Performance Monitoring System for Class 2 competent person

on Inspection and Certification of LPG Filling Stations

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, 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; and

(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 109A ≠ Ref
	LPG Filling Station related items	
A	Failed to conduct the annual inspection in person.	Section IV
	Tank related items	
B	Failed to identify that LPG tank/mini-tank is overdue for revalidation.	F6
	Documentation related items	
C	Failed to check the availability of the following records from NGI Owners: (i) Valid testing certificates/revalidation record of LPG tank(s);	F6

Remark ≠ Form 109A revision 11/07

5. Inspection Requirements (IR) for Class 2 CP

Item No.	Requirement Description	Demerit Points	Form 109A ≠Ref
LPG Filling Station related items			
1a)	Failed to observe that electrical equipment installed within compound/store/filling station is not of the appropriate hazardous zoning.	5	M1
1b)	Failed to observe adverse site conditions e.g. adverse conditions of structures/fitments within the LPG compound/store/filling station, new structures constructed that impaired ventilation of the LPG compound/store/filling station and/or introduced fixed sources of ignition within safety distance, etc.	5	A1
1c)	Failed to observe the catchment pits/drains/gully covers/within the required distance are not properly sealed.	5	A3
1d)	Failed to observe that fence/boundary wall/gates are broken/lack of proper maintenance.	5	A2
1e)	Failed to observe that the LPG trap is not functioning properly.	5	A3
1f)	Failed to observe that irrelevant/combustive materials are cluttered inside/outside LPG filling station.	5	B1
1g)	Failed to observe that relevant warning signs/emergency notices/system schematic diagram/pipeline routing drawing where applicable are missing/faded/damaged.	5	A5
1h)	Failed to observe that sterile areas are not properly maintained/demarcating yellow lines faded or missing.	3	A6, D2
1i)	Failed to observe alteration and/or adverse conditions of alteration/separation distance/crash barriers.	5	D1, D2, D3
1j)	Failed to observe adverse conditions of gas detection system.	5	L1
1k)	Failed to observe adverse conditions of accumulation of gas and water.	5	I2, I3
1l)	Failed to observe adverse conditions of emergency shut-down system.	5	J1
1m)	Failed to observe adverse conditions of fire services installations and equipment as stipulated in Section 10 of COP for LPG Filling Stations in Hong Kong.	5	A4, K1

1n)	Failed to observe adverse conditions of electrical and instrumentation installation	5	M1
1o)	Failed to observe item indicated in COP for LPG Filling Stations in Hong Kong but is not mentioned within the IR.	N/A	A6, C9, D4, E6, F8, G7, H2, I4, J2, K2, L2, M2
	Underground Tank related items		
2a)	Failed to identify that PRV of LPG underground tank is overdue for reconditioning/replacement.	15	F4
2b)	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)	F8
	(ii) Failed to observe adverse conditions of pipework/valves/gauges/fittings.		E1
2c)	Failed to observe that emergency shut-down system without self-closing valves is being used according to Section 5.14 of COP for LPG Filling Stations in Hong Kong.	10	J1
2d)	Failed to observe ingress of water into underground tank chamber.	5	I1
2e)	Failed to observe the provision/adverse conditions of underground tank chamber accessories e.g. rain caps, chamber covers, etc.	5	F3
2f)	Failed to observe the adverse conditions of earthing/bonding connection.	5	F5
2g)	Failed to observe adverse conditions of valve turrets.	5	F1
2h)	Failed to observe adverse conditions of pipes and fittings inside turrets.	5	F2
2i)	Failed to observe adverse conditions, sound and/or vibration of LPG pumps.	5	H1, H2
2j)	Failed to observe that LPG underground tank data plate or sign/marking on the tank last test date is missing/not legible.	3	C1, F6
	Pipework related items		
3a)	Failed to identify that underground LPG pipework is overdue for re-testing.	15	E6
3b)	Failed to observe that the main shut-off valve is not accessible/operable	10	E1

3c)	Failed to observe that the LPG pipework in the valve pit within the LPG filling station is seriously corroded/immersed in water ingress.	5	E1
3d)	Failed to observe that the underground valve pit within LPG filling station is not properly sealed.	5	E1
3e)	Failed to observe that pipework/fittings do not conform to the requirements per Section 5.12 of COP for LPG Filling Stations in Hong Kong.	N/A	E1
3f)	Failed to observe that HPRV is not installed in between isolated sections of liquid LPG lines.	5	E1, E5
3g)	Failed to observe that remote control emergency shut-off valves for LPG underground tank liquid/vapour outlets are not in a 'ready-to-operate' condition.	5	J1
3h)	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	E1
3i)	Failed to observe that pressure gauge/content gauge is broken/malfunctioned.	5	E1
3j)	Failed to observe adverse conditions of identification and functional markings of main control valve.	5	E3
3k)	Failed to observe adverse conditions during visual examination and leak test of pipes and fittings	5	E4
3l)	Failed to observe that annular space between pipe sleeve & LPG pipe is not properly sealed.	3	E1
3m)	Failed to observe adverse conditions of PRV vent pipes.	3	F4
3n)	Failed to observe that the identification labels or tags for LPG pipework/valve earthing terminals are faded, missing, damaged or broken.	3	E2
3o)	Failed to observe that pressure gauge is missing.	3	E1
LPG dispenser related items			
4a)	Failed to observe adverse general conditions of dispenser, dispensing hose, breakaway coupling and nozzle.	5	G1
4b)	Failed to observe adverse conditions during visual examination and leak test of internal pipes and fittings of dispenser	5	G2
4c)	Failed to observe adverse conditions during visual examination and leak test of dispenser hose and breakaway coupling	5	G3

4d)	Failed to observe adverse conditions during visual examination and leak test of dispensing nozzle	5	G4
4e)	Failed to observe adverse conditions of protective shearing device.	5	G5
4f)	Failed to observe adverse conditions of support of dispensing hose	5	G6
	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	C9
	(ii) The last 2 valid testing records/reports on LPG tank cathodic protection system;	10	F7
	(iii) Valid maintenance certificate on the fire fighting facilities/fire extinguishers/gas detection system installed;	10	C4, C5
	(iv) Valid testing report on insulation test of LPG pump motor;	10	C2
	(v) Valid report on emergency shut-down system test;	10	C3
	(vi) Valid report (Form WR2) on periodic test of fixed electrical installation;	10	C6
	(vii) Valid report on content/pressure gauge/switch test;	10	C7
	(viii) Valid testing report on earthing/bonding connection, insulation joints and lightning protection.	10	C8
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	C1, C9
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 underground tank(s) revalidation with corresponding tank serial number(s);	3 (for each record)	All in Section IIa & 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 of underground LPG pipework pressure test;		
	(v) Date of insulation test of LPG pump motor;		
	(vi) Date of emergency shut-down system test;		
	(vii) Date of gas detection system test;		
	(viii) Date of periodic test (Form WR2) of fixed installation;		
	(ix) Date of periodic inspection and test of fire service installations and equipment (Form FS251)		
	(x) Date of content/pressure gauge/switch test;		
	(xi) Date of test of earthing/bonding connection, insulation joints and lightning protection.		

Remark ≠ Form 109A revision 11/07

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
14 September 2020