

PETRONAS TECHNICAL STANDARDS

DESIGN AND ENGINEERING PRACTICE

MANUAL

MANAGING SYSTEM INTEGRITY FOR LIQUID

HYDROCARBON PIPELINES

(AMENDMENTS/SUPPLEMENTS TO API 1160-2001)

PTS 30.40.60.14

February 2010



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PTS Circular 2010 - 1



PTS No:	30.40.60.14
PTS Title:	Managing System Integrity for Hazardous Liquid Pipelines (Amendments/Supplements to ASME API 1160-2001)

This new PTS **30.40.60.14 – Managing System Integrity for Hazardous Liquid Pipelines (Amendments/Supplements to API 1160-2001)** has been developed to incorporate PETRONAS Lessons Learnt, Best Practices and new information issued by relevant industry code and standards.

The intend of this new PTS is to provide the minimum requirements and recommended practices in managing the integrity of hazardous liquid pipeline within PETRONAS Group.

The amendments/supplements to API 1160-2001 are highlighted in *italic* font.

The custodian of this PTS is :
Name: Shaikh Abdullah Shaikh Othman
Tel. No: +603-2783 6214

Please direct any questions regarding this PTS to the above-named.

Document Approval

	Name	Designation	Date	Signature
Prepared	Naila Rusma Idris	Senior Pipeline Engineer	18/02/10	
Reviewed	Shaikh Abdullah Shaikh Othman	Staff Engineer, Pipeline	18 Feb '10	
Approved	Hashim Zainal Abidin	Technical Manager, Civil, Structural & Pipeline, Engineering, GTS	25/02/10	
Endorsed	Pau Kiew Huai	Acting Senior General Manager, GTS	3 Mar 2010	

Revision History

Rev No.	Reviewed by	Approved by	Date

PREFACE

PETRONAS Technical Standards (PTS) publications reflect the views, at the time of publication, of PETRONAS OPU/Divisions.

They are based on the experience acquired during the involvement with the design, construction, operation and maintenance of processing units and facilities. Where appropriate they are based on, or reference is made to, national and international standards and codes of practice.

The objective is to set the recommended standard for good technical practice to be applied by PETRONAS' OPU/Divisions in oil and gas production facilities, refineries, gas processing plants, chemical plants, marketing facilities or any other such facility, and thereby to achieve maximum technical and economic benefit from standardisation.

The information set forth in these publications is provided to users for their consideration and decision to implement. This is of particular importance where PTS may not cover every requirement or diversity of condition at each locality. The system of PTS is expected to be sufficiently flexible to allow individual operating units to adapt the information set forth in PTS to their own environment and requirements.

When Contractors or Manufacturers/Suppliers use PTS they shall be solely responsible for the quality of work and the attainment of the required design and engineering standards. In particular, for those requirements not specifically covered, the Company will expect them to follow those design and engineering practices which will achieve the same level of integrity as reflected in the PTS. If in doubt, the Contractor or Manufacturer/Supplier shall, without detracting from his own responsibility, consult the Company or its technical advisor.

The right to use PTS rests with three categories of users:

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The copyright of PTS vests in PETRONAS. Users shall arrange for PTS to be held in safe custody and PETRONAS may at any time require information satisfactory to PETRONAS in order to ascertain how users implement this requirement.



Document No : PTS 30.40.60.14
Document Title : Managing System Integrity for Hazardous Liquid Pipelines
(Amendments/Supplements to API 1160-2001)

This is a controlled document

Acknowledgement

This document was jointly prepared with contribution from the following list of personnel

1. M Nazmi M Ali	Principal Engineer (Pipeline Integrity)	PGB
2. M Ashri Mustapha	Principal Engineer (Pipeline Integrity)	PCSB
3. Zaabah Abdullah	Staff Engineer (Pipeline Integrity)	PGB
4. Purnomo Setyawendha	Senior Pipeline Engineer	PCSB
5. Nestor Mendoza	Pipeline Head	PCSB
6. Raja Zahirudin Raja Ismail	Staff Engineer (Pipeline Integrity)	PCSB
7. Ahmad Sirwan Mat Tuselim	Staff Engineer (Pipeline Design)	GTS
8. Rosman Ariffin	Staff Engineer (Pipeline Design)	GTS
9. Azlan Abdul Rashid	Engineering Manager	PS Pipeline SB
10. M Shuhairy Alwi	Mechanical Engineer	PS Pipeline SB
11. M Nasahie Akbar Ali	Engineering Manager	PGB
12. M Nazri M Zain	Pipeline Head	PCSB
13. M Aidi Rais	Senior Pipeline Engineer	PCSB

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PART I INTRODUCTION

1.1 SCOPE

This PTS specifies requirements and gives recommendations for managing the integrity of Liquid hydrocarbon pipelines system in onshore and offshore installations. This PTS is not applicable to Gas pipelines system.

Part II of this PTS provides amendments and supplements to clauses of API 1160. The Section numbering in Part II follows that of API 1160. Where clauses of API 1160 are not amended or supplemented by this PTS they shall apply as written.

Design of pipeline system is addressed in PTS 20.214.

1.2 DISTRIBUTION, INTENDED USE AND REGULATORY CONSIDERATIONS

Unless otherwise authorised by PETRONAS, the distribution of this PTS is confined to companies forming part of PETRONAS or managed by a Group company, and to Contractors and Manufacturers/Suppliers nominated by them.

This PTS is intended for use in oil refineries, gas plants, chemical plants, oil and gas production facilities, supply/marketing installations, and pipelines system installations within PETRONAS Group.

If national and/or local regulations exist in which some of the requirements may be more stringent than in this PTS, the Contractor shall determine by careful scrutiny which of the requirements are more stringent and which combination of requirements will be acceptable as regards safety, environmental, economic, and legal aspects. In all cases, the Contractor shall inform the Company of any deviation from the requirements of this PTS which is considered to be necessary in order to comply with national and/or local regulations. The Company may then negotiate with the Authorities concerned with the object of obtaining agreement to follow this PTS as closely as possible.

1.3 DEFINITIONS

1.3.1 General definitions

The **Authorities** are governing bodies that regulate the operation and maintenance of liquid hydrocarbon pipeline systems.

The **Company** is the party which owns part or all of the pipeline systems. The Company will generally specify the technical requirements. The Company may also include an agent or consultant authorised to act for, and on behalf of, the Company.

The **Contractor** is the party which engaged by the Company to carry out integrity management and/or maintenance and/or operation activities for the pipeline systems.. The Company may undertake all or part of the duties of the Contractor.

The **Consultant** is the party which provides technical consultancy services and expertise to perform duties specified by the Company.

The **Manufacturer** is the party which manufactures and/or supplies equipment to perform duties specified by the Company.

The **Operator** is the party that owns or operate the pipeline system jointly with the Company or otherwise.

The **Vendor** is the party which supplies equipment and/or services to perform the duties specified by the Company.

The word **shall** indicate a requirement.

The word **should** indicate a recommendation.

1.3.2 Specific definitions

Pipeline Integrity Management System (PIMS) is an integrated management system consisting of documentation, database and tools established for the purpose of managing integrity of Liquid Hydrocarbon pipeline systems throughout its life cycle.

Onshore Pipeline System: all parts of physical facilities including: pipe, valves, fittings, flanges (including bolting and gaskets), regulators, pressure vessels, pulsation dampeners, relief valves, and other appurtenances attached to pipe; compressor units; metering stations; regulator stations; and fabricated assemblies. Included within this definition are Liquid Hydrocarbon transmission and gathering lines, transporting Liquid Hydrocarbon from production facilities to onshore locations, and Liquid Hydrocarbon storage equipment of the closed-pipe type, which is fabricated or forged from pipe or fabricated from pipe and fittings

Offshore Pipeline System: all components of a pipeline installed offshore for transporting Liquid Hydrocarbon other than production facility piping. Tanker and barge loading hoses are not considered as part of offshore pipeline system i.e. per Chapter IX of ASME B31.4-2002.

1.4 CROSS-REFERENCES

Where cross-references to other parts of this PTS are made, the referenced section number is shown in brackets. Other documents referenced in this PTS are listed in [\(Part III\)](#).

PART II AMENDMENTS/SUPPLEMENTS TO API 1160-2001**1 Introduction****1.1 PURPOSE AND OBJECTIVES**

Page 1, 3rd paragraph, last statement

The following statement to be deleted,

~~"This standard also supports the development of integrity management programs required under Title 49 CFR 195.452 of the federal pipeline safety system regulations."~~

Page 1, 4th paragraph, last statement

Amend the statement as follows,

"Users of this standard should be familiar with the pipeline safety regulations ~~(Title 49 CFR Part 195 Petroleum (Safety Measures) Act 1984)~~, including the requirements for pipeline operators to have a written pipeline integrity program, and to conduct a baseline assessment and periodic reassessments of pipeline integrity management."

2 Scope

Page 2, 1st Paragraph

Amend the paragraph as follows,

"This standard is applicable to pipeline systems used to transport hazardous liquids as defined in ~~Title 49 CFR 195.2 Petroleum (Safety Measures) Act 1984~~. The use of this standard is not limited to pipelines regulated under ~~Title 49 CFT 195.2 Petroleum (Safety Measures) Act 1984~~, and the principles embodied in integrity management are applicable to all pipeline systems."

Page 2, 2nd Paragraph

Amend the paragraph as follows,

The guidance is specific to the ~~onshore & offshore pipeline, line pipe along the right-of-way, from scraper trap to scraper trap~~, but the process and approach can and should be applied to all pipeline facilities, including pipeline stations, terminals and delivery facilities associated with pipeline systems. Certain sections of this standard provide guidance specific to pipeline stations, terminals, and delivery facilities.