

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 \leq 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; electrofusion 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.

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 (ii) remove shavings using appropriate tools (iii) remove shavings using appropriate tools (iv) position anti shear/GRP sleeve of correct length in relation to joint (v) assemble compression joint (vi) 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 (v) test pipework for a further 15 minutes (vi) observe reading. No discernible pressure drop allowed from pressure recorded at (v) repair leak and repeat test from (iv) to (viii) (vii) ripressure has fallen, test each joint with LDF to locate leakage (iv) repair leak and repeat test from (iv) to (viii) (vi) repair leak and repeat test from (iv) to (viii) (vi) repair leak and repeat test from (iv) to (viii) (vi) raise pressure and propeat test from (iv) to (viii) (vi) raise pressure in system to 45 mbar. Close pressurising source (v) allow 5 minutes stabilisation and record gauge reading (v) repair leak and repeat test from (iv) to (viii) (vi) resesure has fallen, test each joint with LDF to locate leakage (v) discover reading. No discernable pressure drop allowed from pressure recorded at (v) repair leak and repeat test from (iv) to (viii) (vi) repair leak and repeat test from (iv) to (viii) (vi) resesure has fallen, test each joint with LDF to locate leakage (v) repair leak and repeat te	PERFO	DRMANCE CRITERIA	REF	I	R
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(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 (vi) 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 Supply control valve (ii) close supply control valve (iii) assemble and zero pressure gauge. Connect to pipework via inline testing tee (iv) open supply control valve (vi) 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	(v)			✓	✓
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(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)			✓	✓
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				√	✓
(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		test new service pipework (OP = 37 mbar propane /28 mbar butane) with			
(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	(i)			✓	√
(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				√	√
(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				√	✓
(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	_ `			✓	✓
(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) 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	(vi)			✓	✓
(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 ✓ ✓	(vii)			√	✓
(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)			✓	✓
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	_ `			✓	✓
(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 ✓ ✓	(i)			✓	✓
(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				✓	✓
(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 ✓				✓	✓
(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 ✓	(iv)			✓	✓
reads approx. 5 mbar for LP or 100 mbar for IP (vii) reset UPSO if one is installed downstream of supply control valve ✓ ✓	(v)	close supply control valve		✓	✓
(vii) reset UPSO if one is installed downstream of supply control valve	(vi)			✓	✓
				✓	✓

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services, building connections, sleeving, depth of cover, marking and recording 2a Existing buried pipework	REF UKLPG CoP 25 3.3.1 3.3.2	\(\frac{1}{\sqrt{1}} \)	√ √ √ √ √ √ √ √ √ √ √ √ √ √ √ √ √ √ √
(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 (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) purge pipework to open air and commission KNOWLEDGE AND UNDERSTANDING 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	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	\(\sqrt{1} \)
(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 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	\(\sqrt{1} \)	\frac{1}{\sqrt{1}}
(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 assemble and zero pressure gauge. Connect to pipework via inline testing tee (ii) 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) task 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 KNOWLEGE AND UNDERSTANDING 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	\(\sqrt{1} \)	\frac{1}{\sqrt{1}}
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 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		\frac{1}{\sqrt{1}}
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 assemble and zero pressure gauge. Connect to pipework via inline testing tee (ii) 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 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		\frac{1}{\sqrt{1}}
(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 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		\frac{1}{\sqrt{1}}
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services, building connections, sleeving, depth of cover, marking and recording 2a Existing buried pipework	CoP 25 3.3.1		
2a Existing buried pipework	3.3.1	✓	
2a Existing buried pipework			
2a Existing buried pipework	3.3.2		
	1		
	UKLPG	√	✓
	CoP 25	•	
	3.3.3		
	3.3.5	✓	✓
	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		√	1
9. pressure to which tightness testing pressure is lowered for IP pipework		·	1
10. tightness testing time after stabilisation for IP pipework		√	·
		√	<u>'</u>
	CTUCD	·	+-
i.e. Table 1 clauses 12 & 13		•	•
pressure gauges:	GIUSP		
	GIUSP		
1.13 types of gauges for testing ID pinework	GIUSP	1	√
13. types of gauges for testing IP pipework	GIUSP	✓ ✓	✓
14. correct reading of gauges	GIUSP	√	
14. correct reading of gauges 15. use of electronic gauge (calibration)	GIUSP	✓	✓ ✓
14. correct reading of gauges 15. use of electronic gauge (calibration) 16 locating escapes	GIUSP	✓ ✓ ✓	
14. correct reading of gauges 15. use of electronic gauge (calibration) 16 locating escapes 17. dealing with valves letting by	GIUSP	√ √ √	√
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	GIUSP	✓ ✓ ✓	
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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)	GIUSP	✓ ✓ ✓ ✓	√
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)	GIUSP	✓ ✓ ✓ ✓ ✓	√
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)	GIOSP	✓ ✓ ✓ ✓	√