Performance Monitoring System for Class 2 competent person

on Inspection and Certification of LPG Compounds and Cylinder Stores

Gas Authority EMSD

Performance Monitoring System (PMS) on Class 2 competent person (CP)

1. Background

Under the Gas Safety Ordinance, Cap. 51, the Owner of a Notifiable Gas Installation (NGI) is required to employ a person who is competent, by virtue of his training and substantial practical experience, to conduct inspection on the NGI. The Gas Standards Office (GasSO) has established a list of competent persons (CP) since 1996 to facilitate NGI Owners in fulfilling their duties as stipulated in Regulation 6B and 6C of the Gas Safety (Gas Supply) Regulations.

Currently, the Gas Standards Office administers the following lists of six classes of CPs, viz:

Class 1 CP - Testing and certification of LPG cylinders, tanks, vaporisers and mains;

Class 2 CP - Inspection and certification of LPG compounds and cylinder stores and filling stations;

Class 3 CP - Examination and certification of gasholders;

Class 4 CP - Installation, commissioning and maintenance of LPG tanks, vaporisers, pipework, pressure regulators and associated equipment in LPG compounds and cylinder stores as well as LPG mains;

Class 5 CP - Installation, commissioning and maintenance of LPG pipework, pressure regulators and associated equipment in LPG vapour withdraw cylinder stores as well as LPG mains;

Class 6 CP - Repair and maintenance of LPG vehicles

At present, the performance of each practicing Class 1 and Class 2 CP is audited at a frequency of once every 3 months. An NGI for an audit inspection is selected on a manual basis among the inspection reports prepared by a particular CP during a 3 months period. If possible, arrangement may also be made for Engineer/Inspector to witness an annual inspection carried out by a CP.

2. Objective

The objective of this performance monitoring system for Class 2 CP is to establish a more systematic approach on monitoring their performance.

3. Performance Monitoring System (PMS)

(a) With a more systematic approach in monitoring the performance of Class 2 CP, the PMS is aimed at:

(i) Raising the quality of inspection and reporting in the Annual Inspection report (Form 109 & Form 109A); and

(ii) Acting as a tool to measure the performance of Class 2 CP so as to identify those under-performer.

(b) The PMS is developed based upon the requirements of the following Ordinance and Code of Practices:

(i) Gas Safety Ordinance (Cap. 51) and related Regulations;

(ii) Code of Practice (COP) for Hong Kong LPG Industry Module 1 LPG Compounds and Cylinder Stores Issue 2 September 1999 edition;

(iii) COP for Hong Kong LPG Industry Module 7 Operating Procedures for Emergencies for LPG Compounds and Cylinder Stores Issue 1 April 2000 edition.

(iv) COP for Liquefied Petroleum Gas Filling Stations in Hong Kong Issue 2 November 2007 edition.

(c) The PMS operates as follows:

(i) The performance of each practicing CP is monitored by auditing his/her inspection findings through an audit inspection to be carried out by Engineer/Inspector.

(ii) An audit inspection on each practicing CP is conducted at a frequency of once every 3 months. Under the normal selection process, an NGI is selected on a manual basis among the inspection reports prepared by a particular CP every 3 months for the audit inspection. Senior Engineer shall endorse the selection. The NGI Owner/CP shall be informed of the audit inspection.

(iii) The audit inspection is focused on the following areas:

- LPG compound/cylinder store/filling station related items;
- Tank/mini-tank/cylinder related items;
- Vaporiser related items;
- Pipework related items;
- Documentation related items.

(iv) The performance of the CP is measured by assessing the degree of non-compliance against the Critical Compliance List as set out in Section 4 and the Inspection Requirements (IR) as set out in Section 5 of the PMS. The assessment mechanism is as follows:

(a) One non-compliance (N/C) is given to a CP when in the opinion of Engineer/Inspector that the CP has failed to observe/identify any one item laid down in the Critical Compliance List during an audit inspection;

(b) Demerit points are accorded to a CP when in the opinion of Engineer/Inspector that the CP has failed to observe/identify items laid down in the IR during an audit inspection.

(v) N/C and demerit points are assigned by taking into account the following factors:

(a) Compliance with relevant Ordinance, Regulations and Code of Practices; and

(b) Degree of severity and potential impact to safety.

(vi) CP shall be notified in writing on the N/C or demerit points accorded in each audit within 14 working days from the date of inspection.

(vii) In the event on any dispute on the result of the N/C or demerit points accorded, CP may appeal to the Assistant Director, Gas and General Legislation (AD/GGL), Electrical & Mechanical Services Department, HKSAR Government within 14 working days from the notification date. The decision made by the AD/GGL shall be final.

(viii) Each N/C or demerit points shall remain valid for a 12 months rolling period. This rolling period is referred to as the 'specified period'.

(ix) The PMS has three levels of action towards any under-performed CP.

(a) The first level of action will be taken if

1. A CP has been given one N/C within a specified period; or
2. A CP has accumulated 31 to 60 demerit points within a specified period.

Under the first level of action, a reminder will be issued to the CP pinpointing his/her unsatisfactory performance. Subsequent audit inspections will be closely monitored by GasSO, and a Senior Inspector may need to carry out the audit inspection if necessary.

(b) The second level of action will be taken if

1. A CP has been given two N/Cs within a specified period; or
2. A CP has been given one N/C and has accumulated 31 to 60 demerit points within a specified period; or
3. A CP has accumulated 61 to 90 demerit points within a specified period.

Under the second level of action, a warning letter will be issued to the CP instructing him/her to immediately improve his/her performance and advising him/her on the possible removal from the Class 2 CP list.

Subsequent audit inspections on this CP may need to be conducted by a GasSO Engineer and Inspector.

(c) The third level of action will be taken if

1. A CP has been given three N/Cs within a specified period; or
2. A CP has been given two N/Cs and has accumulated 31 to 60 demerit points within a specified period; or
3. A CP has been given one N/C and has accumulated 61 to 90 demerit points within a specified period; or
4. A CP has accumulated 91 or more demerit points within a specified period.

Under the third level of action, a letter will be issued to the CP informing him/her that his/her name has been temporarily removed from the list of Class 2 CP kept by EMSD for a period of 6 months. He/she will also be requested to suspend from all Class 2 CP related inspection works during the period.

(d) The CP may apply for uplifting the 'temporary-removal' status from GasSO at the end of the removal period. If accepted, his/her name will be re-listed in the Class 2 CP list kept by EMSD.

(x) Once the temporary removal from the CP list action is taken, all the N/C and demerit points accorded to the CP will be cleared.

4. Critical Compliance List for Class 2 CP audit inspections

Item No.	Critical Item Description	Form 109 ≠ Ref
	LPG Compound/Cylinder Store related items	
A	Failed to conduct the annual inspection in person.	Section IV
	Tank/Mini-tank/Cylinder related items	
B	Failed to identify that LPG tank/mini-tank is overdue for revalidation.	E9
C	Failed to observe the lack of safety devices as stipulated in COP Module 1 Clause 4.3.3.2 for LPG cylinder manifold.	D1
	Vaporiser related items	
D	Failed to identify that LPG vaporiser(s) is overdue for revalidation.	C5
	Documentation related items	
E	Failed to check the availability of the following records from NGI Owners: (i) Valid testing certificates/revalidation record of LPG tank(s);	E9
	(iii) Valid testing certificates/revalidation record of LPG vaporiser(s).	C5

Remark ≠ Form 109 revision 10/2016

5. Inspection Requirements (IR) for Class 2 CP

Item No.	Requirement Description	Demerit Points	Form 109 ≠ Ref
LPG Compound/Cylinder Store related Items			
1a)	Failed to observe that electrical equipment installed within compound/store is not of the appropriate hazardous zoning.	5	A8
1b)	Failed to observe the lack of fire extinguishers (FE) as stipulated in COP Module 1 Clause 5.2 or FE requires re-filling.	5	A6
1c)	Failed to observe adverse site conditions e.g. adverse conditions of structures/fitments within the LPG compound/store, new structures constructed that impaired ventilation of the LPG compound/store and/or introduced fixed sources of ignition within safety distance, etc.	5	A1, C2 & F2
1d)	Failed to observe the catchment pits/drains/gully covers/within the required distance are not properly sealed.	5	A5
1e)	Failed to observe that fence/boundary wall/gates are broken/lack of proper maintenance.	5	A3
1f)	Failed to observe that the LPG trap is not functioning properly.	5	A5
1g)	Failed to observe that irrelevant/combustive materials are cluttered inside/outside compound/store.	5	A4, C1 or F1
1h)	Failed to observe that relevant warning signs/emergency notices/system schematic diagram/pipeline routing drawing where applicable are missing/faded/damaged.	5	A7
1i)	Failed to observe that ventilation/explosion relief apertures are blocked/broken.	5	C2 or F2
1j)	Failed to observe that sterile areas are not properly maintained/demarcating yellow lines faded or missing.	3	A2
1k)	Failed to observe item indicated in COP Module 1 & 7 but is not mentioned within the IR.	N/A	A8, B3, C7, D6, E12 or F5

Tank/Mini-tank/Cylinder related Items			
2a)	Failed to observe adverse external conditions of above ground tank including where applicable, severe corrosion/pittings and crack at the tank surface/paint blisters/damage or cracking of protection coating/leakage of LPG/severe corrosion of bolts and nuts/damage of corrosion protection and adverse conditions of tank support/inadequate expansion and contraction allowance of tank mounting arrangement/adverse conditions of support plinth structures, etc.	15	E6
2b)	Failed to identify that PRV of LPG tank is overdue for reconditioning/replacement.	15	E5
2c)	Failed to observe, where applicable, adverse conditions of the following safety devices: (i) Road tanker break-a-away coupling/loading arm;	10 (for each set of safety device)	E8
	(ii) Excess Flow valve/shut-off valve at liquid/vapour draw off lines per COP Module 1 Clause 4.2.1.9 b) & c);		D1
	(iii) Filler valve/non-return valve/shut-off valve/excess flow valve at filling connection per COP Module 1 Clause 4.2.1.9 e), 4.2.7.3 & 4.2.7.4.		D1
2d)	Failed to observe that pigtails without self-closing valves are being used on LPG cylinder manifold (Ref. COP Module 1 Clause 4.3.2.4).	10	D1
2e)	Failed to observe ingress of water into tank chamber.	5	E3
2f)	Failed to observe the provision/adverse conditions of tank chamber accessories e.g. rain caps, chamber covers, etc.	5	E4
2g)	Failed to observe the adverse conditions of earthing/bonding connection.	5	E7
2h)	Failed to observe that LPG tank data plate or sign/marking on the tank last test date is missing/not legible.	3	B1
Vaporiser related items			
3a)	Failed to identify that PRV of LPG vaporiser is overdue for reconditioning/replacement.	15	C4
3b)	Failed to observe that a vaporiser is defective or malfunctioned including heating elements not operational/LPG leakage or heavy end dripping at vaporiser connecting pipework/excessive pressure at vaporiser outlet, etc. or a defective or malfunctioned vaporiser is not properly isolated from the system either electrically or mechanically.	10	C3

3c)	Failed to observe adverse conditions of vaporiser e.g. water leakage/broken water level sight glass/mounting & body panel seriously corroded or broken/defective insulation/malfunctioned thermometer, etc.	5	C3
3d)	Failed to observe that the vaporiser data plate or sign/marking on vaporiser last test date is missing/not legible.	3	B1
	Pipework related items		
4a)	Failed to identify that underground LPG pipework is overdue for re-testing.	15	D4
4b)	Failed to identify that pigtails at cylinder manifold are overdue for replacement.	15	F3
4c)	Failed to observe that the active/monitor regulators are defective or malfunctioned including LPG leakage or heavy end dripping at connecting pipework/LPG venting from regulator relief aperture/abnormal noise during actuation/abnormal regulator outlet pressure, etc.	10	D1
4d)	Failed to observe that the main shut-off valve is not accessible/operable	10	D1
4e)	Failed to observe that the valve protection enclosure with identification plate and functional markings is damage/missing/glass front broken.	5	D3
4f)	Failed to observe that the LPG pipework in the valve pit (within LPG compound/store) is seriously corroded/immersed in water ingress.	5	D1
4g)	Failed to observe that the underground valve pit (within LPG compound/store) is not properly sealed.	5	D1
4h)	Failed to observe that pipework/fittings do not conform to the requirements per COP Module 1 Clause 4.6.2.	N/A	D1
4i)	Failed to observe that HPRV is not installed in between isolated sections of liquid LPG lines.	5	D1
4j)	Failed to observe that remote control emergency shut-off valves for LPG tank liquid/vapour outlets or vaporiser inlet valves are not in a 'ready-to-operate' condition.	5	D1
4k)	Failed to observe that pressure gauge is missing before and after each pressure reducing stage at LPG vapour lines (this includes auto-change over device with pressure reducing function).	5	D1

4l	Failed to observe that the indicator or changeover function of the automatic changeover device in a cylinder store is not functioning properly.	5	D1
4m)	Failed to observe that pressure gauge/content gauge/temperature gauge is broken/malfunctioned	5	D1
4n)	Failed to observe that LPG pipework is not properly protected against corrosion and/or is seriously corroded (particularly at the underside of LPG pipe/mounting support point).	5	D1
4o)	Failed to observe that annular space between pipe sleeve & LPG pipe is not properly sealed.	3	D1
4p)	Failed to observe adverse conditions of PRV vent pipes.	3	C4 & E5
4q)	Failed to observe that the identification labels or tags for LPG pipework/valve earthing terminals are faded, missing, damaged or broken.	3	D2
	Documentation related items		
5a)	Failed to check the availability of the following records from NGI Owners: (i) Valid testing certificate on underground LPG pipework;	15	D4
	(ii) The last 2 valid testing records/reports on LPG tank cathodic protection system;	10	E10
	(iii) Valid maintenance certificate on the fire fighting facilities/fire extinguishers/gas detection system installed;	10	A6, C6, E11 or F4
	(iv) Valid testing report on bonding & earthing connection continuity.	10	E7
5b)	Failed to recommend remedial works with suggestion on completion time frame in Section III A) for each item identified in Section II of the Annual Inspection Report.	5	Section III
5c)	Failed to verify relevant alteration records/updating of schematic drawing or emergency contact.	5	B2
5d)	Failed to complete a legible Annual Inspection Report.	3	Section III
5e)	Failed to indicate or indicate incorrectly in the Annual Inspection Report the followings tests/revalidation records; (i) Date(s) of LPG tank(s) revalidation with corresponding tank serial number(s);	3 (for each record)	All in Section IIb
	(ii) Date(s) of LPG tank PRV(s) test with corresponding tank serial number(s);		
	(iii) Date(s) of the last two cathodic protection tests with		

	corresponding tank serial number(s);		
	(iv) Date(s) of LPG vaporiser(s) revalidation with corresponding vaporiser serial number(s);		
	(v) Date(s) of LPG vaporiser(s) PRV test with corresponding vaporiser serial number(s);		
	(vi) Date of underground LPG pipework pressure test;		

6. PMS Implementation and Review

The performance monitoring system will be implemented after consultation with all listed Class 2 CP. To facilitate the CPs in performing their duties under the PMS, a new paragraph will be added in our annual letters to NGI Owners reminding them, inter alia, to provide relevant maintenance records to the CPs appointed by them for the annual inspection.

After the PMS has been put into operations for 12 months, a review will be conducted to assess its effectiveness and consider any amendment necessary.

Gas Standards Office
Electrical & Mechanical Services Department
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