Buenos Aires, December 6, 2005

PURSUANT TO Dossier N° 7787 filed in ENTE NACIONAL REGULADOR DEL GAS (ENARGAS) Registry, Law N° 24.076, its Regulatory Decree N° 1738/92 and Resolutions ENARGAS N° 138 and N° 2767, and

WHEREAS:

Section 52 of Law N° 24.076 assigns the ENARGAS the role and power to issue regulations as regards safety, standards and technical procedures, also related to compressed natural gas, that must be complied with by the Individuals or Legal Entities specified in said Law.

The characteristics of hoses for CNG dispensers and their usage requirements were initially established by two Standards: NAG 418 (former GE-N1-118) “Technical and Safety Standards and Specifications for CNG compression, storage and dispensing installations” and NAG 441 (former GE-N1-141) “Standard for compression equipment for CNG Filling Stations”.

The ENARGAS issued Resolution N° 2767 with the purpose of regularizing the different provisions established by those standards in relation to hose service life and the need of their replacement. The ENARGAS also aimed at drafting a regulatory document in order to approve those components for which the manufacturers and importers were entrusted with the corresponding project that must be submitted through a Certification Organization, according to Resolution ENARGAS N° 138/95.

The Professional Association of Mechanical and Electrical Engineering (COPIME), through its Committee on Gas Transport, made comments as regards the validity of the technical criterion used for establishing hose service life (even as regards the concept of the service life itself), prioritizing its determination in relation to qualitative instead of its quantitative aspects.

Montefiore S.A. issued a Technical Specification project, in accordance with the ENARGAS requirements.

Simultaneously, documents were submitted and comments were made by direct users of the component in question, alleging that what was stated by the resolution leaded to reject hoses in good condition.

The activities related to the FOROS NACIONALES DE COMPETITIVIDAD INDUSTRIAL DE LAS CADENAS PRODUCTIVAS (*Productive Chains´ National Forums of Industrial Competitiveness*) were initiated, promoted by the SECRETARÍA DE INDUSTRIA, COMERCIO Y DE LA PEQUEÑA Y MEDIANA EMPRESA (*Secretariat of Industry, Commerce and, Small and Medium-Sized Enterprises*).

Within the framework of one of these Productive Chains, particularly, the Vehicle Gas Industries´, ENARGAS was assigned the coordination of Group D, technical regulations and standardization, whose purpose was to "complete and improve the regulation in force", Subgroup 3 comprised Hoses for dispensers.

The two National Hoses Suppliers, the CÁMARA DE EXPENDEDORES DE GNC (*Chamber of CNG Dealers*), the CÁMARA ARGENTINA DEL GAS NATURAL COMPRIMIDO (*Argentine Chamber for Natural Gas Vehicles*), COPIME and two of the Distribution Licensees took part in the activities.

During the issuing of this Resolution, objections were raised and the study of a comprehensive regulatory document for the component in question was agreed, according to Resolution ENARGAS N° 2767.

For the purpose of setting up a program that speeds up the solution of observations, it was resolved that it shall be initiated for the part related to the hose installation, use and control.

In successive meetings, a document for said part, called: "Hoses for CNG dispensers. Instructions for their installation, use and control" was drafted.

According to legal regulations and the ENARGAS usual methodology, said document was let known to those interested in the subject matter, namely, related Chambers, Certification Organizations, Hose Suppliers, COPIME and Distribution Licensees. The latter were requested to obtain opinions of all Filling Stations under their jurisdiction.

The received opinions were analyzed by the ENARGAS´ technical team, which added some of its comments.

The improving process summarized in the previous considerations is considered suitable for complying with said purpose.

However, said document shall also cover the design, manufacturing, approval, marking, packaging, loading and handling of hoses for CNG dispensers.

The other conditioning factor of the success in achieving the purposes of this updating is the compliance and the quality of the training to be given, together with the controls that the respective responsible Individuals or Legal Entities shall perform in subsequent inspections and audits.

It is pertinent to issue the instructions for the installation, use and control as an updating for the corresponding sections of Resolution ENARGAS N° 2767.

The report GD N° 65/2005, where said process is detailed, and the documentation on which it is based, are added to Dossier ENARGAS N° 7787, to which we refer to brevitatis causae.

The Legal Issues Management Department has made the corresponding intervention.

This Board of Directors is empowered to issue this Resolution, according to Section 52, sub-section b) and Section 86 of Law N ° 24.076 and its Regulatory Decree N° 1738/92.

THEREFORE,

THE ENTE NACIONAL REGULADOR DEL GAS BOARD OF DIRECTORS RESOLVES:

SECTION 1: To approve the Technical Specification NAG-E 409 “Hoses for CNG dispensers. Instructions for their installation, use and control”, included herein as Annex I.

SECTION 2: To continue with the initiated activities with the purpose of developing the comprehensive standard including the design, manufacturing, approval, marking, packaging, storage, handling, installation, use and control of hoses for CNG dispensers, as a compliance of Section 5 of Resolution ENARGAS N° 2767 and a continuation of what was carried out within the framework of the FOROS NACIONALES DE COMPETITIVIDAD INDUSTRIAL PARA LA CADENA PRODUCTIVA DE LAS INDUSTRIAS DE GAS VEHICULAR (*National Forums of Industrial Competitiveness for the Productive Chain of Motor Vehicle Gas Industries*), in its Group D, technical standards and standardization, Subgroup 3, Hoses for CNG dispenses.

SECTION 3: The technical specification approved in Section 1 will become part, with the formal required adjustments, of the comprehensive standard referred to in Section 2, when issued.

SECTION 4: To modify, in its Sections and Annex, Resolution ENARGAS N° 2767, according to Annex II of this Resolution.

SECTION 5: Communicate, notify, publish, deliver to the Bureau of Official Registry and file it.

[Signed by Carlos A. Abalo, Director. Ente Nacional Regulador del Gas; Mario R. Vidal, Director. Ente Nacional Regulador del Gas; Fulvio M. Madaro, Chairman. Ente Nacional Regulador del Gas]

HOSES FOR CNG DISPENSERS
INSTRUCTIONS FOR THEIR INSTALLATION, USE AND CONTROL

Foreword

This document shall be considered by the Filling Station when receiving, installing, using and maintaining hoses for CNG dispensers.
It shall be used to instruct users about the necessary cares to be taken so to properly store, use and maintain hoses, as well as the adequate controls imposed when deciding on their replacement.

Safety considerations

This document includes safety considerations. It must be carefully complied with during every stage, from hoses´ reception, storage, installation, use, maintenance and control, since the inadequate use, improper installation or maintenance of hoses or assemblies may cause body injuries or material damage. Its compliance reduces the chances of failure of any component or the system, thus reducing the risks of damages.

Table of contents

1. Purpose

To provide guidelines for the reception, storage, installation, use, maintenance and control of hoses for CNG dispensers.

2. Background information

2.1 SAE Publications:

SAE J 1273 Rev. December 2002: Guideline for the selection, dispatch, manufacturing, installation, replacement, maintenance and storage of hoses and assembled hoses for systems with power transmission fluids.

SAE J 514: Hydraulic connectors.

SAE J 517: Hydraulic hose.

SAE J 1927: Damage analysis for assembled hydraulic hoses.

2.2 Report of Transport Gas Committee – Professional Association of Mechanical and Electrical Engineering (COPIME).

2.3 Resolution ENARGAS N° 2767/2002.

2.4 NAG Standards:

NAG 415 (former GE-N1-115)

Regulations. Definitions and terminology. Specifications and procedures. Technical documentation to be filled in for all categories registered in Manufacturers and Importers´ records.

NAG 418 (former GE-N1-118)

Regulations for CNG filling stations.

NAG 441 (former GE-N1-141)

Compression equipment for CNG filling stations.

3. Definitions

They are sequentially listed so as to help understand the last definition in relation to the previous ones.

For the purpose of this document, it shall be understood as:

3.1 Hose: Flexible conductor to be used in CNG dispensers.

3.2 Hose terminal or Terminal: Connector pressed on a hose end.

3.3 Hose assembly: Hose with pressed terminals on both ends.

3.4 Abrasion: Mechanical wear of external cover, produced by rubbing it against the floor and sharp surfaces, excoriations, external cover cuts, among others.

3.5 Hose failure: Event in which the hose does not comply with safety and efficiency requirements.
3.6 Hose service life: Period of time during which a hose complies with the necessary requirements to be used in safe conditions, without the need of replacing it.

4. **Safety considerations:** In points 4.1 to 4.3, some potential conditions and situations that may cause body injuries or material damages are considered. Besides, there are instructions on how to avoid them. The following list is not exhaustive.

   The information given in this document shall be included in the training courses of yard operators in the filling station, maintenance personnel and other persons working with CNG hoses.

4.1 Gas leak: Pressurized gas leak may cause severe body damage and other risks (see 4.3).

Thus:

- Avoid gas leak, particularly in dispensing areas. Therefore, hoses must be depressurized before dismounting them from the gas dispenser. Besides, all connections must be secured before pressurization.
- Comply with the instructions on the correct operation, safety standards and training programs.

4.2 Hose blow off ("lash"): If a pressurized hose assembly separates, the terminals may be thrown at a very high speed, and the loose hose may shake and strongly injure people and damage surrounding installations.
The correct terminal pressed to the hose shall de verified. Besides, its physical condition shall also be verified, according to point 7.2.k., making the pertinent corrections, if necessary —including the possible installation of a suitable protection—. In both cases, the replacement shall be made when necessary, according to the action criterion defined at the end of said Point 7.2.

4.3 Fire and explosions caused by high pressure natural gas: Natural gas release at high pressure may cause blaze o may explode once in contact with an ignition source.

The gaseous fluid path shall not be opened if any motor vehicle electrical component is still running. If once the path is opened (by instinct, by mistake or any other reasons), some electrical component starts working, sparks generation shall be avoided. Thus, power supply shall not be cut until the gas stops flowing out.

5. Hose selection – Service life

Different factors, such as, hose adequate selection for use conditions, correct hose mounting with its connectors, correct hose installation in the dispenser, proper use and maintenance and periodic controls influence hose service life in safe conditions.

5.1 Temperature: If hose specified temperature values are exceeded, its service life shall be significantly reduced.

Gas temperature shall be verified when coming out of compression equipment. Such temperature shall not be greater than that admissible by the regulations in force.

Contact with hot surfaces shall be avoided.

5.2 Environmental conditions: They may cause hose and terminal degradation. The most common factors considered, among many others, are the following:

a. Temperature (see Point 5.1).
b. Chemicals: Hose cleaning with aggressive chemical components.
c. Abrasion: Rubbing against rough surfaces or cutting edges.

5.3 Wrong uses: Hose assembled sets are designed according to internal stress caused by the conducted fluid. Sets shall neither be pulled nor used for purposes implying stresses for which, both the hose and the terminals, have not been designed.

5.4 Specification and Standardizations: When purchasing hoses, they shall be identified and approved by means of a certificate issued by a Certification Organization, which shall guarantee that the product complies with the regulations in force.

5.5 Hose terminals: Hoses shall be provided assembled with their added terminals.

5.6 Hose cover protection: Hose cover shall be protected against abrasion, erosion, snags and cuts. They shall be installed in such a way so as to reduce rubbing against other hoses or any objects that may erode them (see Figure 1: External damage prevention).

Note: Under no circumstances shall hoses be coated, sheathed, wrapped up, protected by any external cover other than that their own, so as not to make their visual inspection difficult.

5.7 External physical variables: Hoses shall be installed and used in such a way so as to avoid:

a. Axial loads (traction stresses).
b. Cross section loads (cut stresses).
c. Excessive bending: hoses shall have protecting systems (flexible supports).
d. Excessive torsion: Torsion values registered in normal operation do not affect design conditions.
e. Crushing.
f. Cracks.
g. Abrasion.
h. Twisting (see Point 6.3).
i. Excessive temperatures (see Point 5.1).

5.8 Slings and clamps: Slings and clamps shall be used to support long or heavy hoses in order to protect them from any other system mobile components. Clamps shall be used to avoid movements that may cause abrasion.

5.9 Minimum bending radius: Hoses being in use shall not adopt bend radius lower than those minimum specified by the manufacturer or importer and approved by the CO, at the risk of reducing their service life. Hose/terminal interface shall maintain a length straight stretch as minimum equal to an external radius. The most accentuated bends resulting from the non-compliance of this requirement may cause leaks, hose breaking or terminal loosening (see Figures 2A and 2B).

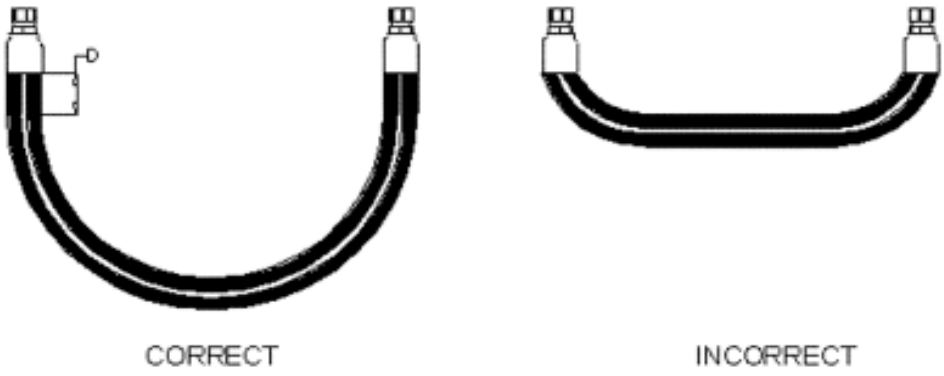


Figure 2A

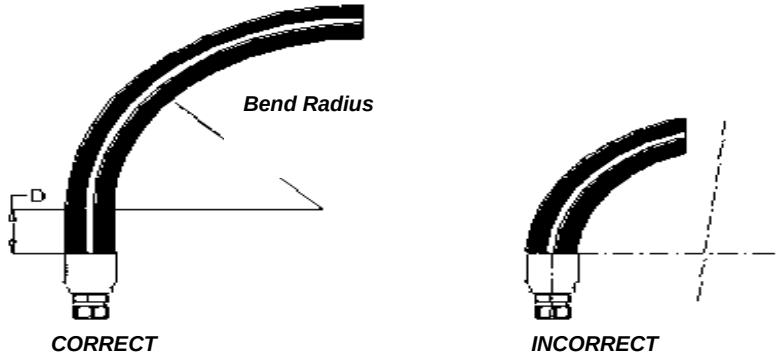
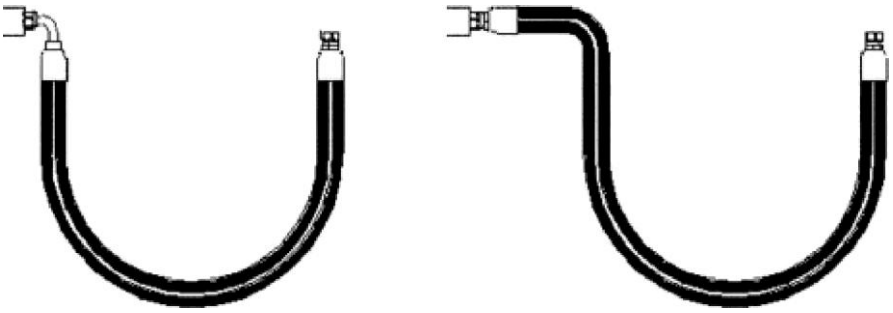


FIGURE 2B—MINIMUM BEND RADIUS

Figure 2B

Figure 2: Minimum bend radius

5.10 Elbows and adaptor: In certain cases, elbows and adaptors shall be used in order to reduce hose stress (see Figure 3).



Correct Incorrect

Figure 3

6. Hose installation and replacement

When installing hoses on new dispensers or replacing them on existent dispensers, the following shall be taken into account:

6.1 Pre-installation inspection: Before installing a hose, the following shall be foreseen:

a. Hose length and its stretching.
b. The correct positioning so as to avoid torsions, cracks and twists.
c. The correct height in order to avoid rubbing against abrasive surfaces.

6.2 Hose handling during installation: During installation, hoses shall be carefully handled. Their mistreatment or excessive bending (less than the minimum bending radius) may reduce their service life. Excessive bending in the terminal and hose joint shall be avoided.

6.3 Hose turning angle and orientation: The pressure applied to a twisted hose may reduce its service life or loose its terminals. In order to avoid twisting, a marked generatrix (reference line) shall be used for guidance or it shall be marked (see Figure 4).

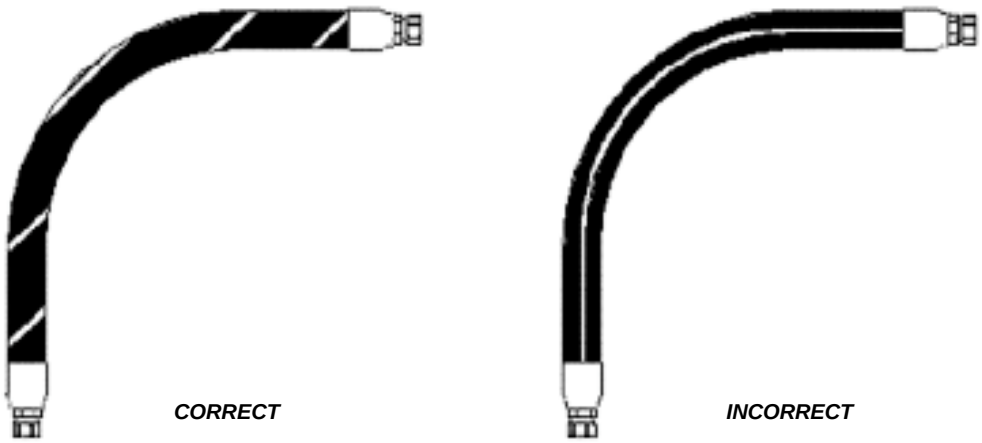


Figure 4

6.4 Safety and protective devices: The necessary restrictions and protective devices shall be installed. Those devices must not cause additional stresses or wearing points. See note 5.6.

6.5 Displacement: The recommended practices in Point 5 shall be revised so as to make the adequate corrections and obtain optimum results.

6.6 Assembly torque: The hose terminal end is normally threaded. In order to obtain a suitable sealing when making the connection (directly or by means of an adaptor or any other terminals), the specified different torque values shall be considered. A suitable tool shall be used to correctly adjust each connection so as to avoid terminal hexagon deformation.

6.7 Leak detection: If leaks are detected, during inspection or in any other circumstance, dispenser valve shall be immediately closed to depressurize the hose and avoid injuries. Thus, it must be replaced.

7. Maintenance, inspection and controls

Compliance with a hose and terminal inspection plan guarantees a safely high operation and reduces body injuries and property damages risks. Hose users shall design and implement a preventive maintenance program.

7.1 Inspection frequency: Inspection shall be permanently carried out by the hose operator and the Technical Representative. The frequency of inspections shall be estimated according to the records and the use characteristics of each hose. It shall be performed at least once a month.

7.2 Controls – Visual Inspection (hose and terminal): Hose and terminals shall be inspected for the following:

a. Excessive axial loads (traction stresses).
b. Excessive cross section loads (cut stresses).
c. Excessive bending: The existence of protecting systems shall be verified.
d. Excessive torsion: The way of hose installation shall be verified so as to prevent that a wrong installation generates a wrong torsion.
e. Crushing: They are typically produced by an unforeseen hood closure or when a vehicle steps on hoses.
f. Cracks.
g. Abrasion: The non existence of rubbing (against the floor or sharp surfaces) defects, excoriations, cuts or loosening shall be verified on the external cover.
h. Twist: The hose way of installation shall be verified, making sure that a wrong installation may generate twists.
i. Excessive temperatures (see point 5.1): It shall be verified if hoses are harden, stiff, soften, blistered, brittle or carbonized.
j. Hose or terminal leak.
k. Damage, cracked, corroded or loosed hose terminals.
l. Chemical deterioration.
m. Other significant signs of deterioration.

If any of these conditions exist,

- ❖ evaluate if hose installation is the cause and if that is the case, the pertinent correction shall be made, or
- ❖ immediately replace it, if necessary.

ANNEX II

MODIFICATIONS TO RESOLUTION ENARGAS N° 2767

Section 3: It is substituted by the following:

Hoses´ service life of vehicular CNG dispensers shall be determined by the results of the controls permanently performed by the hose operator and monthly performed by the Technical Representative of the Filling Station, according to Section 7: “Maintenance inspection and controls” of NAG-E 409: “Hoses for CNG dispensers. Instructions for their installation, use and control”.

Annex: It is updated as follows. For clarity of expression, modified, annulled and added wording is indicated in italics.

DIFFERENCIATION OF RESPONSIBILITIES CORRESPONDING TO THE FOLLOWING INDIVIDUALS AND LEGAL ENTITIES

Manufacturers or Importers:

1. (*Annulled*).
2. State controls to be performed (frequency, type and location), providing acceptability limits for possible failures which may be detected, and periodicity variables for the different controls.
3. Specify the safe assembly conditions.
4. Specify the safe usage conditions.
5. State guidelines for the storage of new and used out-of-service hoses.
6. State differentiating requirements for hoses which were (in a permanent or alternative way) out of use.
7. *Deliver a technical document with each hose sold. Said document shall be approved by the Certification Organization and contain the stipulations of previous points 2 to 6.*

Filling Stations and their Technical Representatives, jointly and severally responsible for compliance with the previous points.

- Instruct the corresponding Filling Station personnel, based on their present and potential tasks, as regards compliance with previous points 2 to 6 and keep a record of the training provided.
- Develop a procedure for performing each task in respect of the training received.
- Check compliance of those tasks performed by the personnel and carry them per se, as corresponds.
- (*Annulled*).
- (*Annulled*).
- *Replace each hose section comprised between the filling nozzle and the three-way valve after at least twelve (12) months of use, notwithstanding compliance with the acceptance limits arising from the stipulations in point 2.*

Area Distribution Licensee:

- Ensure effective compliance of the previous stipulations through audits, checking at least:
  - ✓ personnel training, through records and availability of above-mentioned procedures;
  - ✓ *compliance of the maximum usage period of twelve (12) months for the hose section comprised between the filling nozzle and the three-way valve;*
  - ✓ compliance of required assembly conditions;
  - ✓ possible deteriorations, as indicated in 2, requiring hose replacement, and
  - ✓ *particularly, the stipulations set forth by Section 7: "Maintenance Inspection and controls" of Specification NAG-E 409.*