TESTING AND COMMISSIONING PROCEDURE

FOR

LIQUEFIED PETROLEUM GAS INSTALLATION

IN

GOVERNMENT BUILDINGS

OF

THE HONG KONG SPECIAL ADMINISTRATIVE REGION

2022 EDITION

ARCHITECTURAL SERVICES DEPARTMENT
THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION

PREFACE

This Testing and Commissioning (T&C) Procedure aims to lay down the minimum testing and commissioning requirements to be carried out on Liquefied Petroleum Gas Installation in Government Buildings of the Hong Kong Special Administrative Region (HKSAR). Such requirements are applicable to both new installations upon completion and existing ones after major alteration.

The present edition was developed from the General Specification for Building Services Installation in Government Buildings of the Hong Kong Special Administrative Region 2022 Edition that was established by the Architectural Services Department (ArchSD).

Electronic version of this T&C Procedure is to be viewed on and free for download from the ArchSD Internet homepage. As part of the Government's efforts to limit paper consumption, hard copies will not be put up for sale.

The ArchSD welcomes comments on this T&C Procedure at any time since the updating of this T&C Procedure is a continuous process to tie in with technological advances.

DISCLAIMER

This T&C Procedure is solely compiled for Liquefied Petroleum Gas Installation carried out for or on behalf of the ArchSD in Government premises of the HKSAR.

There are no representations, either expressed or implied, as to the suitability of this T&C Procedure for purposes other than that stated above. Users who choose to adopt this T&C Procedure for their works are responsible for making their own assessments and judgement of all information contained here. The ArchSD does not accept any liability and responsibility for any special, indirect or consequential loss or damages whatsoever arising out of or in connection with the use of this T&C Procedure or reliance placed on it.

The materials contained in this document may not be pertinent or fully cover the extent of the installation in non-government buildings and there is no intimated or implied endorsement of the sales, supply and installation of the materials and equipment specified in this T&C Procedure within the territory of the HKSAR.

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Testing and Commissioning Procedure for Liquefied Petroleum Gas Installation

1. Introduction

The procedures stated in this Testing and Commissioning (T&C) Procedure cover the activities in preliminary tests and inspections, functional performance tests and the commissioning of newly completed Installations and existing ones after major alteration. They are so compiled to facilitate the work of Project Building Services Engineer (PBSE) and Project Building Services Inspector (PBSI) / Project Electrical and Mechanical Inspector (PEMI), who are appointed as the Supervising Officer's Representatives, in the following aspects with respect to testing and commissioning :

(a) to vet and approve the T&C procedures proposed and submitted by the contractor for the Liquefied Petroleum Gas Installation (Contractor);

(b) to witness those T&C procedures as specified; and

(c) to accept the T&C certificates and other supporting data.

The Contractor shall carry out the T&C works as detailed in this T&C Procedure. Supplementary T&C plans may be proposed by the Contractor as appropriate and agreed by PBSE, e.g. for special equipment supplied and/or installed by the Contractor.

The administrative requirements for T&C works are in general as specified in the General Specification for Building Services Installation in Government Buildings of the Hong Kong Special Administrative Region 2022 Edition and all current corrigenda/amendments thereto published before the date of first tender invitation for the Contract issued by the ArchSD (the General Specification).

All words and expressions shall have the meaning as assigned to them under the General Specification unless otherwise specified herein.

2. Objectives of the Testing and Commissioning Works

The objectives of the T&C works are:

(a) to verify proper functioning of the equipment/system after installation;

(b) to verify that the performance of the installed equipment/systems meet with the specified design intent and statutory requirements, if any, through a series of tests and adjustments; and

(c) to capture and record performance data of the whole Installation as the baseline for future operation and maintenance.

For the avoidance of doubt, depending on the specific demands of individual installation, the PBSE may require additional or substitute T&C works in regard to any elements in the Installation other than those indicated in this T&C Procedure.

3. Scope of the Testing and Commissioning Works

3.1 Tests and Inspections during Construction

The purpose of these tests is to ensure that all components and systems are in a satisfactory and safe condition before start up. Preliminary adjustment and setting of equipment at this stage shall also be carried out at the same time to pave way for the coming functional performance tests.

Before carrying out any test, the Contractor shall ensure that the Installations comply with all relevant statutory requirements and regulations. The T&C works shall also comply with all site safety regulatory requirements currently in force. In particular, the Contractor shall note the statutory requirements listed in the General Specification in carrying out the works.

3.2 Functional Performance Tests

The purpose of functional performance tests is to demonstrate that the Installations can meet the functional and performance requirements as specified in the Contract. Functional performance tests should proceed from the testing of individual components to the testing of different systems in the Installations.

The Contractor may have to make temporary modifications as the tests proceed. The specific tests required and the order of tests will vary depending on the type and size of systems, number of systems, sequence of construction, interface with other installations, relationship with the building elements and other specific requirements as specified in the Contract. The testing of systems may have to be carried out in stages depending on the progress of work or as proposed by the Contractor.

Part of the tests may be required to be carried out in suppliers' premises in accordance with the provisions as specified in the Contract.

Any performance deficiencies revealed during the functional performance tests must be evaluated to determine the cause. After completion of the necessary corrective measures, the Contractor shall repeat the tests.

If any test cannot be completed because of circumstances that are beyond the control of the Contractor, it shall be properly documented and reported to the PBSE, who shall then liaise with the relevant parties to resolve the situation. The Contractor shall resume his testing work immediately upon the attainment of a suitable testing environment.

3.3 Commissioning, Statutory Tests and Inspections

Commissioning is the advancement of the Installations from the stage of static completion to full working conditions and to meet the performance requirements as specified in the Contract. This will include setting into operation and regulation of the Installations. Fine-tuning of the commissioned system shall be done by the Contractor to match system performance to the actual needs of the building occupier more closely.

The Contractor shall carry out tests for the Installations to meet statutory requirements as specified in the Contract. After the proper testing and commissioning of the Installations, the Contractor shall notify the appropriate authority as specified in the Contract, through the PBSE of the completion of the Installations and its readiness for inspection and testing. The Contractor shall arrange for the necessary inspections and tests as required by the Authority.

3.4 Documentation and Deliverables

The Contractor shall submit his proposed T&C procedures together with the Testing and Commissioning Progress Chart shown in **Annex I** to PBSE for approval.

All inspection and T&C results shall be recorded by the Contractor in the appropriate test record forms. A complete set of these forms can be found in **Annex II**.

Data recorded in other formats may also be acceptable subject to prior approval of the PBSE. Upon completion of all the required T&C works, the Contractor shall complete and sign a testing and commissioning certificate as shown **Annex II** to the effect that the agreed T&C works have been duly carried out.

A functional performance test report covering all measured data, data sheets, and a comprehensive summary describing the operation of the system at the time of the functional performance tests shall be prepared and submitted to the PBSE. Deviations in performance as specified in the Contract or the design intent should be recorded, with a description and analysis included.

Where required in the Contract, the Contractor shall conduct a final evaluation of the performance of the Installations, the results of which shall be included in the commissioning report.

3.5 Other Requirements

3.5.1 Testing Equipment Calibration

A list of calibrated equipment/instruments necessary for the T&C Works shall be provided as specified in **Annex III**.

3.5.2 Certificates, Licences and Approval of Use for Equipment or Installation

Relevant test certificates and Approval of Use from the Gas Authority for gas equipments, appliances or installations are required. When submitting the testing certificate(s) EMSD/GSO/106, 107, 108 as shown in **Annex IV** to the Gas Authority, a copy of the same certificate(s) shall be provided to PBSE for record purpose.

4. Testing and Commissioning Procedures

		Relevant Clauses In LPG GS
4.1	Bulk LPG Storage Vessel	17.2.1.2
4.2	Vaporisers	17.2.1.3
4.3	Pipework Testing	17.2.1.4
4.4	Regulators	17.2.1.5
4.5	Emergency Valves	17.2.1.6
4.6	Pressure Relief Valves	17.2.1.7
4.7	Vessel Content Gauges and Fixed Maximum Liquid Level Devices	17.2.1.8
4.8	Gauges	17.2.1.9
4.9	Earthing	17.2.1.10
4.10	Cathodic Protection System	17.2.1.11
4.11	Purging/Gas Filling of Vessels and Systems	17.2.1.12
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Annex I

Testing and Commissioning Progress Chart for Liquefied Petroleum Gas Installation

Contract Number : _____

Contract Title : _____

Name of Sub-contractor : _____

Name of Main Contractor : _____

Contract Period: __/__/20__ to __/__/20__ *Revised /Actual Completion Date: __/__/20__
dd/mm/yyyy dd/mm/yyyy

	Testing and Commissioning Progress Chart for Liquefied Petroleum Gas Installation (Rev.) (Note 1)																		
		Dates (Note 2)																	Remark
	Activities	Reference to Annex II of T&C Procedure	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	
1.	Piping System	3.1																	
	Visual inspection																		
	G/F																		
	1/F																		
	2/F																		
	3/F																		
	4/F																		
	_____																		
	Submission of test record																		
2.	Bulk LPG Storage System	3.2																	
	Visual inspection																		
	G/F																		
	1/F																		
	2/F																		
	3/F																		
	4/F																		
	_____																		
	Submission of test record																		

	Testing and Commissioning Progress Chart for Liquefied Petroleum Gas Installation (Rev.) (Note 1)																		
		Dates (Note 2)																	Remark
	Activities	Reference to Annex II of T&C Procedure	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	
3.	LPG Cylinder Storage System	3.3																	
	Visual inspection																		
	G/F																		
	1/F																		
	2/F																		
	3/F																		
	4/F																		
	_____																		
	Submission of test record																		
4.	Vaporisers/ accessories	3.4																	
	Visual inspection																		
	G/F																		
	1/F																		
	2/F																		
	3/F																		
	4/F																		
	_____																		
	Submission of test record																		
5.	LPG Appliances	3.5																	
	Visual inspection																		
	G/F																		
	1/F																		
	2/F																		
	3/F																		
	4/F																		
	_____																		
	Submission of test record																		

	Testing and Commissioning Progress Chart for Liquefied Petroleum Gas Installation (Rev.) (Note 1)																		
		Dates (Note 2)																	Remark
	Activities	Reference to Annex II of T&C Procedure	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	
6.	Hazard Precaution and Fire Prevention	3.6																	
	Visual inspection																		
	Submission of test record																		
7.	Functional Test	3.7																	
	Submission of test record																		
8.	Performance Test	3.8																	
	Submission of test record																		
9.	Submission of T&C Certificate																		

Notes

* Delete as appropriate

(1) Insert revision no.

(2) Insert additional columns as necessary
S - schedule % completion
A - actual % completion

Annex II

Testing and Commissioning Certificate for Liquefied Petroleum Gas Installation

Contract Number : _____

Contract Title : _____

Part 1 Details of Project

1.1 Project title : _____

1.2 P.W.P. No. : _____

1.3 Contract Number : _____

1.4 Sub-contractor : _____

1.5 Main Contractor : _____

1.6 Name of *PBSE : _____

1.7 Name of *PBSI : _____

Part 2 Declaration

2.1 I certify that the Liquefied Petroleum Gas Installation as specified in the Contract/Sub-contract/Quotation at the above location has been inspected, tested and commissioned in accordance with this Testing and Commissioning (T&C) Procedure and/or any other procedures as agreed between the *PBSE and the Contractor. The results are satisfactory in the aspects as mentioned in Part 3 and/or as recorded in Part 4 of this Certificate, except that indicated in the COMMENTS items.

2.2 I also certify that site tests have been performed in accordance with the requirements set in this T&C Procedure and that the results are satisfactory. A record of the tests has been prepared and submitted to the *PBSE.

Name of Authorised Contractor's Representative:	Signature:
Designation /Post of Contractor's Representative:	Date Signed:
Name and Stamp of Contractor:	Telephone Number:

* delete /amend if required

Part 3 Items Inspected and Tested

			Items tested / Checked by Contractor	Items Witnessed by PBSE/PBSI
Part 3:	Items Inspected and Tested			
3.1	Inspection, Testing and Commissioning of Piping System			
	3.1.1	Visual Inspection		
	3.1.1.1	Steel and Copper Pipework		
	a)	Are all pipelines of the correct types and approved by the PBSE?	*Yes/No/N.A.	*Yes/No/N.A.
	b)	Are all pipelines up to 13 mm bore of steel or copper made?	*Yes/No/N.A.	*Yes/No/N.A.
	c)	Are all pipelines above 13 mm bore of steel made?	*Yes/No/N.A.	*Yes/No/N.A.
	3.1.1.2	Flexible Hoses and Tubing		
	a)	Are all flexible hoses and tubing of correct types and approved by the PBSE?	*Yes/No/N.A.	*Yes/No/N.A.
	b)	Are corrosion resistant braiding for flexible hoses and tubing used?	*Yes/No/N.A.	*Yes/No/N.A.
	c)	Are emergency valves installed in all liquid pipelines to which the flexible hoses are connected?	*Yes/No/N.A.	*Yes/No/N.A.
	d)	Are emergency valves installed in all vapour pipelines at high pressure stage to which the flexible hoses are connected?	*Yes/No/N.A.	*Yes/No/N.A.
	e)	Are manual shut-off valves installed for vapour pipelines at medium pressure or below to which the flexible hoses are connected?	*Yes/No/N.A.	*Yes/No/N.A.
	f)	Are all flexible tubing within 2 m long and marked with “LPG” and tagged with a label indicating the date of next replacement?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor’s Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested / Checked by Contractor	Items Witnessed by PBSE/PBSI
g)	Is any flexible tubing extended from one room to another or passing through wall or ceiling?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Are all end fittings of the flexible hoses and tubing of correct and approved type?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Are fittings for securing flexible hoses and tubing free from burrs/sharp edges and not over-tightened?	*Yes/No/N.A.	*Yes/No/N.A.
3.1.1.3	Pipe Joints and Fittings		
a)	Are all steel pipe joints over 50 mm bore welded or welded flanged?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is only electric arc welding used on steel pipes of 125 mm bore and larger?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are copper pipe joints of compression type or sweated type silver soldered or brazed using jointing material of melting point exceeding 540°C?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are pipe fittings of the correct and approved types?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Are gaskets used resistant to LPG?	*Yes/No/N.A.	*Yes/No/N.A.
3.1.1.4	Piping Installations		
a)	Are pipework installed in accordance with the approved drawings?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are all pipework buried in floor slabs protected against corrosion and mechanical damage?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are surface pipework adequately supported and are the supports made of correct materials and correctly constructed?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are the pipe runs having adequate flexibility and facilities to compensate for thermal expansion and contraction of pipes, or mechanical stress at branch pipes?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested / Checked by Contractor	Items Witnessed by PBSE/PBSI
e)	Are insulations provided in pipe supports where cathodic protection has been provided?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Are all pipework protected against corrosion by wrapping, galvanising or painting as appropriate?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Are pipework passing through walls or floor slabs properly wrapped and enclosed in metal sleeves and without joints?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Is re-condensation of LPG expected in any section of pipework and, if so, has thermal insulation been provided?	*Yes/No/N.A.	*Yes/No/N.A.
i)	Is a minimum clearance of 150 mm maintained between LPG pipes and electric conduits, trunking and cables?	*Yes/No/N.A.	*Yes/No/N.A.
j)	Are all pipework buried underground adequately treated and protected against corrosion and mechanical damage, especially those sections at road crossing?	*Yes/No/N.A.	*Yes/No/N.A.
k)	Are all underground pipework outside premises buried at a depth of not less than 800 mm and at a minimum clearance of 200 mm from electrical cables?	*Yes/No/N.A.	*Yes/No/N.A.
l)	Have pipe markers been fixed to indicate the route of buried pipelines?	*Yes/No/N.A.	*Yes/No/N.A.
m)	Have LPG identification labels been provided for all surface LPG distribution pipes?	*Yes/No/N.A	*Yes/No/N.A.
n)	Are vertical pipe risers protected against mechanical damage to a minimum height of 2m from ground level?	*Yes/No/N.A	*Yes/No/N.A
3.1.1.5	Valves and Accessories		
a)	Are all valves of correct and approved types?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are all valves accessible and with clear indication of direction of operation?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are all excess flow valves and non-return valves installed in the correct direction?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested / Checked by Contractor	Items Witnessed by PBSE/PBSI
d)	Are all pressure relief valves fitted with vent connections of correct length and chained self- detachable weatherproof cap?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Are all pressure relief valves clearly and permanent marked with manufacturer's identification, discharge pressure and certified capacity?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Are the connection fittings of the strainer and solenoid valve at the LPG liquid lines of welded flange type?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Are enclosures for LPG meters provided with sufficient ventilation?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Are LPG traps filled with water?	*Yes/No/N.A.	*Yes/No/N.A.
3.1.1.6	Pressure Regulating and Monitoring Devices		
a)	Are all pressure regulators/ service governors of correct and approved types?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are all pressure regulators/ service governors sealed and locked against unauthorised adjustment?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are all first stage pressure regulating devices located as close as practicable to the storage vessel or vaporiser?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are isolating valves provided at both upstream and downstream of regulators?	*Yes/No/N.A.	*Yes/No/N.A.
3.1.2	Testing and Commissioning		
3.1.2.1	Pipework		
a)	All pipeworks have been pressure and leak tested, by means of *pressure drop hydraulic method/soap and water/ pneumatic method, before and after applying corrosion treatment, concealed or buried.	*Yes/No/N.A.	*Yes/No/N.A.
b)	Before pressure testing, the units which are not capable of sustaining the test pressure have been isolated.	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested / Checked by Contractor	Items Witnessed by PBSE/PBSI
c)	Results of pressure test on pipeworks were as shown in the "Record of Tests" and were considered to be satisfactory.	*Yes/No/N.A.	*Yes/No/N.A.
3.1.2.2	Valves and Accessories		
a)	During the pressure testing, have all isolating valves and quick-acting shut-off valves been checked and is there no leakage through them at their fully closed positions?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Have all non-return valves been checked and found to be functioning properly?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Have all excess flow valves been checked and could they close upon excessive discharge within 1.5 time of the normal service flow rates?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Have all pressure relief valves been calibrated and keep Installations sealed by manufacturer or competent person and are the testing certificates enclosed to the "Record of Tests"?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Have all pressure relief valves vent caps been in place and mobile?	*Yes/No/N.A.	*Yes/No/N.A.
f)	Are all pressure gauges working properly and reading correct figures?	*Yes/No/N.A.	*Yes/No/N.A.
g)	Are all emergency shut-off valves checked for proper functioning?	*Yes/No/N.A.	*Yes/No/N.A.
h)	Are all valves and regulators checked on the tight shut- off with zero flow?	*Yes/No/N.A.	*Yes/No/N.A.
3.1.2.3	Pressure Regulating and Monitoring Devices		
a)	Have all pressure regulating devices been set to provide specified and approved downstream working pressures?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Have all active monitor regulators been set so that they will close when slightly higher downstream pressure is sensed?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested / Checked by Contractor	Items Witnessed by PBSE/PBSI
c)	Are all service governors set correctly and working properly?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are all under pressure shut off devices and over pressure shut off devices working properly?	*Yes/No/N.A.	*Yes/No/N.A.
e)	Are all internal relief valves, if equipped, of regulators /governors working properly at a pressure increase of 2 kPa at downstream?	*Yes/No/N.A.	*Yes/No/N.A.

3.2 Inspection, Testing and Commissioning of Bulk LPG Storage System

3.2.1 Visual Inspection

3.2.1.1 Storage Vessels

a)	Are the storage vessels of the correct models and constructed exactly in accordance with the construction drawings which have been approved by the PBSE?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are correct and visible data plate permanently fixed on the storage vessels?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Have details of information on the data plates been included in the “Record of Tests”?	*Yes/No/N.A.	*Yes/No/N.A.
d)	For above ground vessels over 5000 litres water capacity or where piers are used as part of the vessel support: Are the vessels secured at the end where the principal liquid and vapour lines are attached while the other end being free to move?	*Yes/No/N.A.	*Yes/No/N.A.
e)	For underground vessels: Are the vessels secured at both ends against flotation and against movement at the end to which the connections are made?	*Yes/No/N.A.	*Yes/No/N.A.
f)	For horizontal vessels: Are the vessels sloped slightly towards the drain connection?	*Yes/No/N.A.	*Yes/No/N.A.
g)	For vertical vessels: Are the skirts provided with at least two vents?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor’s Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested / Checked by Contractor	Items Witnessed by PBSE/PBSI
h)	For underground vessels: Are all fittings on the vessel accessible above ground level?	*Yes/No/N.A.	*Yes/No/N.A.
3.2.1.2	Pressure Relief Valves		
a)	Is each vessel provided with pressure relief valve(s) as designed?	*Yes/No/N.A.	*Yes/No/N.A.
b)	For vessel with only one pressure relief valve, does the automatic shut off valve comply with the requirements as specified in the LPGGS?	*Yes/No/N.A.	*Yes/No/N.A.
3.2.1.3	Vent Pipes		
a)	For vessels over 5000 litres water capacity and for all underground vessels: Are adequately supported vent pipes installed?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are outlets of vent pipes at least 2 m above top of vessels and 3 m above ground level?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Have means been provided in vent pipes for drainage of water?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are vent pipes provided with loose fitting captive rain caps?	*Yes/No/N.A.	*Yes/No/N.A.
e)	For vessels fitted with protective covers: Are vents provided to direct the discharged LPG away from the vessel shell?	*Yes/No/N.A.	*Yes/No/N.A.
3.2.1.4	Shut Off Valves and Emergency Valves		
a)	Are shut off valves provided for vessel connection in accordance with the LPGGS?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are emergency valves provided for vessel connection in accordance with the LPGGS?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are remotely controlled emergency valve operated from safe area and of the fail-safe type?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested / Checked by Contractor	Items Witnessed by PBSE/PBSI
3.2.1.5	Drain Connection		
a)	Are drain pipes with first and second shut off valves provided in accordance with the LPGGS?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Are drain pipes or blow-off lines having discharge outlets away from any other drainage systems?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are outlets of drain system blank-flanged, plugged, otherwise secured against tampering when not in use?	*Yes/No/N.A.	*Yes/No/N.A.
d)	Are sections of drain pipes between valves and plugged outlets fitted with hydrostatic pressure relief valves?	*Yes/No/N.A.	*Yes/No/N.A.
3.2.1.6	Gauges		
a)	Are pressure gauge (connected to the vapour space), temperature gauge, fixed maximum liquid level device and content gauge provided for each vessel?	*Yes/No/N.A.	*Yes/No/N.A.
b)	For content gauge which relies on bleeding to atmosphere: Is bleeding hole not larger than 1.4 mm or otherwise protected by a shut off valve and a suitable emergency valve?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Is pressure gauge connection protected by tapping reduced internally to a bleeding hole not larger than 1.4 mm or by a suitable excess flow valve and a shut off valve?	*Yes/No/N.A.	*Yes/No/N.A.
3.2.1.7	Filling Connections		
a)	Are an emergency valve and a shut off valve provided for each filling connection?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is filling connection for each vessel located at suitable location within the storage fence area and close to, but not under, the vessel?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Are “Liquid” and “vapour” labels provided for offset/remote filling connections?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor’s Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested / Checked by Contractor	Items Witnessed by PBSE/PBSI
3.2.1.8	Maximum Permitted Filling Volume		
a)	Is the initial filling below the maximum permitted filling volume in accordance with LPGGS?	*Yes/No/N.A.	*Yes/No/N.A.
3.2.1.9	Finishing and Coating		
a)	Has a coating been applied to the exterior of each underground vessel in accordance with the LPGGS?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Has "holiday" test been carried out after coating of an underground vessel?	*Yes/No/N.A.	*Yes/No/N.A.
3.2.1.10	Earthing System		
a)	Is each vessel electrically earthed (provided that the earthing of the vessel does not contradict to the cathodic protection requirement)?	*Yes/No/N.A.	*Yes/No/N.A.
b)	Is an earthing terminal provided near the LPG filling point for the connection of the bulk tanker vehicle?	*Yes/No/N.A.	*Yes/No/N.A.
c)	Is the earthing resistance of the LPG system within 1 megaohm?	*Yes/No/N.A.	*Yes/No/N.A.
3.2.1.11	Cathodic Protection		
a)	Has cathodic protection been provided for each semi-underground or underground vessel?	*Yes/No/N.A.	*Yes/No/N.A.
3.2.2	Testing and Commissioning		
3.2.2.1	Storage Vessels		
a)	Recognised test certificate for internal flaw on each vessel has been attached to the "Record of Tests".	*Yes/No/N.A.	*Yes/No/N.A.
b)	Ultrasonic/radiographic test for examining internal flaw on each vessel has been carried out. Results of the test are satisfactory.	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested / Checked by Contractor	Items Witnessed by PBSE/PBSI
c)	Recognised test certificate for external flaw on each vessel has been attached to the "Record or Tests".	*Yes/No/N.A.	*Yes/No/N.A.
d)	Magnetic particle or penetrate test for examining surface flaw on each vessel has been carried out. Results of the test are satisfactory.	*Yes/No/N.A.	*Yes/No/N.A.
e)	Hydraulic test at testing pressure has been carried out for each vessel. Results of the test are satisfactory.	*Yes/No/N.A.	*Yes/No/N.A.
f)	Commissioning pneumatic test for each vessel has been carried out. Results of the test are satisfactory.	*Yes/No/N.A.	*Yes/No/N.A.
g)	"Holiday" test for each underground vessel has been carried out. Results of the test are satisfactory.	*Yes/No/N.A.	*Yes/No/N.A.
h)	Leak test for connections up to minimum pressure has been carried out. Results of the test are satisfactory.	*Yes/No/N.A.	*Yes/No/N.A.
i)	Paint thickness complies with LPGGS.	*Yes/No/N.A.	*Yes/No/N.A.
3.2.2.2	Pressure Relief Valves		
a)	Manufacturer's/competent person's certificate(s) on the calibration of the pressure relief valves for vessels is/are attached to the "Record of Tests".	*Yes/No/N.A.	*Yes/No/N.A.
b)	The relief valve caps in place and mobile.	*Yes/No/N.A.	*Yes/No/N.A.
3.2.2.3	Shut Off Valves and Emergency Valves		
a)	All shut off valves and emergency valves have been checked and were working properly.	*Yes/No/N.A.	*Yes/No/N.A.
3.2.2.4	Gauges		
a)	The content gauge(s), the maximum liquid level device(s), pressure gauge(s) and temperature gauge(s) have checked and were working properly.	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested / Checked by Contractor	Items Witnessed by PBSE/PBSI
3.2.2.5	Earthing System		
a)	The earthing system has been tested and the earthing resistance was found to be satisfactory.	*Yes/No/N.A.	*Yes/No/N.A.
3.2.2.6	Cathodic Protection		
a)	The cathodic protection system has been tested and the test results are satisfactory.	*Yes/No/N.A.	*Yes/No/N.A.
3.2.2.7	Purging and Filling with LPG		
a)	The method and procedure for purging of vessels and filling with LPG have been in accordance with LPGGS.	*Yes/No/N.A.	*Yes/No/N.A.
3.3	Inspection, Testing and Commissioning of LPG Cylinder Storage System		
3.3.1.1	For liquid-drawn system: Are hydrostatic pressure relief valves installed on each liquid line which can be isolated by valves?	*Yes/No/N.A.	*Yes/No/N.A.
3.3.1.2	For multi-cylinder system: Is the manual or automatic changeover device provided with indication showing the particular bank of cylinders are being used?	*Yes/No/N.A.	*Yes/No/N.A.
3.3.1.3	Are appropriate safety devices and by-pass piping provided in accordance with LPGGS?	*Yes/No/N.A.	*Yes/No/N.A.
3.3.1.4	Is approved type clip-on regulator for domestic Installations using LPG cylinder of 15kg or less?	*Yes/No/N.A.	*Yes/No/N.A.
3.3.2	Testing and Commissioning		
3.3.2.1	Is the manual or the automatic changeover device working properly?	*Yes/No/N.A.	*Yes/No/N.A.
3.4	Inspection, Testing and Commissioning of Vaporisers		
3.4.1	Visual Inspection		
3.4.1.1	Are the vaporisers of the correct and approved type?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested / Checked by Contractor	Items Witnessed by PBSE/PBSI
3.4.1.2	Has each vaporiser provided with a permanently fixed label as required by the LPGGS?	*Yes/No/N.A.	*Yes/No/N.A.
3.4.1.3	Has each vaporiser been provided with: -		
a)	high pressure relief valve?	*Yes/No/N.A.	*Yes/No/N.A.
b)	liquid control device?	*Yes/No/N.A.	*Yes/No/N.A.
c)	non-bimetal heat input control?	*Yes/No/N.A.	*Yes/No/N.A.
d)	LPG drain point?	*Yes/No/N.A.	*Yes/No/N.A.
e)	automatic water level control?	*Yes/No/N.A.	*Yes/No/N.A.
f)	gauges for states of LPG?	*Yes/No/N.A.	*Yes/No/N.A.
g)	shut off valves at both vapour and liquid LPG lines from vaporiser to storage vessel?	*Yes/No/N.A.	*Yes/No/N.A.
3.4.1.4	Has a suitable and permanent drain pipe been provided for the LPG drain valve?	*Yes/No/N.A.	*Yes/No/N.A.
3.4.1.5	Has a suitable vent pipe been provided for the pressure relief valve?	*Yes/No/N.A.	*Yes/No/N.A.
3.4.2	Testing and Commissioning		
3.4.2.1	The vaporiser has been hydraulic tested by competent person and the test certificate is attached to the “Record of Tests”.	*Yes/No/N.A.	*Yes/No/N.A.
3.4.2.2	*Manufacturer’s/competent person’s certificate on the calibration of the pressure relief valve for the vaporiser is attached to the “Record of Tests”.	*Yes/No/N.A.	*Yes/No/N.A.
3.4.2.3	Are the liquid-LPG control device, the heat input control device, the automatic water level control and all gauges in proper working order?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor’s Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested / Checked by Contractor	Items Witnessed by PBSE/PBSI
3.4.2.4	Have the flame failure device, pilot and the main burner system been checked for proper function?	*Yes/No/N.A.	*Yes/No/N.A.
3.4.2.5	For indirect heated vaporiser using water as heating medium, have the water level safety control been checked for proper operation?	*Yes/No/N.A.	*Yes/No/N.A.

3.5 Inspection, Testing and Commissioning of LPG Appliances

3.5.1 Visual Inspection

3.5.1.1	Are all appliances of correct and approved models?	*Yes/No/N.A.	*Yes/No/N.A.
3.5.1.2	Have all appliances been installed properly in accordance with manufacturers' instructions?	*Yes/No/N.A.	*Yes/No/N.A.
3.5.1.3	Are the main flame and pilot flame, if provided, protected against draughts?	*Yes/No/N.A.	*Yes/No/N.A.
3.5.1.4	Are flame failure devices of approved type provided for totally enclosed and semi-enclosed burners? Are they sheltered from over-spilling and over-heating?	*Yes/No/N.A.	*Yes/No/N.A.
3.5.1.5	Are back-up overheat protective devices provided for temperature controls?	*Yes/No/N.A.	*Yes/No/N.A.
3.5.1.6	For gas-fired water heating appliances: Are low water pressure safety devices provided?	*Yes/No/N.A.	*Yes/No/N.A.
3.5.1.7	Are gas shut-off valves provided at gas inlets of appliances and in readily accessible position?	*Yes/No/N.A.	*Yes/No/N.A.
3.5.1.8	Are flues readily accessible for inspection and maintenance? Are they properly installed where they pass through roof, ceiling and combustible materials?	*Yes/No/N.A.	*Yes/No/N.A.
3.5.1.9	For flues incorporating forced draught devices and automatically operated damper devices: Have these devices been interlocked with the gas supply to burners?	*Yes/No/N.A.	*Yes/No/N.A.
3.5.1.10	Are manual operated dampers incorporated in flue systems maintained in fixed open position?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested / Checked by Contractor	Items Witnessed by PBSE/PBSI
3.5.2	Testing and Commissioning		
3.5.2.1	Are the gas supply pressure, water supply pressure and electricity supply voltage within the operating range of the appliances?	*Yes/No/N.A.	*Yes/No/N.A.
3.5.2.2	Are all safety controls and flame failure devices tested and ensured in proper working order?	*Yes/No/N.A.	*Yes/No/N.A.
3.5.2.3	Are the ignition, combustion and air supply properly sequenced for automatic combustion system?	*Yes/No/N.A.	*Yes/No/N.A.
3.5.2.4	Are all gas valves, cocks and taps gas tight and operate in satisfactory condition?	*Yes/No/N.A.	*Yes/No/N.A.
3.5.2.5	Are all provisions for combustion and ventilation air adequate?	*Yes/No/N.A.	*Yes/No/N.A.
3.5.2.4	Are the gas/air ratio of burners be adjusted correctly for proper combustion?	*Yes/No/N.A.	*Yes/No/N.A.
3.5.2.5	Are the flue systems working effectively? Are the interlocking between gas supply, forced draught devices and automatically operated dampers working properly?	*Yes/No/N.A.	*Yes/No/N.A.
3.5.2.6	Are all ignition devices working properly?	*Yes/No/N.A.	*Yes/No/N.A.
3.5.2.7	Are the contact temperatures of the outer casings of appliances below the maximum allowable values?	*Yes/No/N.A.	*Yes/No/N.A.
3.6	Inspection for Hazard Precaution and Fire Prevention		
3.6.1	Inspection for Electrical and Electrostatic Hazard Precaution		
3.6.1.1	Are all electrical equipment in the designated hazardous area comply with the recommendations of the relevant standard?	*Yes/No/N.A.	*Yes/No/N.A.
3.6.1.2	Are all the LPG piping and equipment electrically continuous and earthed, except where breaking in	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested / Checked by Contractor	Items Witnessed by PBSE/PBSI
	continuity is necessary for cathodic protection requirements?		
3.6.1.3	Is it true that the LPG piping has not been used as electrical circuit protective conductor or earth electrode for the other system, though their bonding to the circuit protective conductor may be necessary?	*Yes/No/N.A.	*Yes/No/N.A.
3.6.2	Inspection for Fire Prevention		
3.6.2.1	Have all fire fighting systems and facilities required by Fire Services Department been provided for the LPG storage compounds/cabinets?	*Yes/No/N.A.	*Yes/No/N.A.
3.6.2.2	Have all warning signs/emergency notices been painted or fixed in appropriate locations as required by Fire Services Department and COP for Hong Kong LPG Industry Module 1?	*Yes/No/N.A.	*Yes/No/N.A.
3.6.2.3	Have weeds, long grass and any combustible material been kept clear from an area as specified by the LPGGS?	*Yes/No/N.A.	*Yes/No/N.A.
3.6.2.4	Is the mechanical ventilation system associated with the LPG Installations in proper working order?	*Yes/No/N.A.	*Yes/No/N.A.
3.6.3	Ventilation		
3.6.3.1	Is all mechanical ventilation system associated with LPG Installations in proper operation?	*Yes/No/N.A.	*Yes/No/N.A.
3.7	Functional Test		
3.7.1	Is LPG available when gas equipment is connected?	*Yes/No/N.A.	*Yes/No/N.A.
3.8	Performance Test		
3.8.1	Is gas distribution system operating within correct pressure regime?	*Yes/No/N.A.	*Yes/No/N.A.
3.8.2	Is vaporiser in satisfactory operation and with correct power input (heat input)?	*Yes/No/N.A.	*Yes/No/N.A.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

		Items tested / Checked by Contractor	Items Witnessed by PBSE/PBSI
3.8.3	Is adequate gas flow provided for the gas equipment?	*Yes/No/N.A.	*Yes/No/N.A.

3.9 Comments

Note: * Delete if not applicable

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

Part 4: Test Record attached to the Test Certificate

4.1 Pressure test of pipework before treated, concealed or buried

Date of test	Section of pipework	Pressure stage	Working pressure (kPa)	Testing pressure (kPa)	Duration of testing (Hours)	Test result

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

4.2 Pressure test of pipework on completion

Date of test	Section of pipework	Pressure stage	Working pressure (kPa)	Testing pressure (kPa)	Duration of testing (Hours)	Test result

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

4.3 Function test on valves

(including isolation valves, quick-action / emergency shut-off valves, check valves, etc.)

Date of test	Valve ref. no.	Type of valve	Pressure stage	Working pressure (kPa)	Testing pressure (kPa)	Duration of testing (Hours)	Test result

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

4.4 Function test on pressure regulation devices

(for shut-off function of monitoring regulators, pressure relief function of internal relief valves of regulators and governors, etc.)

Date of test	Device ref. no.	Type of device	Pressure stage	Upstream pressure (kPa)	Downstream pressure (kPa)	Actuating pressure +(kPa)	Test result

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

4.5 Test on electrical continuity of LPG Installations

Date of test	Points of measurement		Resistance measured Ω	Remarks
	From	To		

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

4.6 Test on earthing system

Date of test	Points of measurement		Resistance measured Ω	Remarks
	From	To		

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

4.7 Insulation test on electrical installations

Date of test	Circuit / device tested	Resistance measured Ω	Remarks

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

4.8 Test certification for pipework

Location and address of Installations:

_____

This is to certify that all Liquefied Petroleum Gas pipework installed at the above premises is constructed of suitable material and has been pressure tested in accordance with Fire Services Department's requirements. All buried pipework has been adequately protected against corrosion in accordance with the Contract. The testing and corrosion proof coating have been witnessed by the undersigned on _____.

Details of piping materials and tests are as follows:-

Section of Pipe	All LiquidLines	All High Pressure Vapour Lines before First Stage RegulatingSystem	All Medium Pressure Vapour Line	All Low Pressure Vapour Line
Pipeline Specification & Schedule				
Fitting Specification & Schedule				
Valve Material and Rating				
Testing Medium				
Working Pressure (kPa)				
Test Pressure (kPa)				
Duration of Test (Hr)				

Remarks:

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

4.9 Test certification for *pressure relief valves/hydrostatic relief valves

This is to certify that the following *pressure relief valve(s)/and hydrostatic relief valve(s) *has/have been pressure tested and sealed:-

Date of test	Valve ref. no.	Type of valve	Made / model no.	Pressure stage	Testing pressure (kPa)	Actuating pressure (kPa)	Test result

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

4.10 Test certification for excess flow valves

This is to certify that the following excess flow valve(s) *has/have been pressure tested:-

Date of test	Valve ref. no.	Made / model no.	Pressure stage	Working pressure (kPa)	Design flow rate (l/s)	Actuating flow rate (l/s)	Test result

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

4.11 Test certification for pressure gauges

This is to certify that the following pressure gauges(s) *has/have been tested and results are as indicated:-

Date of test	Gauge ref. no.	Made / model no.	Pressure range (kPa)		Tolerance	Remarks
			From	To		

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

4.12 Test certification for LPG storage facilities

4.12.1 Bulk LPG Storage System

Type of Test	Date of Test	Summary of Result and Observation	Test Certificate Attached
Test on internal flaw			* Yes/No
Ultrasonic/radiographic test			* Yes/No
Test on external flaw			* Yes/No
Magnetic particle test			* Yes/No
Penetration test			* Yes/No
Hydraulic test			* Yes/No
Pneumatic test			* Yes/No
Holiday test			* Yes/No
Leak test			* Yes/No
Paint thickness test			* Yes/No
Cathodic protection test			* Yes/No

4.12.2 LPG Cylinder

a. Type approval of gas container by Gas Authority attached * Yes/No

4.12.3 Approval of use before LPG filling

a. Approval of Use by the Gas Authority attached *Yes/No

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	

4.13 Factory Test Certificates for Gas Appliances

Gas Appliance and Type	Model	Certificate No. and Date	Issued by

Note: Approval given by Gas Authority under COP GU05 should be submitted together with factory test certificates for all gas appliances.

Tested / Checked by : (Name of Authorised Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Witnessed by : (Name(s) of *PBSE/PBSI)	Signature - ( )	Post : Tel. No. : Date :	

Annex III

List of Calibrated Equipment/Instruments Necessary for Testing and Commissioning Works

Type	Model	Serial No. of Instrument	Date of Calibration

Annex IV

Forms for Statutory Submission

Testing and Examination of LPG Tank under Regulation 8 of

Gas Safety (Gas Supply) Regulations, Cap.51 (EMSD/GSO/106)

GasSO Ref:

To : The Gas Authority

Address of Notifiable Gas Installations: _____

_____

Mode of Storage, Serial No., Water Capacity & Vessel Design Code: _____

_____

Date of Installations & Last Revalidation: _____

I certify that the above vessel has satisfactorily been tested and examined under my supervision in accordance with the GasSO's requirements in order to comply with Regulation 8 of the Gas Safety (Gas Supply) Regulations and it is suitable for LPG service:-

Test/Examination	Test Dates(s)	Attached Document Reference No.	Tested by	Remarks
Full visual examination & hydraulic test				
Ultrasonic thickness test				
Magnetic particle test				
Paint thickness & holiday tests				
Testing & examination of vessel fittings				
Cathodic protection test				
Electrical continuity test				

Tested / Checked by Competent Person : (Name of Contractor's Representative)	Signature - ( )	Post : Tel. No. : Date :	
Contractor's Company Chop: Company Name:			

Testing and Examination of LPG Vaporiser under Part IV of

Gas Safety (Gas Supply) Regulations, Cap. 51 (EMSD/GSO/107)

GasSO Ref:

To : The Gas Authority

Address of Notifiable Gas Installations : _____

_____

I certify that the LPG vaporiser(s) installed at the above permit has satisfactorily been tested and examined under my supervision in accordance with the GasSO's requirements in order to comply with Part IV of the Gas Safety (Gas Supply) Regulations. The test and examination was carried out by:-

_____ of _____

on _____ .

Details of vaporiser(s) and test are as follows:-

	(1)	(2)	(3)
Make & Model			
Serial Number			
Date of Manufacture			
Vaporising Capacity (kg/hr)			
Pressure Vessel Code			
Test Pressure (kPa)			
Duration of Test (Hr)			
Pressure Relief Valve			
Overall Condition			

Tested / Checked by Competent Person : (Name of Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Contractor's Company Chop: Company Name:			

Testing and Examination of LPG Pipes under Part V of

Gas Safety (Gas Supply) Regulations, Cap.51 (EMSD/GSO/108)

GasSO Ref:

To : The Gas Authority

Address of Notifiable Gas Installations: _____

_____

I certify that all Liquefied Petroleum Gas pipework installed at the above permit is constructed of suitable materials and has been tested/examined in accordance with the GasSO's requirements. All pipework has been adequately protected against corrosion in accordance with the specifications. The test/examination was carried out by _____ of _____ on _____.

Details of pipework materials and tests are as follows:-

Section of Pipework	All liquid Lines	All High Pressure Vapour Lines before Primary Regulating System	All Medium Pressure Vapour Lines	All Low Pressure Vapour Lines
Pipeline specification & schedule				
Fitting specification & schedule				
Valve material and rating				
Testing medium				
Working pressure (kPa)				
Test pressure (kPa)				
Duration of test (Hr)				
Pressure setting of Hydrostatic Pressure Relief Valve (kPa)		N/A	N/A	N/A

Remarks: Pressure drop observed? Yes/No.

If 'Yes", please specify causes and remedial actions:- _____

Tested / Checked by Competent Person : (Name of Contractor's Representative)	Signature - ( )	Post :	
		Tel. No. :	
		Date :	
Contractor's Company Chop: Company Name:			