



Engineering Standard

SAES-L-810

24 December 2012

Design of Piping on Offshore Structures

Document Responsibility: Piping Standards Committee

Saudi Aramco DeskTop Standards

Table of Contents

1	Scope.....	2
2	Conflicts and Deviations.....	2
3	References.....	2
4	Piping Design.....	3
5	Piping Layout.....	3
6	Utility Piping and Drains.....	3

1 Scope

This standard supplements [API RP 14E](#) and [SAES-L-310](#) and defines additional design requirements governing piping systems located on fixed offshore platforms.

2 Conflicts and Deviations

- 2.1 Any conflicts between this standard and other applicable Saudi Aramco Engineering Standards (SAESs), Materials System Specifications (SAMSSs), Standard Drawings (SASDs), or industry standards, codes, and forms shall be resolved in writing by the Company or Buyer Representative through the Manager, Consulting Services Department of Saudi Aramco, Dhahran.
- 2.2 Direct all requests to deviate from this standard in writing to the Company or Buyer Representative, who shall follow internal company procedure [SAEP-302](#) and forward such requests to the Manager, Consulting Services Department of Saudi Aramco, Dhahran.

3 References

The selection of material and equipment, and the design, construction, maintenance, and repair of equipment and facilities covered by this standard shall comply with the latest edition of the references listed below, unless otherwise noted.

3.1 Saudi Aramco References

Saudi Aramco Engineering Procedure

[SAEP-302](#)

Instructions for Obtaining a Waiver of a Mandatory Saudi Aramco Engineering Requirement

Saudi Aramco Engineering Standards

[SAES-B-009](#)

Fire Protection and Safety Requirements for Offshore Production Facilities

[SAES-L-120](#)

Piping Flexibility Analysis

[SAES-L-310](#)

Design of Plant Piping

3.2 Industry Code and Standards

American Society of Mechanical Engineers

[ASME B31.3](#)

Process Piping

American Petroleum Institute

API RP 14E

*Design and Installation of Offshore Production
Platform Piping Systems*

4 Piping Design

4.1 The design engineer shall be qualified and experienced in the design and analysis of piping systems on offshore structures. The qualifications of the design engineer shall be verified by CSD and approved by PMT or proponent and shall meet the following criteria as minimum:

- Completion of an engineering degree.
- Minimum of 10 years experience in the design and analysis of pressure piping systems on offshore structures.

Deviation from the above requirements may be acceptable subject to the review and prior approval by the Chairman of Piping Standards Committee in Consulting Services Department.

4.2 Design and installation of new piping systems on all Saudi Aramco offshore platforms shall comply with [ASME B31.3](#) and [API RP 14E](#).

4.3 The design of high pressure piping as defined in [ASME B31.3](#) shall meet the requirement of Chapter IX of the code.

4.4 The dynamic effects shall be considered in the design of the piping system and they shall be according to paragraph 301.5 of [ASME B31.3](#).

4.5 Formal stress analysis shall be conducted for all piping system in accordance to [SAES-L-120](#).

5 Piping Layout

5.1 The available platform space shall be optimized. Pipe length, routing below or above decks, and spacing shall be designed such that the flow pattern and process requirements can be satisfied with minimum platform space and minimum weight.

5.2 Unobstructed passage for exit from all working areas on platform decks shall be maintained. Refer to [SAES-B-009](#).

5.2 Working space and access to valves, instrumentation and other components shall not be larger than necessary for operation and routine maintenance.

6 Utility Piping and Drains

Utility piping between the Boat landing and platform decks required for services and supplies from a barge or boat shall be installed without pockets and shall be sloped such that the piping will be completely drained at the low points after use. The same requirement also applies to piping having intermittent flow, such as the return line of seawater pumps and drain systems to a slops caisson.

24 December 2012

Revision Summary
Major revision.