

GUIDE ON PIPED GAS SAFETY MANAGEMENT PLAN AND PROGRAMME



The Energy Commission (ST) was established on May 1st, 2001, under the Energy Commission Act 2001. The ST became fully operational in 2002 and is responsible for regulating the electricity and piped gas supply industries in the Peninsular and Sabah, delicately balancing the priorities of energy providers and the needs of consumers. The ST is committed in ensuring reliable, safe and cost effective supply of electricity and piped gas to all its consumers.

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1.0 INTRODUCTION

The Gas Supply (Amendment) Act 2016 (Act A1515) was gazetted on the 9 September 2016 and Gas Supply (Amendment) Regulations 2017 come into operation on the 16 February 2017.

Piped gas safety management system is a framework of processes and procedures developed and applied to ensure that an organization can fulfil all tasks required to achieve continuous improvement in piped gas safety performance.

2.0 OBJECTIVES

- 2.1 To serve as a guide for licensees, owners, tenants, managers, operators and contractors in the preparation of safety management plans and programmes.
- 2.2 To ensure that the safety management plans and programmes that are prepared by licensees, owners, tenants, managers, operators and contractors address all elements of an effective gas safety management system namely policy, organising, planning and implementation, risk control measures, performance evaluation and action for improvement.
- 2.3 To ensure that gas safety management plans and programmes are suitably and systematically developed and structured for mitigation of risks due to the supply of gas.
- 2.4 To assist in evaluating the level of performance and compliance with respect to piped gas safety management plan and programme of licensees, owners, tenants, management, operators and contractors.

3.0 DEFINITIONS

In this Guide, unless the context otherwise requires: -

“safety” means the obviation of danger to the general public or to property in respect of distribution pipelines or piping system;

“safety management plan and programme” means the safety, reliability, maintenance and technical management plan in respect of gas installation and supply.

4.0 REGULATORY REQUIREMENTS

The respective provisions that need to be complied with the Gas Supply (Amendment) Act 2016 (Act A1515) are as follows: -

Section 1, under Subsection 3A. “This Act shall apply to, in respect of safety and technical matters, the delivery of gas to consumers –

- (a) from the distribution pipelines or piping system to any gas appliance in the premises of a consumer; or
- (b) from the filling connection of a storage tank or cylinder specifically used for reticulation or deliver of gas to any gas appliance in the premises of a consumer.

5.0 WHO ARE RESPONSIBLE?

This guide is intended to assist the following responsible parties in fulfilling their safety responsibilities with respect to the preparation and implementation of gas safety management plan and programme.

- 5.1 Distribution Licensees;
- 5.2 Retail Licensees;
- 5.3 Private Gas Licensees;
- 5.4 Owners, Tenants, Responsible Persons and Operators of Gas Installations;
- 5.5 Gas Contractors, Competent Persons and Workers working on Gas Installations.

6.0 SAFETY MANAGEMENT PLAN AND PROGRAMME

A Safety Management Plan and Programme for Gas Installation that is required for managing gas risks should incorporate essential management elements of an effective safety management system as follows. However, the specific plan and programme may vary in their details depending on the nature of the gas works and risks at the particular installation.

6.1 POLICY, PLAN AND PROGRAMME

6.1.1 Gas Safety Policy, Plan and Programme:

The licensee has a written policy, plan and programme to ensure gas safety. The policy must be signed by the top management, reflects management commitment to implement the plan and programme for the safety of employees and others who may be affected by the gas supply activities. The objectives, responsibilities and arrangements of gas safety management are clearly written.

6.1.2 Documentation:

Documents related to the gas safety management system of the licensee are maintained and readily accessible to employees and contractors. The documents contain information on gas safety policy, plan and programme, risks identification and control measures, legal and regulatory requirements, and other relevant internal guidelines.

6.2 ORGANISING

6.2.1 Responsibility:

The top management of the licensee demonstrates leadership for gas safety plans, programmes and activities, and clearly assigns duties responsibility for gas safety management.

6.2.2 Competence:

Anyone who directly will be involved and exposed to gas risks are given adequate training and information on gas safety. The licensee complies with the requirements under the Gas Supply Act 1993 and Gas Supply Regulations 1997 pertaining to the need to engage registered gas competent persons and contractors to perform gas works according to their categories of competency.

6.2.3 Communication:

There is a communication programme to disseminate information on gas risks and control measures to employees and others who may be affected by the risks. Warning signs are used to identify, warn and advise on gas risks. Suitable administrative arrangements are in place for management to receive and follow up on suggestions and complaints on gas safety matters.

6.3 PLANNING AND IMPLEMENTATION

6.3.1 Planning and Implementation:

The licensee's gas safety management plan and programme supports:

- a. the Gas Supply Act 1993, Gas Supply Regulations 1997, Codes and Guidelines issued by the Energy Commission;
- b. the implementation of all elements of the gas safety management system;
- c. the continual improvements in gas safety performance.

The plan and programme provides details on tasks and activities to be implemented and the responsible personnel/units, budgets and targets in efforts to eliminate, minimize and control gas risks of the gas installation.

6.4 RISK CONTROL MEASURES

6.4.1 Identification, Evaluation and Control of Risks:

Hazards and risks to workers and public are identified, evaluated and controlled on an ongoing basis. ('Hazard' is a potential source of harm or adverse health effect on a person or persons).

'Risk' is the likelihood that a person may be harmed or suffers adverse health effects if exposed to a hazard. Implementation of preventive and corrective control measures for hazards/risks are done according to the hierarchy of risk control as follows:

-
- a. Elimination (completely eliminate the hazard/risk at source);
 - b. Substitution (substitute the hazardous activity, process or equipment with a less hazardous one);
 - c. Engineering Controls (isolate the hazard from people who could be harmed);
 - d. Administrative Controls (change the way people work or prevent people's exposure to hazards/risks such as by implementing a permit-to-work system);
 - e. Personal Protective Equipment (PPE) (provide PPE to cover and protect an individual person from hazards. PPE can be used as a temporary control measure until more effective control measures are provided. In most cases, a combination of other control measures and PPE can effectively control the risks).

6.4.2 Permit-To-Work System:

A written Permit-To-Work (PTW) system with suitable procedures is effectively implemented for high risk gas works that involves working with live equipment and systems.

(A 'permit-to-work' is a formal, written, safe system of work to control potentially hazardous activities. It aims to remove both unsafe conditions and human error by imposing a formal system which requires formal action. The permit details the work to be done and the precautions to be taken. It should state safety precautions to be taken before work can start and the authorizing person should only sign and date the permit when he is satisfied that all precautionary measures have been taken. It should only be in place for a limited duration, be clearly dated and with specific conditions attached. Permits should be issued, checked and signed off as being completed by someone competent to do so, and who is not involved in undertaking the work).

6.4.3 Emergency Preparedness:

A written emergency preparedness plan and programme for the licensee is available and made known to employees and regularly rehearsed. The Plan details on how the licensee and its employees deal with or manage gas emergencies. It spells out preparedness, response and recovery activities and clarifies emergency management roles and responsibilities, strategies and procedures to manage gas emergencies at the gas installation.

6.5 PERFORMANCE EVALUATION

6.5.1 Investigation of Gas-related Accidents and Incidents:

Investigations of the direct causes and indirect causes of gas-related accidents and near-miss incidents are to be carried out by competent persons, with the appropriate participation of management and workers. Contributing factors arising out of any shortcomings or failures in the gas safety management system are identified and documented. Recommendations for improvement are communicated to the top management for follow-up corrective actions.

6.5.2 Performance Monitoring and Review:

A system for licensee's management to regularly monitor gas safety performance is being established. Records and statistics of gas accidents and near-miss incidents are kept and analysed, and root causes of accidents and incidents are being addressed via short-term and long-term measures. Periodic internal audits of each of the elements of the gas safety management system are carried out to identify the strengths and weaknesses of the system and to put in place improvement measures. Management reviews are conducted periodically to evaluate the overall strategy of the gas safety management system.

6.6 ACTION FOR IMPROVEMENT

6.6.1 Preventive and Corrective Action:

Arrangements for preventive and corrective actions are established and updated based on the outcome of the ongoing gas safety performance monitoring and review programme. When the evaluation of the gas safety management system shows that preventive and protective measures are ineffective, corrective measures are addressed according to the hierarchy of risk control (*refer 6.4.1*) in a timely manner.

6.6.2 Continual Improvement:

Plans, programmes and procedures are established for the continual improvement of the gas safety management system. This take into account the results of risk assessments, performance measurements, investigations, audits, and changes in Gas Supply Act 1993, Gas Supply Regulations 1997, Codes and Guidelines, technical or administrative changes in the gas installation, and the results of gas safety protection and promotion plan and programmes. The gas safety procedures, and performance of the gas installation are benchmarked with other similar organisations to improve gas safety performance.

7.0 AUDIT CHECKLIST

7.1 A gas safety management system audit checklist based on management system elements is included in section 7.2. It is recommended that the checklist to be used as a guide or benchmark by the responsible parties for assessing and gauging the level of effectiveness and compliance as well as the improvement measures that are required for the preparation and implementation of the effective gas safety management plan and programme for gas installation.

7.2 GAS SAFETY MANAGEMENT AUDIT CHECKLIST(SAMPLE)

Name of Licensee : _____

Address of Licensee : _____

Competent/Responsible Person : _____

Manager In-Charge : _____

No.	Description	Need To Start	Need To Improve	Effective
1.	POLICY, PLAN AND PROGRAMME			
1.1	Gas Safety Policy, Plan and Programme:			
	The licensee has a written policy, plan and programme to ensure gas safety. The policy must be signed by the top management, reflects management commitment to implement the plan and programme for the safety of employees and others who may be affected by the gas supply activities. The objectives, responsibilities and arrangements of gas safety management are clearly written.			
1.2	Documentation:			
	Documents related to the gas safety management system of the licensee are maintained and readily accessible to employees and contractors. The documents contain information on gas safety policy, plan and programme, risks identification and control measures, legal and regulatory requirements, and other relevant internal guidelines.			

No.	Description	Need To Start	Need To Improve	Effective
2.	ORGANISING			
2.1	Responsibility:			
	The top management of the licensee demonstrates leadership for gas safety plans, programmes and activities, and clearly assigns duties responsibility for gas safety management.			
2.2	Competence:			
	Anyone who directly will be involved and exposed to gas risks are given adequate training and information on gas safety. The licensee complies with the requirements under the Gas Supply Act 1993 and Gas Supply Regulations 1997 pertaining to the need to engage registered gas competent persons and contractors to perform gas works according to their categories of competency.			
2.3	Communication:			
	There is a communication programme to disseminate information on gas risks and control measures to employees and others who may be affected by the risks. Warning signs are used to identify, warn and advise on gas risks. Suitable administrative arrangements are in place for management to receive and follow up on suggestions and complaints on gas safety matters.			

No.	Description	Need To Start	Need To Improve	Effective
3.	PLANNING AND IMPLEMENTATION			
3.1	<p>Planning and Implementation:</p> <p>The licensee's gas safety management plan and programme supports:</p> <ul style="list-style-type: none"> a. the Gas Supply Act 1993, Gas Supply Regulations 1997, Codes and Guidelines issued by the Energy Commission; b. the implementation of all elements of the gas safety management system; c. the continual improvements in gas safety performance. <p>The plan and programme provides details on tasks and activities to be implemented and the responsible personnel/units, budgets and targets in efforts to eliminate, minimize and control gas risks of the gas installation.</p>			
4.	RISK CONTROL MEASURES			
4.1	<p>Identification, Evaluation and Control of risks:</p> <p>Hazards and risks to workers and public are identified, evaluated and controlled on an ongoing basis. ('Hazard' is a potential source of harm or adverse health effect on a person or persons). 'Risk' is the likelihood that a person may be harmed or suffers adverse health effects if exposed to a hazard. Implementation of preventive and corrective control measures for hazards/risks are done according to the hierarchy of risk control as follows:</p> <ul style="list-style-type: none"> a. Elimination (completely eliminate the hazard/risk at source); b. Substitution (substitute the hazardous activity, process or equipment with a less hazardous one); c. Engineering Controls (isolate the hazard from people who could be harmed); d. Administrative Controls (change the way people work or prevent people's exposure to hazards/risks such as by implementing a permit-to-work system); e. Personal Protective Equipment (PPE) (provide PPE to cover and protect an individual person from hazards. PPE can be used as a temporary control measure until more effective control measures are provided. In most cases, a combination of other control measures and PPE can effectively control the risks). 			

No.	Description	Need To Start	Need To Improve	Effective
4.2	Permit-To-Work System:			
	<p>A written Permit-To-Work (PTW) system with suitable procedures is effectively implemented for high risk gas works that involves working with live equipment and systems.</p> <p>(A 'permit-to-work' is a formal, written, safe system of work to control potentially hazardous activities. It aims to remove both unsafe conditions and human error by imposing a formal system which requires formal action. The permit details the work to be done and the precautions to be taken. It should state safety precautions to be taken before work can start and the authorizing person should only sign and date the permit when he is satisfied that all precautionary measures have been taken. It should only be in place for a limited duration, be clearly dated and with specific conditions attached. Permits should be issued, checked and signed off as being completed by someone competent to do so, and who is not involved in undertaking the work).</p>			
4.3	Emergency Preparedness:			
	<p>A written emergency preparedness plan and programme for the licensee is available and made known to employees and regularly rehearsed. The Plan details on how the licensee and its employees deal with or manage gas emergencies. It spells out preparedness, response and recovery activities and clarifies emergency management roles and responsibilities, strategies and procedures to manage gas emergencies at the gas installation.</p>			

No.	Description	Need To Start	Need To Improve	Effective
5.	PERFORMANCE EVALUATION			
5.1	Investigation of Gas-related Accidents and Incidents			
	Investigations of the direct causes and indirect causes of gas-related accidents and near-miss incidents are to be carried out by competent persons, with the appropriate participation of management and workers. Contributing factors arising out of any shortcomings or failures in the gas safety management system are identified and documented. Recommendations for improvement are communicated to the top management for follow-up corrective actions.			
5.2	Performance Monitoring and review:			
	A system for licensee's management to regularly monitor gas safety performance is being established. Records and statistics of gas accidents and near-miss incidents are kept and analysed, and root causes of accidents and incidents are being addressed via short-term and long-term measures. Periodic internal audits of each of the elements of the gas safety management system are carried out to identify the strengths and weaknesses of the system and to put in place improvement measures. Management reviews are conducted periodically to evaluate the overall strategy of the gas safety management system.			
6.	ACTION FOR IMPROVEMENT			
6.1	Preventive and Corrective Action:			
	Arrangements for preventive and corrective actions are established and updated based on the outcome of the ongoing gas safety performance monitoring and review programme. When the evaluation of the gas safety management system shows that preventive and protective measures are ineffective, corrective measures are addressed according to the hierarchy of risk control (<i>refer 6.4.1</i>) in a timely manner.			

No.	Description	Need To Start	Need To Improve	Effective
6.2	Continual Improvement:			
	Plans, programmes and procedures are established for the continual improvement of the gas safety management system. This take into account the results of risk assessments, performance measurements, investigations, audits, and changes in Gas Supply Act 1993, Gas Supply Regulations 1997, Codes and Guidelines, technical or administrative changes in the gas installation, and the results of gas safety protection and promotion plan and programmes. The gas safety procedures, and performance of the gas installation are benchmarked with other similar organisations to improve gas safety performance.			
No.	Description	YES	NO	REMARKS
7.	STATUS OF COMPLIANCE			
7.1	Licence (Gas supply activity has a valid licence).			
7.2	Competent Persons (The contractor complies with the competency requirements as stipulated in the Regulations for the gas works carried out at the gas installation).			
7.3	Safety Management Plan and Programme (The licensee has a satisfactory Safety Management Plan and Programme).			
7.4	Other related requirements under the Gas Supply Act 1993 and Gas Supply Regulations 1997.			

No.	Description	Need To Start	Need To Improve	Effective
8.	OVERALL EVALUATION			
9.	REMARKS (Areas for improvement, status of compliance with legal requirements, and follow-up actions to be taken):			

Signature of Responsible Person : _____

Name of Responsible Person : _____

Organisation : _____

Date of Audit : _____

NOTE:

The audit process should include the review of relevant documents, random interviewing of personnel and inspection of gas installation. Below are the standards for grading the performance of the organization for each of the good practice:

- | <u>GRADING</u> | <u>DESCRIPTION</u> |
|------------------------|--|
| Need to start | : The good practice described is not yet in place or if it in place, it is not implemented. |
| Need to improve | : The good practice is partially in place or partially implemented. There is room for improvement. |
| Effective | : The good practice is in place and effectively implemented. |

8.0 ENERGY COMMISSION OFFICES

8.1 HEADQUARTERS

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8.2 REGIONAL OFFICES

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PULAU PINANG, KEDAH & PERLIS	Tingkat 10, Bangunan KWSP 13700 Seberang Jaya, Butterworth, Pulau Pinang.	Tel : 04 - 398 8255 Fax : 04 - 390 0255
PERAK	Tingkat 1, Bangunan KWSP, Jalan Greentown, 30450 Ipoh, Perak.	Tel : 05 - 253 5413 Fax : 05 - 255 3525
KELANTAN & TERENGGANU	Tingkat 6, Bangunan KWSP, Jalan Padang Garong 15000 Kota Bharu, Kelantan.	Tel : 09 - 748 7390 Fax : 09 - 744 5498
PAHANG	Tingkat 7, Kompleks Teruntum, Jalan Mahkota, 25000 Kuantan, Pahang.	Tel : 09 - 514 2803 Fax : 09 - 514 2804
SELANGOR, KUALA LUMPUR & PUTRAJAYA	Tingkat 10, Menara PKNS, No. 17, Jalan Yong Shook Lin, 46050 Petaling Jaya, Selangor.	Tel : 03 - 7955 8930 Fax : 03 - 7955 8939
JOHOR	Suite 18A, Aras 18, Menara ANSAR 65, Jalan Trus, 80000 Johor Bharu, Johor.	Tel : 07 - 224 8861 Fax : 07 - 224 9410
PANTAI BARAT NEGERI SABAH	Tingkat 7, Bangunan BSN, Jalan Kemajuan, 88000 Kota Kinabalu, Sabah.	Tel : 088 - 232 447 Fax : 088 - 232 444
PANTAI TIMUR NEGERI SABAH	Tingkat 3, Wisma Sabah KM12, W.D.T. No. 25, 90500 Sandakan, Sabah.	Tel : 089 - 666 695 Fax : 089 - 660 279
NEGERI SEMBILAN & MELAKA	Tingkat 3, Wisma Perkeso, Jalan Persekutuan, MITC, 75450 Ayer Keroh, Melaka.	Tel : 06 - 231 9594 Fax : 06 - 231 9620

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