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

NIOEC SP

NIOEC SPECIFICATION FOR PIPING MATERIAL

FIRST EDITION

JUNE , 2007

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NOTES:

- 1) THIS SHEET IS A RECORD OF ALL REVISIONS TO THIS SPECIFICATION.
- 2) REMARKS RELATED TO EACH REVISION SHOW A BRIEF DESCRIPTION. THESE REMARKS SHALL BE INTERPRETED IN CONJUNCTION WITH THE REVISED TEXT MARKED BY REVISION NUMBERS.
- 3) WHEN APPROVED EACH REVISION SHALL BE CONSIDERED AS A PART OF THE ORIGINAL DOCUMENT.
- 4) NUMBER OF PAGES EXCLUDES THIS SHEET AND THE COVER SHEET.

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1. SCOPE

This NIOEC Specification contains piping classes primarily developed for petroleum refineries installed onshore. It is also intended for use in onshore exploration and production facilities as well as booster stations as far as applicable. Facilities covered by this Specification are all within the property limits of facilities engaged in processing or handling of chemicals, petroleum, or related products, as defined in ASME B31.3 clause 300.1.

2. REFERENCES

2.1 Throughout this Specification the following dated and undated standards/ codes are referred to. These referenced documents shall, to the extent specified herein, form a part of this Specification. For undated references, the latest edition of the referenced document (including any supplements and amendments) applies. For dated references, the edition cited applies. The applicability of changes in dated references that occur after the cited date shall mutually be agreed upon by NIOEC and the Vendor/Contractor.

ASME (AMERICAN SOCIETY OF MECHANICAL ENGINEERS)

B1.1	Unified Inch Screw Threads (UN and UNR Thread Form)
B1.20.1	Pipe Threads, General Purpose (Inch)
B16.10	Face to Face and End to End Dimensions of Valves
B16.11	Forged Steel Fittings, Socket Welding and Threaded
B16.20	Metallic Gaskets for Pipe Flanges-Ring Joint, Spiral-Wound, and Jacketed
B16.21	Nonmetallic Flat Gaskets for Pipe Flanges
B16.25	Buttwelding Ends
B16.28	Wrought Steel Buttwelding Short Radius Elbows and Returns
B16.3	Malleable Iron Threaded Fittings, Class 150 and 300
B16.34	Valves-Flanged, Threaded, and Welding End
B16.36	Orifice Flanges
B16.42	Ductile Iron Pipe Flanges and Flanged Fittings (Class 150 and 300)
B16.47	Large Diameter Steel Flanges NPS 26 Through NPS 60
B16.5	Pipe Flanges and Flanged fittings
B16.9	Factory-Made Wrought Steel Buttwelding Fitting
B18.2.2	Square and Hex Nuts (Inch Series)
B31.1	Power Piping
B31.3	Process piping (edition 2002)
B36.10M	Welded and Seamless Wrought Steel Pipe
B36.19M	Stainless Steel Pipe
B46.1	Surface Texture (Surface Roughness, Waviness and Lay)
PVBC section I	Rules for Construction of Power Boilers

API (AMERICAN PETROLEUM INSTITUTE)

API-598	Valve Inspection and Testing
API-599	Metal Plug Valves-Flanged and Welding Ends
API-600	Steel Gate Valves, Flanged and Buttwelding Ends
API-601	Metallic Gasket for Raised-Face, Pipe Flanges and Flanged Connections (Double Jacketed Corrugated and Spiral-wound)

API-602	Compact Steel Gate Valves-Flanged, Threaded, Welding and Extended-Body Ends
API-609	Butterfly valves, Lug-Type and Wafer-Type
API-6D	Pipeline Valves (Gate, Plug, Ball and Check-Valves)
API-941	Steels for Hydrogen Service at Elevated Temperature and Pressure in Petroleum Refineries and Petrochemical Plants.

BS (BRITISH STANDARD INSTITUTION)

BS-5146	Specification for Inspection and Test of Steel Valves for the petroleum, petrochemical and allied inspection
BS-5352	Steel Wedge Gate, Globe and Check Valves
BS-5351	Steel Ball Valves

MSS (Manufacturers Standardization Society of the Valve and Fittings Industry Inc)

SP-43	Wrought Stainless Steel Butt welding Fittings
SP-44	Steel pipe Line Flanges
SP-80	Bronze Gate, Globe, Angle and Check Valves
SP-83	Steel Pipe Unions, Socket-welding and Threaded

ISO (International Organization for Standardization)

160	Asbestos-Cement Pressure Pipes and Joints
2531	Ductile Iron Pipes, Fittings and accessories for pressure pipelines

NIOEC-SP (NIOEC Specification)

NIOEC-SP-00-10	NIOEC Specification for Units
NIOEC-SP-50-01	NIOEC Specification for General Piping, Process and Utility Design Equipment Layout and Drawing Procedure.
NIOEC-SP-50-05	NIOEC Specification for Field Pressure Testing
NIOEC-SP-50-09	NIOEC Specification for Piping Material Purchase Pipe
NIOEC-SP-50-10	NIOEC Specification for Piping Material Purchase Flanges
NIOEC-SP-50-11	NIOEC Specification for Piping Material Purchase Fitting
NIOEC-SP-50-17	NIOEC Specification for Protection of Underground Steel Pipe
NIOEC-SP-50-18	NIOEC Specification for Piping Material Purchase Valves
NIOEC-SP-50-27	NIOEC Specification for Identification of Piping Material
NIOEC-SP-80-01	NIOEC Specification for Insulation
NIOEC-SP-90-02	NIOEC Specification for Welding Shop and/or Field Fabricated Piping

IPS (Iranian Petroleum Standard)

IPS-E-TP-740	Engineering Standard for Corrosion Consideration in Material Selection
IPS-E-PI-221	Engineering Standard for Piping Material Selection

NACE (National Association of Corrosion Engineers)

Paper No. 67

3. UNITS

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

4. DEFINITION AND TERMINOLOGY

- **CA:** Corrosion allowance.
- **Design Limits:** Pressure/temperature limits given in piping classes.
- time to supervise execution of works.
- **Piping Class Index:** A term which identifies the main characteristics of all piping classes. (e.g. materials for pipe, valve trim and gaskets).
- **Service Index:** A term which identifies which piping class to select for the service
- **Employer:** National Iranian Oil Engineering and Construction Company (NIOEC)
- **Engineer:** The Employer's representative appointed by the Employer from time to time to supervise execution of works.

5. ABBREVIATIONS

BTV	Butterfly valve
DRJ	Dresser coupling
EH	Exhaust head
FG	Sight glass
FRV	Freeze proof valve (Kelly type)
HC	Hose connection
IF	Insulation bolt & gasket
INJ	Injection nozzle
LKC	Lock & locking chain
ME	Duplex type strainer
MOV	Motor operated valve
PSE	Rupture disc
SCL	Sample cooler
SN	Spray nozzle
SRT	“T” type strainer
SRY	“Y” type strainer
SXV	Stop-check valve

For more information about abbreviations see NIOEC-SD-0101-1/1-A1