CNG compressor and refuelling stations Part 1 On-site storage and location of equipment
NZS 5425 Code of Practice for CNG compressor and refuelling stations Part 2 Compressor equipment
NZS 5425 Code of Practice for CNG compressor and refuelling stations Part 4 CNG trickle fill stations on commercial and industrial premises (publication due 1993)
NZS 5442 Specification for reticulated natural gas
NZS 5261 Code of Practice for the installation of gas burning appliances and equipment

1.3 Interpretation

1.3.1
In this code, unless the context otherwise requires:

"Certificate" means a CNG station certificate of compliance as defined in the Gas Regulations 1993.

"CNG" has the meaning given to it in the Gas Regulations 1993.

"CNG refuelling station" means an installation used or intended to be used for dispensing CNG and includes:

(a) Storage vessels and loading facilities; and
(b) Gas compression fittings; and
(c) Dispensing fittings; and
(d) All other associated fittings;

but does not include CNG refuelling stations complying with NZS 5261: Section 105.8: CNG Compressors: Domestic.

"CNG station operator" means the person responsible for the safe operation and maintenance of the CNG refuelling station and may include the station owner.

"Competent organisation" has the meaning given to it in the Gas Regulations 1993.

"Inspection" means the appropriate examination of the CNG refuelling station by a competent organisation for safety and/or certification purposes.

2 SAFETY AND MAINTENANCE

2.1 General

2.1.1
The CNG operator shall cause to undertake the following regular safety tests and checks, and surveys on the CNG refuelling station:

(a) For fittings and gas appliances forming part of the refuelling station, checks, in accordance with Section 2.2, at intervals not exceeding three months; and
(b) Annual surveys on the CNG refuelling station in accordance with Section 2.3.

2.1.2
CNG refuelling station staff shall notify, forthwith, the CNG operator of any unsafe fittings or appliances or conditions whenever such fittings or appliances or conditions are identified.

2.1.3
Seals on CNG equipment shall not be broken or resealed other than by a competent organisation.

2.2 Periodic checks and tests of fittings and appliances

2.2.1
Only appropriately trained persons shall perform the safety checks and tests specified in clause 2.1.1 (a).

2.2.2
The minimum checks and tests that shall be performed during a periodic check are listed in Schedule 1 of this code.

2.2.3
Any faults identified in the periodic safety checks and tests shall be corrected as soon as practicable

by an appropriately trained person or a competent organisation.

2.3 Annual safety surveys

2.3.1
Annual safety surveys on the CNG refuelling station (refer clause 2.1.1(b)) shall be performed by a competent organisation.

2.3.2
The annual safety survey shall be in addition to and complement any other safety checks and tests performed.

2.3.3
Annual safety surveys shall include (but not be limited to):

(a) the testing and checking of all safety devices and all shutdown devices related to gas safety on each compressor unit
(b) the testing, calibration and resealing of all compressor relief valves
(c) the testing, calibration and resealing of relief valves on storage vessels and storage bottles, (where applicable)
(d) testing the serviceability of the emergency shutdown fittings
(e) checking that the required pressure tests on the cascade storage bottles and pressure vessels have been performed.

2.3.4
Any faults identified during the annual safety surveys shall be corrected by a competent organisation.

3 INSPECTIONS

3.1 General

3.1.1
The CNG operator shall cause the CNG refuelling station to be inspected at intervals not exceeding two years. The first such inspection shall be made within one year of the adoption of this code.

3.1.2
All inspections shall be performed by a competent organisation.

3.1.3
The inspection shall include all the items contained on the installation checklist shown in Schedule 2 of this code.

3.1.4
On completion of the inspection and the installation being found to comply with this Code, the competent organisation shall certify the installation by issuing the certificate.

4 RECORDS

4.1 General

4.1.1
The CNG operator shall maintain an up to date log book in accordance with this section, on site at all times.

4.2 Log book records

4.2.1
The following work, activities and events shall be recorded in the log book in time sequence:

(a) all reports of unsafe fittings, appliances or conditions
(b) all checks and surveys performed in accordance with section 2 of this code
(c) all inspections performed in accordance with section 3 of this code
(d) all faults corrected in accordance with sections 2.2, 2.3 and 3 of this code
(e) all incidents involving the unexpected activation of safety or over-pressure protection devices
(f) all incidents involving the failure of any fittings of the CNG installation
(g) all instances of broken seals on adjustable safety or control devices.

4.2.2
Where a competent organisation undertakes any work on the CNG installation, an entry shall be made in the log book of the nature of the work, including identifying the organisation and the persons making the entry.

4.2.3
In situations where the competent organisation prepares uniquely identified maintenance or inspection reports, the reference number of the reports may be entered in the log book provided a separate record of the maintenance or inspection reports is retained.

4.2.4
The log book should include the information contained on the form in Schedule 3 of this code.

4.3 Certificate

4.3.1
The CNG operator shall retain on site a copy of the certificate and, at public refuelling stations, shall cause the certificate to be displayed to the public during business hours of that station.

5 UNSAFE OR DANGEROUS CNG REFUELLING STATIONS

5.1 General

5.1.1
The CNG operator shall not dispense CNG from an unsafe or dangerous CNG refuelling station.

5.1.2
The following situations shall, without limiting what may be unsafe or dangerous, constitute an unsafe or dangerous CNG refuelling station:

(a) The failure to have the CNG refuelling station inspected in accordance with section 3 of this code
(b) Continued use of any fittings or appliances that have failed or are unsafe
(c) The existence of unsealed safety and control devices.

6 EMERGENCY PLAN AND PROCEDURES

6.1 General

6.1.1
The operator of the CNG installation shall maintain an operational emergency plan which can be implemented in the event of, or on receipt of, advice of:

(a) loss of or interruption to the gas supply
(b) non-conformance of the gas to NZS 5442
(c) over-odorisation or under-odorisation of the gas
(d) major failure of CNG fittings or gas appliances
(e) accidents or other emergencies either involving or threatening to involve the CNG refuelling station
(f) civil emergencies
(g) any other hazard arising from the existence or use of the CNG refuelling station.

6.1.2
The operational emergency plan shall:

(a) acquaint appropriate maintenance and operating personnel with their duties in the event of an emergency; and
(b) establish liaison with appropriate authorities and organisations including the Fire Service, the Police and the person supplying gas to the CNG operator; and
(c) contain detailed procedures for safely isolating CNG fittings and appliances and for managing any emergency.

7 TRAINING OF PERSONNEL

7.1 General

7.1.1
The CNG operator shall ensure that working procedures exist, in writing, for all maintenance and operational tasks reasonably expected to be performed by the CNG refuelling station staff.

7.1.2
The working procedures should identify any hazards likely to be encountered and the appropriate remedies.

7.1.3
The CNG operator shall ensure all the CNG refuelling station staff are trained, and competent in the tasks they are expected to perform, and are familiar with the working procedures and the emergency plan.

7.2 Training and review programme

7.2.1
The CNG operator shall operate a training and review programme for personnel working at the CNG refuelling station.

7.2.2
The CNG operator shall ensure adequate supervision of any person undergoing training while working at the CNG refuelling station.

7.2.3
The CNG operator should continually assess the skills and competence of personnel working at the CNG refuelling station and should provide ongoing training as appropriate.

7.3 Training record

7.3.1
The CNG operator shall ensure that an up to date record is maintained at the site of the CNG refuelling station which includes:

(a) the training provided to all personnel working at the CNG refuelling station; and
(b) the results of any competency evaluations performed on personnel.

SCHEDULE 1 Clause 2.2.2

CNG REFUELLING STATION
PERIODIC SAFETY CHECK AND TEST SCHEDULE

1.	Check compressor cut out pressures.	?
2.	Activate the "Emergency Stop" switches individually to ensure their serviceability.	?
3.	Check the installation for obvious gas leaks.	?
4.	Check that the hoses, probes and gauges on the dispensers are in safe condition.	?
5.	Check the maximum fill pressure of 20 MPa.	?
6.	Check that safety signs are in place and are visible.	?
7.	Check that compounds are clean, tidy and secure, and that access is unimpeded.	?
8.	Check that the gas is odorised.	?
9.	Check that the inspection certificate is on public display.	?
10.	Record periodic safety check in log book.	?

SCHEDULE 2 Clause 3.1.3

CNG REFUELLING STATION INSPECTION CHECKLIST

1.	Gas Inlet Line	Leaks	?
		Gauges	?
		Corrosion	?
2.	Compressor Enclosure	Restricted Entry Sign	?
		No Smoking Sign	?
		Caution Automatic Start Sign	?
		Danger Sign	?
		Start Up Procedure	?
		Lights and Switches	?
		Free of Foreign Objects	?
		Enclosure Secure	?
3.	Compressor	Relief Valves Sealed and Date Current	?
		Safety Devices Sealed	?
		Gauges	?
		Electrical Box Sealed	?
		Pipework/Bracket Condition	?
		Guards	?
		Shut Down Pressure	?
		Gas Leaks (including checking vent pipes with compressor running where practical)	?
4.	Storage Vessels	Leaks	?
		Relief Valves Sealed and Date Current	?
		Gauges	?
		All Brackets Secure	?
		Valves (condition/operation)	?
		Fence/Gate	?
		No Smoking Sign	?
		Restricted Entry Sign	?
		Corrosion	?
		Pressure test date	?

5.	Master Shut Off Valves	Leaks	?
		Condition/Operation	?
		Signs	?
		Brackets Secure	?
		Lockable (off)	?
		Pipework Condition	?
6.	Emergency Shut Off Valves	Leaks	?
		Condition/Operation	?
		Signs	?
		Brackets Secure	?
		Pipework Condition	?
7.	Dispensers	Leaks	?
		Gauges	?
		Hoses/Bulkhead Fittings etc	?
		Fill Pressure Controller Sealed	?
		Final Fill Pressure	?
		Metering Systems Sealed	?
		Fill Valve - leaks/condition	?
		Fill Pressure Warning Displayed	?
		External Pipework Condition	?
8.	Forecourt	No Smoking Sign	?
		Switch Off Engine ...signs	?
		External Pipework Condition	?
9.	General	Log Book Entries	?
		Emergency Procedures Available	?
		Training Records	?

SCHEDULE 3 Clause 4.2.4

EXAMPLE CNG REFUELLING STATION LOG BOOK

Station operator: Station name:

Date	Compressor hour meter readings			Safety check	Annual inspection	Other,ie. fault / routine	Service report job sheet no.	Gas meter reading	Competent organisation	Signature	Comments
	No.1	No.2	No.3								