Strategic Management Board

ACS.VESLP1. LIMITED SCOPE SAFETY ASSESSMENT CRITERIA INITIAL & RE-ASSESSMENT

LPG
SINGLE GAS STORAGE VESSELS & SERVICE PIPEWORK

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 Service pipework for single LPG supplies.
VESLP1 is a pre-requisite to undertake VESLP2

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 connection of service pipework with a diameter ≤ 32 mm for PE , 35mm for Copper or 1 ¼ for Steel Pipe Installations above ground, and un-jointed buried below ground, single supply with pipe volumes < 0.035 m^3

Pre-requisites
Initial
CCLP1 EP, PD, LAV or RPH or CoNGLP1 PD, LAV or RPH

Re-assessment
CCLP1 EP, PD, LAV or RPH or CoNGLP1 PD, LAV or RPH + VESPL1

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 (LNIDL), inc.:

- HSL56
- GIUSP
- LGUK COP 1 Parts 1&2
- LGUK COP 22
- LGUK COP 25

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
LDF. Leak detection fluid
LP. Low pressure
MIs. Manufacturer's/manufacturers' instructions
MP Medium Pressure
OP. Operating pressure
R. Re-assessment
Ref. Reference
TTD Tightness Test Duration
UPSO. Under pressure safety cut-off.
VP. Vapour Pressure

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 correct sealant for making threaded joints OQ to cover jointing at different pressures in accordance to MI's		✓	✓
4. **strength test: new Metallic or PE service pipework Operating Pressure of 75mbar propane (with air or inert gas.) in accordance to LGUK CoP22**			
(I) close ECV at point of entry to dwelling		✓	✓
(ii) isolate LPG supply side; plug or cap open ends		✓	✓
(iii) assemble and zero a suitable pressure gauge ~~(or bourdon gauge)~~ and connect to pipework via inline testing tee		✓	✓
(iv) raise pressure to Strength Test Pressure (≤ 100mbar = 0.35bar) close pressurising source		✓	✓
(v) allow 5 minutes stabilisation and record gauge reading		✓	✓
(vi) Strength test pipework (STD) for a further ~~1~~5 minutes		✓	✓
(vii) observe reading. Ensure pressure drop is within allowance (20 %)		✓	✓
(viii) if pressure has fallen more than allowance, test each joint with LDF to locate leakage		✓	✓
4a strength test: new service pipework Operating Pressure of 750mbar (with air or inert gas) (PAWS)		✓	✓
5. tightness test new or existing LP service pipework (OP = 37 mbar propane) with pipe volumes < 0.35m³ in accordance to LGUK CoP22			
(i) Close ECV at point of entry to dwelling		✓	✓
(ii) isolate LPG supply;		✓	✓
(iii) assemble and zero pressure gauge. Connect to pipework via inline testing tee		✓	✓
(iv) activate UPSO & allow regulator to lock up		✓	✓
(v) Close pressurising source, pressure to required pressure (using Propane)		✓	✓

(iv) allow for stabilisation and record gauge reading.		✓	✓
(vi) Tightness test pipework for TTD		✓	✓
(vii) observe reading. No discernible pressure drop (GRM) 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)		✓	✓
(x) Complete let-by test **(Test A)**		✓	✓
(xi) Record test results		✓	✓
(v) Purge pipework (volumes $\leq$ 0.035m^3)		✓	✓
(vi) Remove test equipment and test with LDF		✓	✓
6. **Upstream Valve ~~test~~ let-by test(Test A)**		✓	✓
(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) Safely open supply control valve, activate UPSO and observe pressure gauge until the 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 between 7 and 10 mbar.		✓	✓
(vii) reset UPSO if one is installed downstream of supply control valve		✓	✓
(viii) after 2 mins take reading . No discernible pressure rise = GRM < 0.25mbar (water gauge) for electronic gauges less than (GRM)		✓	✓
~~(ix)~~			
(x) OQ Actions to be taken to cover a failed let by test		✓	✓
(xi) Purge pipework (volumes $\leq$ 0.035m^3)		✓	✓
(xii) Remove test equipment and test with LDF		✓	✓
(xiii) **tightness test new MP service pipework** (Paws)		✓	✓

KNOWLEDGE AND UNDERSTANDING	**REF**	**I**	**R**
1. types of copper, galvanized steel, stainless steel, proprietary systems 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		✓	
2a Existing metallic buried service pipework		✓	✓
2b precautions for pipework crossing water courses.		✓	✓
2c precautions for pipework crossing above ground.		✓	✓
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. Pipe Material used in connecting manifolds to link gas storage vessels, up to and including Vessel pressure ~~IP~~		✓	
8. pressure to which let-by test is lowered to for pipework		✓	✓
9. Tightness Testing methods		✓	✓
10. identify tightness testing duration ~~time~~ (TTD) after stabilisation for existing PE service ~~IP~~ pipework e.g. PE size 32mm x 40 mtr Length GRM = 0.5		✓	✓
12 Examples of LPG specific Unsafe Situations related to Vessels i.e. Table 1 clauses 12 & 13		✓	✓
12 a Identify when strength Testing of Service pipework (New or Modified) is required.		✓	✓
12 b Where or when it would not be safe to conduct a direct purge		✓	✓
pressure gauges:			
13. types of gauges for testing service 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 service pipework		✓	✓
19. **HSL56:**			
(i) Reg.9 Emergency controls 9 (1) to (5)		✓	
(ii) Reg.14 Regulators 14 (1) to (7)		✓	
20. Liquid Gas UK CoP 1 Part 2 - Sections 3, 4 & 5		✓	
21. Liquid Gas UK CoP 22 Sections: 4 5 & 6 4. Construction of Proprietary Pipework Assemblies 5. Special Requirements for Pipework installed below ground level (buried) 6. Hose and Hose Assemblies		✓	✓
22. Requirements for Pressure Regulators, Automatic Shut off Controls and Safety Devices		✓	✓
23 supplying commissioning documentation to responsible person		✓	✓