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NATIONAL IRANIAN OIL REFINING & DISTRIBUTION COMPANY
NATIONAL IRANIAN OIL ENGINEERING
& CONSTRUCTION COMPANY

NIOEC SP

NIOEC SPECIFICATION FOR LINE PIPE

FIRST EDITION

OCT. , 2005

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IN THE NAME OF GOD**FOREWORD**

By their very nature, technical Specifications are continuously subject to modifications and revisions. To strengthen their merit and usefulness, continuous improvements, addendum, deletion of disparate information and consequently provision of updated revisions are to be made in order to ascertain that such Specifications meet the current requirements, inclusive of Iranian Petroleum Standards (IPS) and the recognized and acceptable national and international Standards, as well as the optimal codes and practices based on the accumulated in-house know-how and plant knowledge and experiences.

However, in reality, due to several reasons, not to mention the complexity of the matter, the ultimate goal of continuous direct embedment of the required changes on the relevant Specifications may be far reaching. Therefore, in the interim periods between the officially issued revisions, the required changes will appear in other documents related to the engineering and design work of the ongoing projects.

In response to the initiative of the Design and Engineering Directorate, and considering that the task of the execution of several important and mega projects for the realization of the new oil refineries, pipelines and oil terminals as well as improvements of the existing facilities, has been assigned to NIOEC, it was decided to update the NIOEC Specifications and to issue new official revisions.

The Design and Engineering Directorate was itself entrusted to carry out this important task, and as such by forming several special technical committees, working in close co-operation and cohesion and sharing their expertise and knowledge, the updated and revised NIOEC Specifications were successfully prepared and complied.

These Specifications are intended to be used for Oil Refineries, Distribution Depots, Oil Terminals, Pipelines and Pump Stations within NIOEC's projects, and have been proven to be of high value for such purposes. It must however be appreciated that these Specifications represent the minimum requirements and should in no way be interpreted as a restriction on the use of better procedures, engineering and design practices or materials.

We encourage and highly appreciate the users and other clear sighted and experts to send their comments on the Specifications to the Design and Engineering Director of NIOEC for evaluation and approval.

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NOTES:

- 1) THIS SHEET IS A RECORD OF ALL REVISIONS TO THIS SPECIFICATION.
- 2) WHEN APPROVED EACH REVISION SHALL BE CONSIDERED AS A PART OF THE ORIGINAL DOCUMENT.
- 3) NUMBER OF PAGES EXCLUDES THIS SHEET AND THE COVER SHEET.

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INTRODUCTION

To satisfy the requirements of this NIOEC Specification, Iranian Petroleum Standard [IPS-M-PI-190\(3\)](#) (Feb. 2014) with the modifications as specified herein after shall be strictly followed.

Articles 1 through 3 of this document replace entirely the related articles in the referenced IPS Standard.

1. SCOPE

This Specification defines NIOEC's minimum requirements for the design, manufacture, test and inspection and purchase of product specification level PSL 2 steel line pipe for use in Oil Industries under non-sour as well as sour conditions and is based on API Spec. 5L (Forty-Fifth Edition) and shall be read in conjunction with that document.

Deviations from this Specification will only be permitted on obtaining written approval from NIOEC.

Resolution on cases not explicitly stipulated in this Specification, or on cases where conflicts may arise among the requirements of the referenced IPS and the international standards, shall be made through written consent and approval of NIOEC.

2. REFERENCES

The following standards, codes, and specifications, to the extent specified hereinafter, shall constitute a part of this NIOEC Specification. Latest edition of the undated referenced documents and the cited edition of the dated references shall apply. The applicability of changes made to the dated references ,after the cited date shall be mutually agreed upon between NIOEC and the vendor/contractor.

API (AMERICAN PETROLEUM INSTITUTE)

API 5L (45th Ed.) "Petroleum and natural gas industries —Steel pipe for pipeline transportation systems"

ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS)

ASTM E – 165 "Standard Practice for Liquid Penetrant Examination for General Industry"

ASTM E – 213 "Standard Practice for Ultrasonic Testing of Metal Pipe and Tubing"

ASTM E – 709 "Standard Guid for Magnetic Particle Testing"

BS (British Standard)

BS EN 10204 "Metallic products —Types of inspection documents"

IPS (Iranian Petroleum Standard)

[IPS-M-PI-190\(3\)](#) "Material and Equipment Standard for Line Pipe"

ISO (INTERNATIONAL STANDARD)

ISO 2566-1 "Steel, Conversion of Elongation Values Part 1 Carbon and Low Alloy Steels"

ISO 3183	"Petroleum and natural gas industries —Steel pipe for pipeline transportation systems"
ISO 10474	"Steel and steel products, Inspection Documents"
ISO 10893-5	"Non-destructive testing of steel tubes — Part 5: Magnetic particle inspection of seamless and welded ferromagnetic steel tubes for the detection of surface imperfections"
ISO 10893-8	"Non-destructive testing of steel tubes — Part 8: Automated ultrasonic testing of seamless and welded steel tubes for the detection of laminar imperfections"
ISO 10893-9	"Non-destructive testing of steel tubes — Part 9: Automated ultrasonic testing for the detection of laminar imperfections in strip/plate used for the manufacture of welded steel tubes"
ISO 10893-10	"Non-destructive testing of steel tubes — Part 10: Automated full peripheral ultrasonic testing of seamless and welded (except submerged arc-welded) steel tubes for the detection of longitudinal and/or transverse imperfections"

NACE (NATIONAL ASSOCIATION OF CORROSION ENGINEERS)

NACE TM 0284	"Standard Test Method - Evaluation of Pipeline and Pressure Vessel Steels for Resistance to Hydrogen-Induced Cracking"
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NIOEC-SIP (SHOP INSPECTION PROCEDURES)

NIOEC-SIP-00-01	"Shop Inspection Procedure & Quality Control Plan for Shop Supplied Materials and Equipment General, Fabrication and Welding"
NIOEC-SIP-50-10	"Shop Inspection Procedure For Shop Fabricated Pipes, Fittings And Flanges"

NIOEC-SP (NIOEC SPECIFICATIONS)

NIOEC-SP-00-10	"NIOEC Specification for Units"
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3. UNITS

International system of units (SI) shall be used in accordance with NIOEC-SP-00-10, unless otherwise specified.

4. ADDENDUM TO IPS-M-PI-190(3)

Add the following article:

10.3. Shop Inspection Procedure

All tests and inspections shall be performed in accordance with the relevant NIOEC inspection and test procedures including NIOEC-SIP-00-01 & NIOEC-SIP-50-10.

MATERIAL AND EQUIPMENT STANDARD**FOR****LINE PIPE****THIRD EDITION****FEBRUARY 2014**

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FOREWORD

The Iranian Petroleum Standards (IPS) reflect the views of the Iranian Ministry of Petroleum and are intended for use in the oil and gas production facilities, oil refineries, chemical and petrochemical plants, gas handling and processing installations and other such facilities.

IPS are based on internationally acceptable standards and include selections from the items stipulated in the referenced standards. They are also supplemented by additional requirements and/or modifications based on the experience acquired by the Iranian Petroleum Industry and the local market availability. The options which are not specified in the text of the standards are itemized in data sheet/s, so that, the user can select his appropriate preferences therein.

The IPS standards are therefore expected to be sufficiently flexible so that the users can adapt these standards to their requirements. However, they may not cover every requirement of each project. For such cases, an addendum to IPS Standard shall be prepared by the user which elaborates the particular requirements of the user. This addendum together with the relevant IPS shall form the job specification for the specific project or work.

The IPS is reviewed and up-dated approximately every five years. Each standards are subject to amendment or withdrawal, if required, thus the latest edition of IPS shall be applicable

The users of IPS are therefore requested to send their views and comments, including any addendum prepared for particular cases to the following address. These comments and recommendations will be reviewed by the relevant technical committee and in case of approval will be incorporated in the next revision of the standard.

Standards and Research department

No.17, Street14, North kheradmand

Karimkhan Avenue, Tehran, Iran.

Postal Code-1585886851

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GENERAL DEFINITIONS

Throughout this Standard the following definitions shall apply.

COMPANY :

Refers to one of the related and/or affiliated companies of the Iranian Ministry of Petroleum such as National Iranian Oil Company, National Iranian Gas Company, National Petrochemical Company and National Iranian Oil Refinery And Distribution Company.

PURCHASER :

Means the "Company" where this standard is a part of direct purchaser order by the "Company", and the "Contractor" where this Standard is a part of contract document.

VENDOR AND SUPPLIER :

Refers to firm or person who will supply and/or fabricate the equipment or material.

CONTRACTOR :

Refers to the persons, firm or company whose tender has been accepted by the company.

EXECUTOR :

Executor is the party which carries out all or part of construction and/or commissioning for the project.

INSPECTOR :

The Inspector referred to in this Standard is a person/persons or a body appointed in writing by the company for the inspection of fabrication and installation work.

SHALL :

Is used where a provision is mandatory.

SHOULD :

Is used where a provision is advisory only.

WILL :

Is normally used in connection with the action by the "Company" rather than by a contractor, supplier or vendor.

MAY :

Is used where a provision is completely discretionary.

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0. INTRODUCTION

The amendments to API Spec 5L (Forty-Fifth Edition) given in this Specification are directly related to the equivalent sections or clauses in API Spec. 5L. For clarity, the section and paragraph numbering of API Spec. 5L has been used as far as possible. Where clauses in API Spec. 5L are referenced within this Specification, it shall mean those clauses are amended by this Specification. Clauses in API Spec. 5L that are not amended by this Specification shall remain valid as written.

Guidance for Use of this Specification

The following annotations, as specified hereunder, have been used at the bottom right hand side of each clause or paragraph to indicate the type of change made to the equivalent clause or paragraph of API Spec. 5L.

Sub. (Substitution) "The clause in API Spec. 5L shall be deleted and replaced by the new clause in this Specification"

Del. (Deletion) "The clause in API Spec. 5L shall be deleted without any replacement"

Add. (Addition) "The new clause with the new number shall be added to the relevant section of API Spec. 5L"

Mod. (Modification) "Part of the clause or paragraph in API Spec. 5L shall be modified and/or the new description and/or statement shall be added to that clause or paragraph as given in this Specification"

1. SCOPE

This standard specifies requirements for manufacturing of product specification level PSL 2 of seamless and welded pipe for use in pipeline transportation systems in the petroleum, petrochemical and natural gas industries.

Note 1:

Those clauses that apply to PSL2 and are not amended by this standard remain valid as written.

Note 2:

This is a revised version of this standard, which is issued as revision (3)-2014. Revision (2)-2004 of the said standard specification is withdrawn.

2. CONFORMITY

2.1 Units of Measurement

This Standard is based on International System of Units (SI), as per [IPS-E-GN-100](#) except where otherwise specified. (Sub.)

2.2 Rounding

Refer to [IPS-E-GN-100](#), part 5.6 "Guide for the Rounding of Numbers". (Sub.)

3. NORMATIVE REFERENCES

IPS (IRANIAN PETROLEUM STANDARDS)

[IPS-E-GN-100](#) "Engineering Standard for Units"

4. TERMS AND DEFINITIONS

4.23 HFW Pipe

High-frequency welded pipe

Add this clause to the end of this paragraph:

EW Pipe produced with a welding current frequency equal to or greater than 100 KHZ. (Mod.)

6. PIPE GRADE, STEEL GRADE AND DELIVERY CONDITION

6.1 Pipe Grade and Steel Grade

6.1.4 Intermediate grades are not acceptable. (Add.)