Strategic Management Board

ACS.VESLP1.LIMITED SCOPE SAFETY ASSESSMENT CRITERIA INITIAL & RE-ASSESSMENT DOMESTIC.LPG GAS STORAGE VESSELS

VESLP1	INITIAL & RE-ASSESSMENT

Introduction

Tests gas safety competence in gas storage vessel connections, controls and safety requirements. Sizing external above ground and unjointed buried below ground pipework with pipe volumes to BS 5482 for single LPG supplies.

CBs may adopt Competence and Criteria numbering different to that used in this document.

CB documentation may adopt wording for criteria different to that used in this document, provided the meaning is unaffected.

Range

Bulk storage with pipework diameter ≤ 32 mm and pipe volumes as BS 5482-1 ~~(TM83)~~ above ground, and un-jointed buried below ground, single supply.

Pre-requisites

Initial

CCLP1 EP, PD, LAV or RPH.

Re-assessment

CCLP1 EP, PD, LAV or RPH + VESLP1.

Exclusions

Positioning and siting gas storage vessels; testing commissioning filling and purging vessels; digging and refilling pits/trenches for underground storage and pipework; construction of vessel sites, foundations and structural vessel supports; pipework containing LPG in a liquefied state; electro-fusion jointing of PE pipework; handling delivery of coiled PE pipework; application of pipework protection; any work downstream of isolation valve to properties.

References and normative documents

MIs.

All relevant documents as listed in the Legislative, Normative & Informative Document List (LINDL), inc.:

- HSL56
- GIUSP
- BS 5482-1 & -2
- UKLPG COP 1 Parts 1&2
- UKLPG COP 22
- UKLPG User Information Sheet 014 (UIS) ~~TM 83.~~

ACS.SMB.003.ACRND identifies Normative Documents that should be held by ACs.

Abbreviations

AC. Assessment Centre
CB. Certification Body
ECV. Emergency control valve
GRP. Glass reinforced plastic
I. Initial
HP. High pressure
IP. Intermediate pressure
LDF. Leak detection fluid
LP. Low pressure
MIs. Manufacturer's/manufacturers' instructions
OP. Operating pressure
R. Re-assessment
Ref. Reference
UPSO. Under pressure safety cut-off.

PERFORMANCE CRITERIA		REF	I	R
1.	**external PE pipe - compression jointing:**			
(i)(a)	check PE pipe and fittings are complete, fit and suitable for use			✓
(i)(b)	dismantle and inspect compression joint			✓
(i)(c)	cut PE pipe squarely and de-burr using appropriate tools		✓	✓
(ii)	remove shavings using appropriate tools		✓	✓
(iii)	fit and position tube liner in pipe		✓	✓
(iv)	position anti shear/GRP sleeve of correct length in relation to joint		✓	✓
(v)	assemble compression joint		✓	✓
(vi)	check work carried out is gas tight		✓	✓
2.	select material for protecting PE pipe above ground (GRP etc.)		✓	✓
3.	use sealant for making threaded joints at IP and LP		✓	✓
4.	**tightness test new service pipework (OP > 37 mbar propane /28 mbar butane) with air or inert gas. BS 5482 -1 Test A3.2**			
(i)	close ECV at point of entry to dwelling		✓	✓
(ii)	isolate LPG supply side; plug or cap open ends		✓	✓
(iii)	assemble and zero pressure gauge (or bourdon gauge) and connect to pipework via inline testing tee		✓	✓
(iv)	raise pressure system to 1.5 times OP and close pressurising source		✓	✓
(v)	allow 5 minutes stabilisation and record gauge reading		✓	✓
(vi)	test pipework for a further 15 minutes		✓	✓
(vii)	observe reading. No discernible pressure drop allowed from pressure recorded at (v)		✓	✓
(viii)	if pressure has fallen, test each joint with LDF to locate leakage		✓	✓
(ix)	repair leak and repeat test from (iv) to (viii)		✓	✓
5.	**test new service pipework (OP = 37 mbar propane /28 mbar butane) with air or inert gas**			
(i)	disconnect/positively isolate gas appliances. Close ECV at point of entry to dwelling		✓	✓
(ii)	isolate LPG supply; plug or cap open ends		✓	✓
(iii)	assemble and zero pressure gauge. Connect to pipework via inline testing tee		✓	✓
(iv)	raise pressure in system to 45 mbar. Close pressurising source		✓	✓
(v)	allow 5 minutes stabilisation and record gauge reading		✓	✓
(vi)	test pipework for a further 2 minutes		✓	✓
(vii)	observe reading. No discernable pressure drop allowed from pressure recorded at (v)		✓	✓
(viii)	if pressure has fallen, test each joint with LDF to locate leakage		✓	✓
(ix)	repair leak and repeat test from (iv) to (viii). Purge pipework		✓	✓
6.	**test let-by on service pipework only**			
(i)	close ECV at point of entry to dwelling		✓	✓
(ii)	close supply control valve		✓	✓
(iii)	assemble and zero pressure gauge. Connect to pipework via inline testing tee		✓	✓
(iv)	open supply control valve gradually until regulator locks up		✓	✓
(v)	close supply control valve		✓	✓
(vi)	release pressure slowly through test tee to open air by a safe means until pressure reads approx. 5 mbar for LP or 100 mbar for IP		✓	✓
(vii)	reset UPSO if one is installed downstream of supply control valve		✓	✓

(viii)	allow 5 minutes stabilisation and record gauge reading		✓	✓
(ix)	test pipework for a further 2 minutes		✓	✓
(x)	take reading. No discernible pressure rise allowed from that in (viii)		✓	✓
(xi)	reset UPSO after 2 minute period and prior to recording second gauge reading, if procedure in (vii) has been applied		✓	✓
7.	**test LP service pipework from bulk tank outlet to ECV at dwelling, with LPG:**			
(i)	close ECV at point of entry to dwelling and close supply control valve		✓	✓
(ii)	assemble and zero pressure gauge. Connect to pipework via inline testing tee		✓	✓
(iii)	open supply control valve gradually until regulator locks up		✓	✓
(iv)	close supply control valve		✓	✓
(v)	release pressure slowly through test tee to open air by a safe means until pressure reads 30 mbar		✓	✓
(vi)	allow 5 minutes stabilisation and record gauge reading		✓	✓
(vii)	test pipework for a further 2 minutes		✓	✓
(viii)	take reading. No discernible pressure drop allowed from that in (vi)		✓	✓
(ix)	if a drop occurs, re-pressurise system, test all joints with LDF, repair source of leak, repeat test (i) – (viii)		✓	✓
(x)	test joints in pipe between final stage regulator at premises and ECV at lock up pressure, with LDF or a suitable gas detector		✓	✓
(xi)	remove test tee, re-establish gas supply, check joints in short HP section upstream of regulator (disturbed during test) with LDF or a suitable gas detector		✓	✓
(xii)	purge pipework to open air and commission		✓	✓
KNOWLEDGE AND UNDERSTANDING		**REF**	**I**	**R**
1.	types of copper, galvanized steel and PE pipe and fittings for above and below ground		✓	
2.	precautions when installing underground pipework - routing, bending, adjacent services, building connections, sleeving, depth of cover, marking and recording	UKLPG CoP 25 3.3.1 3.3.2	✓	
2a	Existing buried pipework	UKLPG CoP 25 3.3.3	✓	✓
2b	precautions for pipework crossing water courses.	3.3.5	✓	✓
2c	precautions for pipework crossing above ground.	3.3.6	✓	✓
3.	pipework support		✓	
4.	use of anti-shear sleeves		✓	
5.	pipe sizing – inc. theoretical exercise		✓	
6.	purging external above and below ground pipework of diameter ≤ 32 mm		✓	✓
7.	using manifolds to link gas storage vessels up to and including IP		✓	
8.	pressure to which let-by test is lowered for IP pipework		✓	✓
9.	pressure to which tightness testing pressure is lowered for IP pipework		✓	✓
10.	tightness testing time after stabilisation for IP pipework		✓	✓
11.	Awareness of UKLPG User Information Sheet 014		✓	✓
12	Examples of LPG specific Unsafe Situations related to Vessels i.e. Table 1 clauses 12 & 13	GIUSP	✓	✓
pressure gauges:				
13.	types of gauges for testing IP pipework		✓	✓
14.	correct reading of gauges		✓	
15.	use of electronic gauge (calibration)		✓	✓
16	locating escapes		✓	
17.	dealing with valves letting by		✓	
18.	identify permissible pressure drops for installation pipework		✓	✓
19.	**HSL56:**			
(i)	Reg.9 Emergency controls 9 (1) to (5)		✓	
(ii)	Reg.14 Regulators 14 (1) to (7)		✓	
20.	UKLPG CoP 1 Part 2 - Sections 3, 4 & 5		✓	
21.	UKLPG CoP 22 Sections 3 to 6 and Appendices 1 to 5		✓	