

  	South Pars Gas Field Development Phases 15&16 Onshore Facilities					 N.I.O.C. Pars Oil and Gas Company
	Doc Title : LIST OF APPLICABLE CODES & INDUSTRY STANDARDS					
	Doc. Number : : DB-1516-999-P332-203					

LIST OF APPLICABLE CODES & INDUSTRY STANDARDS



CONTRACT NO.: POGC-801-84/240
PROJECT: South Pars Gas Field Development Phases 15&16
COMPANY: Pars Oil and Gas Company
CONSORTIUM: GHORB, IOEC, ISOICO and SAFF

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REV.	DATE	DESCRIPTION	PREP.	CHKD.	P.M.	P.D.	Contractor APPD.	Company APPD.
					APPD.			



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1 SCOPE

This specification provides the list of International Codes and Industry Standards which will govern the design and construction of the ONSHORE FACILITIES for SOUTH PARS FIELD DEVELOPMENT PROJECT (Phase 15 & 16).

2 INSTRUCTIONS

- 2.1 The project facilities shall be designed, engineered, built, installed and commissioned to the latest relevant international codes and standards issued up to 21.12.2006. Other references stated in these standards shall also apply. These reference documents shall be the latest revision at the date of Call for Tenders.
- 2.2 GHORB-E-KHATAM shall be responsible for checking consistency of specified documents and informing POGC of any interpretation prior to application.
- 2.3 The list attached concerns only the Codes & Standards, it is understood that compulsory regulations (local /international) shall be applied.
- 2.4 The list attached is general and not exhaustive, it shall not restrict the requirement mentioned in the specifications or other documentation.

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3 LIST OF APPLICABLE CODES AND INDUSTRY STANDARDS

3.1 PROCESS DESIGN

API (American Petroleum Institute)

API RP 520	Sizing, Selection, and Installation of Pressure-Relieving Devices in Refineries
API RP 521	Guide for Pressure-Relieving and Depressurising Systems
API STD 2000	Venting Atmospheric and Low Pressure Storage Tanks (Non-Refrigerated and Refrigerated)

3.2 PRESSURE VESSELS - HEAT EXCHANGERS

ASME (American Society of Mechanical Engineers)

ASME SECTION VIII	ASME Boiler & Pressure Vessel Code, Div. 1 and 2 including Addenda
TEMA	Standards of the Tubular Exchangers Manufacturers Association
EJMA	Standards of the Expansion Joints Manufacturers Association, Inc.
ASME SECTION II	ASME Boiler & Pressure Vessel Code, Materials, Part A/B/C/D
ASME SECTION IX	ASME Boiler & Pressure Vessel Code, Welding
NACE MR 0175/ISO 15156	The World Wide Authority on Materials Selection, Design, Installation, Maintenance, and Corrosion Prevention.

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BSI (British Standard Institute)

PD 5500 Unfired Fusion Welded Pressure Vessels

Others

UBC 1997 Uniform Building Code - Volume 2

Division III = Wind Design

Division IV = Earthquake Design

EEMUA Publication No143 Recommendations for Tube end Welding

API (American Petroleum Institute)

API 662 Plate Heat Exchangers for General Refinery Services

API 660 Shell and Tube Heat Exchanger for General Refinery Services

Welding Research Council

WRC Bulletin 107

WRC Bulletin 297

3.3 HEATERS – BOILERS

API 530 Calculation of Heater Tube Thickness in Petroleum Refinery

API 535 Burners for Fired Heaters in General Refinery Services

API 560 Fired Heater for General Refinery Service

ASME Section 1 Boiler and Pressure Vessel Code

ASME B31.1 Power Piping

ASME B31.3 Chemical Plant and Petroleum Refinery Piping

CICIND(International Committee on Industrial Chimney)

2001 Model code for concrete chimneys part A-The shell, with commentaries

1995 Model code for concrete chimneys part C-Steel linings, with commentaries

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1999	Model code for steel chimneys, with commentaries Amendment A-Mar. 2002
1996	Model on chimney protective coatings

3.4 AIR COOLERS

API 661	Air Cooled Heat Exchangers for General Refinery Service
EEMUA Publication No143	Recommendations for Tube end Welding
ASME Section VIII	ASME Boiler & Pressure Vessel code Div.1&2 Including Addenda
ASME Section II	ASME Boiler & Pressure Vessel code& Materials Parts A,B,C,D
ASME Section IX	Welding Qualification
ASME B16.5	Select Pipe Flanges & Flanged Fittings
ASTM 123	Specification for Zinc (Hot Dipped Galvanized) Coatings

3.5 STORAGE TANKS

3.5.1 Storage Tanks Non Refrigerated



API (American Petroleum Institute)

API 620	Recommended Rules for Design and Construction of large, welded, low pressure Storage tanks
API 650	Welded Steel Tanks for Oil Storage
API 2000	Venting Atmospheric and Low-pressure Storage Tanks
API 2550	Method for Measurement and Calibration of Upright Cylindrical Tanks
API MPM CH2.2B	Management Petroleum Measurement Standards- Tank Calibration- Calibration of upright Cylindrical Tank using the Optical Reference

UBC (Uniform Building Code)

UBC 1997

Volume 2 Chapter 16

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Division III = Wind Design
Division IV = Earthquake Design.

3.5.2 Storage Tanks Refrigerated

BSI (British Standard Institute)

BS 7777	Flat Bottomed Vertical Cylindrical Storage Tanks for Low Temperature Service
BS 8110	Structural Use of Concrete (parts 1 to 13)
BS 5896	Specification for High Tensile Steel Wire and Strand for the Prestressing of Concrete

API (American Petroleum Institute)


API 620	Design and construction of Large, Welded, Low Pressure Storage Tanks
API 2000	Venting Atmospheric and Low-Pressure Storage Tanks
API 2550	Method for Measurement and Calibration of Upright Cylindrical Tanks
API 2510	Design and construction of LPG installations
API 2510A	Fire protection considerations for the design & operation of Liquefied petroleum gas storage

ASTM (American Society for Testing and Materials)

ASTM A 537	Specification for Pressure Vessel Plates, Heat Carbon-Manganese-Silicon Steel
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Others

EEMUA No 147	Recommendations for the Design and Construction of Refrigerated Liquefied Gas storage Tanks
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AISI E-I	Steel Plate Engineering Data Series : Useful Information - Design of Plate Structure, Volume II
FIP-CEB	Report on Method of Assessment of the Fire Resistance of Concrete Structural Members
FIP-CEB	Model Code 1990
FIP-CEB	Bulletin 174 - Model Code for Fire Design of Concrete Structures
FIP Recommendations	Acceptance and Application of Post-tensioning System
FIP Recommendations	Approval, Supply and Acceptance of Steels for Prestressing
FIP Report	Assesment of Mechanical Properties of Structural Materials for Cryogenic Applications.
ASME SA 435	Specification for Straight Beam Ultrasonic Examination of Steel Plates


UBC (Uniform Building Code)

UBC	Volume 2 Chapter 16 Division III = Wind Design Division IV = Earthquake Design
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3.6 ROTATING EQUIPMENT

API (American Petroleum Institute)

API 610	Centrifugal Pumps for Petroleum, Heavy Duty Chemical & Gas Industry Services
API 613	Special-Purpose Gear Units for Refinery Petroleum, Chemical and Gas Industry Services
API 614	Lubrication, Shaft-Sealing, and Control System for Special Purpose Applications
API 616	Gas Turbines for Refinery Services
API 617	Centrifugal Compressors for Petroleum, Chemical and Gas Service Industries
API 618	Reciprocating Compressors for Petroleum, Chemical and Gas

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	Industry Services
API 670	Vibration, Axial-Position, and Bearing Temperature Monitoring Systems
API 671	Special-Purpose Couplings for Refinery Service
API 672	Packaged Integrally Geared, Centrifugal Air Compressors for Petroleum, Chemical and Gas Industry Services
API 674	Positive displacement pumps - Reciprocating
API 675	Positive displacement pumps - Controlled volume
API 676	Positive Displacement Pump - Rotary
API 682	Shaft Sealing Systems for Centrifugal and Rotary Pumps
API 686	Recommended Practices for Machinery Installation and Installation Design
API 619	Rotary Type Positive Displacement Compressor for Petroleum and Gas Industry Services
API 673	Centrifugal Fans for ,Petroleum, Chemical and Gas Industry Services
API 677	General Purpose Gear Units for Petroleum,Chemical and Gas Industry Services

NFPA (National Fire Protection Association)

NFPA 20	Installation of Stationary Pumps for Fire Protection
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ASME (American Society of Mechanical Engineers).

Power Test Code:

- PTC 9 "Displacement Compressors"
- PTC 10 "Compressors and Exhausters"
- PTC 22 "Gas Turbine Power Plant"
- PTC 1 "General Instruction"
- PTC 7.1 "Reciprocating Pumps"
- PTC 8.2 "Centrifugal Pumps"

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- PTC 11 “Fans”
- PTC 17 “Reciprocating Internal Combustion Engines”
- PTC 30 “Air Cooled Heat Exchanger”

Hydraulic Institute Standards

ISO (International Organization for Standardization)

ISO 2548	Acceptance Tests for Centrifugal, Mixed Flow and Axial Pumps
ISO 1940	Mechanical Balancing of Rotating Bodies
ISO 5199	Industrials Pumps - Technical Specification for Centrifugal Pumps

Others

AGMA 6011	Association of Gear Manufacturers, Practice for High Speed Helical and Herringbone
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3.7 OVERHEAD CRANES AND HOISTS

FEM / I	Rules for the Design of Hoisting Appliances
NFE 52.126	French Norm for Testing Cranes
B.S. 2573 Parts 1&2	Rules for Design of Cranes
B.S. 466	Power Driven Overhead Traveling Crane

3.8 PIPING

ANSI/ASME (American National Standards Institute)

ASME B 1.1	Unified Inch Screw Threads
ASME B 1.20.1	Pipe Threads, General Purpose
ASME B 16.5	Steel Pipe Flanges and Flanged Fittings
ASME B 16.10	Face to Face and End to End Dimensions of Valves
ASME B 16.34	Steel Valves - Flanged, Threaded and welding End

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ASME B 16.47	Large Diameter Steel Flanges - NPS 26 through NPS 60
ASME B 31.1	Power Piping
ASME B 31.3	Process Piping.
ASME B 31.4	Transportation Systems for liquid Hydrocarbons and other Liquids
ASME B 31.8	Gas Transmission and Distribution Piping System
ASME B 16.48	Steel Line Blanks
ASME B 16.9	Factory Made Wrought Steel Butt-Welding Fittings
ASME B 16.28	Wrought steel butt welding short radius elbows and returns
ASME B 16.11	Forged Fittings, Socket-Welding and Threaded
ASME B 16.24	Cast Copper Alloy Pipe Flanges and Flanged Fittings
ASME B 16.25	Butt welding Ends
ASME B 16.20	Gaskets for Pipe Flanges - Ring-Joints, Spiral-Wound, and Jacketed
ASME B 16.21	Non-metallic Flat Gaskets for Pipe Flanges
ASME B 16.36	Steel Orifice Flanges
ASME B 18.2.1	Square and Hex Bolts and Screws
ASME B 18.2.2	Square and Hex Nuts
ASME B 31.8	Gas Transmission and Distribution Piping System
ASME B 36.10M	Welded and Seamless Wrought Steel Pipe
ASME B 36.19M	Stainless Steel Pipe
ASME B 46.1	Surface Texture

API (American Petroleum Institute)

API 598	Valve Inspection and Testing
API 600	Steel Gate Valves - Flanged and Butt-Welding Ends
API 602	Compact Steel Gate Valves
API 5L	Line Pipe
API 6D	Specification for Pipeline Valves
API 6 FA	Specification for Fire Test for Valves
API 15 LR	Low Pressure Fiberglass Line Pipe

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API 594	Wafer and Wafer-Lug Check Valves
API 604	Ductile Iron Gates Valves Flanged Ends
API 607	Fire Test for Soft-Seated Quarter-Turn Valves
API 609	Lug- and Wafer-Type Butterfly Valves
API 660	Shell and Tube Heat Exchangers for General Refinery Services

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

MSS SP6	Standard Finishes for Contact Faces of Pipe Flanges and connecting ends Flanges of Valves and Fittings
MSS SP25	Standard Marking System for Valves, Fittings, Flanges and Unions
MSS SP44	Steel Pipe Line Flanges
MSS SP58	Pipe Hangers and Supports - Material and Design
MSS SP69	Pipe Hangers and Supports - Selection and Application
MSS SP 9	Spot Facing for Bronze, Iron and Steel Flanges
MSS SP 42	Class 150 Corrosion Resistant Gate, Globe, Angle and Check Valves with Flanged and Butt Weld Ends
MSS SP 45	By-pass and Drain Connections
MSS SP 53/4/5	Quality Standards for Steel Castings for Valves, Flanges, and Fittings and Other Piping Components
MSS SP 61	Pressure Testing of Steel Valves
MSS SP 72	Ball Valves with Flanged or Butt-Welding Ends for General Service
MSS SP 80	Bronze Gate, Globe, Angle and Check Valves
MSS SP 97	integrally reinforced forged branch outlet fittings
MSS SP 43	Wrought Stainless Steel Butt-Welding Fittings
MSS SP 75	Specification for High Test Wrought Butt Welding Fittings
MSS SP 95	Swage (D) Nipples and Bull Plugs

Others

BS 6755	Specification and Test of Steel Valves for the Petroleum, Petrochemical and Allied Industries
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EJMA STD	Standard of the Expansion Joint Manufacturers Association, Inc. including Addenda
NACE MR 0175/ ISO 15156 (Ed.2001, Amendment 2005)	Sulphide Stress Cracking Resistant Metallic Materials for Oil Field Equipment
WRC 297	Welding Research Council
BS 5351	Specification for Steel Ball Valves for the Petroleum Petrochemical and Allied Industries (Amendment 1990)
BS 5352	Specification for Steel Wedge Gate,Globe and Check Valves 50 mm and Smaller for Petroleum Petrochemical and Allied Industries (Amendment 1990/1989)
BS 6755-1	Testing of Valves Part 1:Specification for Production Pressure Testing Requirements
BS 6755-2	Testing of Valves:Specification for Fire Type Testing Requirements
EJMA STD	Standard of the Expansion Joint Manufacturers Association Including Addenda

ASTM (American Society for Testing and Materials)

As described within Project Piping Classes.

Note: Other codes and standards as described within project piping classes and other project piping specification and latest revision (up to effective date of the contract) of these codes an standards shall be applied ,but shall be checked by software.

3.9 CIVIL - STRUCTURAL STEEL

3.9.1 Design Codes

◆ **Loading**

- Uniform Building Code

UBC - 1997

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- Minimum Design loads for buildings and other structures

ANSI/ASCE 7-02


◆ Concrete Design

- Building Code requirements for structural concrete :
American Concrete Institute (ACI), and more specifically :
A.C.I. 318 M-05 and commentary,
A.C.I. 318 RM-95 and including all A.C.I. codes and documents in reference,
A.C.I. 305R-91 “Hot weather concreting”,
A.C.I. 301,
A.C.I. 315.
- CIRIA Special publication 31 “Guide to concrete construction in the Gulf Region”.

ASTM C 33	Standard Specification for Concrete Aggregates
ASTM D242	Standard Specification for Mineral Filler for Bituminous Paving Mixtures
ASTM D692	Standard Specification for Bituminous Paving Mixtures
ASTM D698	Moisture-Density Relation of Soil Using 5.5 lb (2.5kg) Hammer and 12” (305mm) Drop
ASTM D1073	Standard Specification for Fine Aggregate for Bituminous Paving Mixtures
ASTM D1559	Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus
ASTM D2027	Standard Specification for Cutback Asphalt (Medium Curing Type)
ASTM D2028	Standard Specification for Cutback Asphalt (Rapid Curing Type)
ACI 318R	Building Code Requirements for Reinforced Concrete

◆ Steel structure Design

- A.I.S.C. Manual of American Institute for Steel Construction

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- A.I.S.C. 2001- ASD 1989 Manual of American Institute for Steel Construction
- ◆ Foundation
- Code of Practice for foundations of machinery (CP 2012).
- Welded steel tanks for oil storage API 650 for tank foundations.
- ◆ Roads design
- AASHTO Guide for design of Pavement structures 1993
- Overseas Road Note 31 (Fourth Edition)
“A guide to the structural design of bitumen-surfaced roads in tropical and sub-tropical countries”.
- Specification for Highway works - Highways agency.
The Stationary Office - 1994.
- ACI. 351.3R-04 “Foundations for Dynamic Equipment”.

3.9.2 Construction Standards

- ◆ American Concrete Institute (A.C.I.)
- ◆ American Institute of Steel Construction (A.I.S.C.)
- ◆ A.A.S.H.T.O. standards


3.9.3 Testing, Inspection and acceptance standards

- ◆ A.S.T.M. standards or equal (B.S., N.F....)

3.10 BUILDINGS

3.10.1 Design codes

- ◆ Uniform Building Code U.B.C - 1997
- ◆ Minimum design loads for buildings and other structures ANSI / ASCE 7 -93
- ◆ American Concrete Institute A.C.I. 318 M-95
- ◆ American Institute for steel construction

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- ◆ Safety Guide SG-22 for blast resistant design of building

3.10.2 Construction standards

- ◆ American Concrete Institute (A.C.I.)
- ◆ American Institute of Steel Construction (A.I.S.C.)

3.10.3 Testing inspection and acceptance standards

- ◆ A.S.T.M. Standards or equivalent (B.S., NF....)

3.10.4 Materials

- ◆ A.S.T.M. Standards or equal (B.S. - N.F.)


3.10.5 Acoustics

ISO 31/VII	Quantities and Units of Acoustics
ISO 140-9	Room-to-Room Sound Attenuation
ISO 717 : Part 1	Airborne Sound Installation in Buildings and Interior Building Element.
ISO 717 : Part 2	Airborne Sound Installation of Façade Elements and açades

3.10.6 Insulation

- ◆ A.S.T.M. Standards or equivalent (BS, NF,.....)

3.11 HVAC

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ASHRAE (American Society of Heating, Refrigeration and Air Conditioning Engineers)

ASHRAE 52.1-1991 Gravimetric and dust-spot procedures for testing air-cleaning used in general ventilation or removing particulate matter

ASHRAE 55a-1995 Thermal Environmental conditions for human occupancy

ASHRAE 62-2001 Ventilation for acceptable indoor air quality

ASHRAE Handbooks and Standards

OCMA (Oil Companies Materials Association)

Oil and Gas Environment

ARI (American Refrigeration Institute)

ARI 310/380-2004 Packaged Terminal Air-Conditioners and Heat Pumps

ARI 410-2001 Forced-Circulation Air-Cooling and Air-Heating Coils

ANSI/ARI 430-99 Central Station Air Handling Units

ARI 440-98 Room Fan-Coils

ANSI/ARI 640-2001 Commercial and Industrial Humidifiers

ARI 680-2001 Residential Air Filter Equipment

ARI 850-93 Commercial and Industrial Air Filter Equipment

AFI (American Filtering Institute)

ADC (Air Diffusion Council)

SMACNA (Sheet Metal and Air Conditioning Contractors National Association)

Low Pressure Duct Construction Standards

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NFPA 90A



STD. for Installation of Air-Conditioning and Ventilating System

3.12 ELECTRICAL

IEC (International Electrical Commission)

and in particular:

IEC 34/60034	Rotating Electrical Machines
IEC 56	High Voltage Alternating - Current Circuit Breakers
IEC 76/60076	Power Transformers
IEC 79/60079	Electrical Apparatus for Explosive Atmospheres
IEC 298	A.C. Metal-Enclosed Switchgear and Controlgear for Rated Voltages above 1 kV and Up to and Including 52 kV
IEC 364	Electrical Installations of Buildings
IEC 439	Low-Voltage Switchgear and Controlgear Assemblies
IEC 529	Classification of Degrees of Protection Provided by Enclosures for Electrical Equipment.
IEC 1024	Protection of Structures against Lightning
IEC 6 1034	Measurement of Smoke Density of Cables Burning Under Defined Conditions
IEC 60 173	Colours of the Cores of Flexible Cables and Cords First Edition
IEC 60 183	Guide to the selection of High-Voltage Cables Second Edition
IEC 60 227	Polyvinyl Chloride Insulated Cables of Rated Voltages up to and Including 450/570 V
IEC 60 228	Conductors of Insulated Cabled Second edition

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Doc. Number : : DB-1516-999-P332-203		

IEC 60 287	Electrical Cables-Calculation of the Rating
IEC 60 331	Tests for Electric Cables under Fire Conditions-Circuit Integrity
IEC 60 332	Tests for Electric Cables under Fire Conditions
IEC 60 354	Loading Guide for Oil-Immersed Power Transformers Second Edition
IEC 60 364	Electrical Installations of Buildings
IEC 60 446	Basic and safety Principles for man-machine interface, marking and identification-identification of conductors by colures or numerals
IEC 60 502	Power Cables with Extruded Insulation and Their Accessories for Voltages from 1KV
IEC 60 529	Degree of Protection Provided by Enclosures(IP code) Edition 2.1; Edition 2:1989 Consolidated With Amendment 1:1999
IEC 60 702	Mineral Insulated Cables and Their Terminations With a Rated Voltage Not Exceeding 750 V
IEC 60 726	Dry-Type Power Transformer First Edition; (Amendment 1-1986)
IEC 60034	Rotating Electrical Machines
IEC 60044-1	Instrument Transformer-part 1: Inductive Current Transformers
IEC 60044-2	Instrument Transformer-part 2: Inductive Voltage Transformers
IEC 60072	Dimensions and Output Series For Rotating Electrical Machines
IEC 60076	Power Transformer

  	South Pars Gas Field Development Phases 15&16 Onshore Facilities	 N.I.O.C. Pars Oil and Gas Company
	Doc Title : LIST OF APPLICABLE CODES & INDUSTRY STANDARDS	
	Doc. Number : : DB-1516-999-P332-203	
		Rev. No.: 4 Class:1

IEC 60079	Electrical apparatus for Explosive Gas Atmospheres
IEC 60085	Thermal evaluation and classification of electrical insulation
IEC 60146	Semiconductor Converters - General Requirements and Line Commutated Converters
IEC 60186	Voltage Transformers Second Edition; (amendment 1-1988) (Amendment 2-1995)
IEC 60228	Conductors of Insulated Cables Second Edition; Errata-09/1979; Supplement A-1982; Amendment 1-1993
IEC 60255	Electrical Relays
IEC 60269	Low-Voltage Fuses
IEC 60282	high-Voltage Fuses
IEC 60287	Electric Cables - Calculation of the Current Rating
IEC 60289	Reactors Second Edition; CENELEC EN 60289: 1994
IEC 60298	AC Metal-Enclosed Switchgear for Rated Voltage Above 1 KV and up to and Including 52 KV Third Edition; Amendment 1-1994; Corrigendum-1995;Corrigendum-1998
IEC 60335-2-29	Household and Similar Electrical Appliances - Safety - Part2-29 : Particular Requirements for Battery Chargers Fourth Edition

		South Pars Gas Field Development Phases 15&16 Onshore Facilities	
		Doc Title : LIST OF APPLICABLE CODES & INDUSTRY STANDARDS	Pars Oil and Gas Company
		Doc. Number : : DB-1516-999-P332-203	Rev. No.: 4 Class:1

IEC 60364	Electrical Installations of Buildings
IEC 60420	High-Voltage Alternating Current Switch-Fuse Combinations Second Edition
IEC 60439	Low-Voltage Switchgear and Control gear Assemblies
IEC 60470	High-Voltage Alternating Current Contactors and Contactor-Based Motor-Starters Second Edition; Cancels and Replaces IEC 60632-1
IEC 60478	Stabilized Power Supplies, DC Output
IEC 60529	Degree of Protection Provided by Enclosures(IP code) Edition 2.1; Edition 2:1989 Consolidated With Amendment 1:1999
IEC 60622	Secondary Cells and Batteries Containing Alkaline or other Non-Acid Electrolytes Sealed Nickel-Cadmium Prismatic Rechargeable Single Cells Third Edition
IEC 60623	Secondary cells and batteries containing Alkaline or Other Non-acid electrolytes Vented nickel-cadmium prismatic rechargeable single cells Fourth Edition
IEC 60686	Stabilized Power Supplies, AC Output First Edition
IEC 60694	Common Specifications For High-Voltage Switchgear and Control gear Standards Edition 2.2; Consolidated with amendment 1:2000; Amendment 2: 07/2001
IEC 60947	Low-Voltage Switchgear and Control gear
IEC 60989	Separating Transformers, Autotransformers, variable Transformer and Reactors First Edition

	South Pars Gas Field Development Phases 15&16 Onshore Facilities	 N.I.O.C. Pars Oil and Gas Company
Doc Title : LIST OF APPLICABLE CODES & INDUSTRY STANDARDS		Rev. No.: 4 Class:1
Doc. Number : : DB-1516-999-P332-203		

IEC 61000	Electromagnetic Compatibility
IEC 61024	Protection of Structures Against Lightning
IEC 62271	High-Voltage Switchgear and Control gear
IEC 61442	Electric Cables-test methods for accessories for power cables with rated voltage from 6Kv up to 30 Kv
IEC 60885-7	Electric test methods for electric cables part 1: Electrical tests for cables ,cords and wires for voltages up to and including 450/750 V
IEC 60092-375	Electrical Installations in Ships - Part 375: Shipboard Telecommunication Cables and Radio-Frequency Cables - General Instrumentation, Control and Communication Cables
IEC 60754	Test on Gases Evolved During Combustion of Materials from Cables
IEC 61253	Piezoelectric ceramic resonators - A Specification in the IEC quality assessment system for electronic components (IECQ)
IEC 60068-2	Environmental testing - Part 2: Methods of test - Test Fg: Vibration, acoustically induced
<u>Others</u>	
CENELEC	European Standards and Publications
NFC 13200	High Voltage Electrical Installation
DIN 57141/ VDE0141/7-76	Earthing System in a.c. installations for rated voltages above 7 Kv
NFPA 70	Electrical Standard for Industrial Machinery

 	South Pars Gas Field Development Phases 15&16 Onshore Facilities	 Pars Oil and Gas Company
	Doc Title : LIST OF APPLICABLE CODES & INDUSTRY STANDARDS	
	Doc. Number : : DB-1516-999-P332-203	

IEEE 80 Earthing System

3.13 INSTRUMENTATION - CONTROLS

ANSI (American National Standards Institute)

B 16 - 34 Valves - Flanged, Threaded and Welding End
FCI 70-2 Control Valve Seat Leakage
MC 96 - 1 Temperature Measurement Thermocouples

API (American Petroleum Institute)

Manual of Petroleum Measurement Standards

API RP 521 Guide for Pressure Relief and Depressurising Systems
API Std 526 Flanged Steel Safety Valves for Use in Petroleum Industry
(including marking)
API Std 527 Commercial Seat Tightness of Safety Relief Valves with
Metal to Metal Seat
API RP 551 Process Measurement Instrumentation
API RP 552 Transmission System
API RP 554 Process Instrumentation
API RP 555 Process Analysers
API Std 598 Valve Inspection and Testing.

ASME (American Society of Mechanical Engineers)

ASME, Div. 1 Flange Rating when Temperature Exceeds the Limits of
Sect. VIII, ap. 2 ANSI B 16-5
ASME, Div. 1 Hydraulic Test for Safety Relief Valve Sect. VIII

IEC (International Electrical Commission)

IEC 60-068.2 Basic Environmental Testing Procedures for Electronic
Components and Electronic Equipment
IEC 60-079 Electrical Apparatus for Explosive Gas Atmosphere

 	South Pars Gas Field Development Phases 15&16 Onshore Facilities	 Pars Oil and Gas Company
	Doc Title : LIST OF APPLICABLE CODES & INDUSTRY STANDARDS	
	Doc. Number : : DB-1516-999-P332-203	

IEC 60-331	Fire resisting characteristics of electrical cables
IEC 60-332	Tests on electric cables under fire conditions (with part 1 and part 3c)
IEC 60-529	Classification of Degree of Protection Provided by Enclosures
IEC 60-584	Thermocouples
IEC 60-751	Industrial Platinum Resistance Thermometer Sensors
IEC 60-801	Electromagnetic Compatibility for Industrial-Process Measurement and Control Equipment
IEC 61508	Functional safety of electrical/electronic/programmable electronic safety-related systems
IEC 61511	Functional Safety Instrumented System for the Process Industry sector
IEC 60092-375 Part 375:	Shipboard Telecommunication Cables and Radio-Frequency Cables - General Instrumentation, Control and Communication Cables
IEC 60092-376	Electrical installations in ships - Part 376: Shipboard Multi core Cables for control circuit

IEEE (Institute of Electrical and Electronics Engineers)

IEEE 472 Surge Protection Criteria

ISA (Instrument Society of America)

ISA S5.1	Instrumentation Symbols and Identification
ISA S75.01	Flow Equations for Sizing Control Valves
ISA S75.03	Uniform Face-to-Face Dimensions for Flanged Globe Style Control Valve Bodies
ISA S 18.1	Annunciator Sequences and Specifications

Manual of Petroleum Measurement Standards

Others

EIA RS 232/422/485 Interface between Data Terminal Equipment and Data Communication Equipment Employing serial Binary Data.

	South Pars Gas Field Development Phases 15&16 Onshore Facilities	 N.I.O.C. Pars Oil and Gas Company
	Doc Title : LIST OF APPLICABLE CODES & INDUSTRY STANDARDS	
	Doc. Number : : DB-1516-999-P332-203	
		Rev. No.: 4 Class:1

NACE MR 0175-99 Sulphide Stress Cracking Resistant Metallic Materials for Oilfield Equipment (1999 Revision)

ISO 5167-1 Measurement of fluid flow by means of pressure differential devices -Orifice Plates , Nozzles and Venturi Tube , inserted in circular cross-section conduits running full

3.14 SAFETY / FIRE PROTECTION

General

IP Code Part 15 Area Classification Code for Petroleum Installations
IP Code part 9 Large Bulk Pressure Storage and Refrigerated LPG

API (American Petroleum Institute)

API 2021 Fighting Fires in and around flammable and combustible liquid atmospheric storage tanks

NFPA (National Fire Protection Association)

NFPA 10 Portable Fire Extinguishers
NFPA 11 Low-Expansion Foam and Combined Agent Systems
NFPA 11A Medium- and High-Expansion Foam Systems
NFPA 11C Mobil Foam Apparatus
NFPA 12 Carbon Dioxide Extinguishing Systems
NFPA 13 Installation of Sprinklers Systems
NFPA 14 Installation of Standpipe Private Hydrants and Hose Systems
NFPA 15 Water Spray Fixed Systems for Fire Protection
NFPA 16 Installation of Deluge Form Water Sprinkler Systems and Foam-water spray systems
NFPA 17 Dry Chemical Extinguishing Systems
NFPA 20 Installation of Stationary Pumps for Fire Protection
NFPA 24 Private Fire Service Mains and Their Appurtenances

	South Pars Gas Field Development Phases 15&16 Onshore Facilities	 N.I.O.C. Pars Oil and Gas Company
Doc Title : LIST OF APPLICABLE CODES & INDUSTRY STANDARDS	Rev. No.: 4 Class:1	
Doc. Number : : DB-1516-999-P332-203		

NFPA 30	Flammable and Combustible Liquids Code
NFPA 45	Fire Protection for Laboratories using Chemicals
NFPA 58	Storage and Handling of Liquefied Petroleum Gases
NFPA 59	Standard for the Storage and handling of LPG at Utility Gas
NFPA 72	National Fire Alarm Code
NFPA 86	Ovens and Furnaces.
NFPA 101	Life Safety Code
NFPA 325	Fire Hazard Properties of Flammable Liquids, Gases and Volatile Solids

World Bank Standard.

3.15 NOISE CONTROL

EEMUA (Engineering Equipment and Material Users Association)

Pub. 140	Noise Procedure Specification (formally OCMA Spec. NWG1, Rev.2, 1980)
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ISO (International Organisation for Standardisation)

ISO Standards Handbook 35	Acoustics-Inc : Basic Standards, Methods of Noise Measurement, Audiometry & Human exposure to noise
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IEC (International Electrical Commission)

IEC 225	Specification for Octave-Band and Fractional-Octave-Band-Analog and Digital Filters
IEC 651	Recommendations for Sound-Level Meters

World Bank Standard.

3.16 PAINTING

ISO (International Organisation for Standardisation)

  	South Pars Gas Field Development Phases 15&16 Onshore Facilities	 N.I.O.C. Pars Oil and Gas Company
	Doc Title : LIST OF APPLICABLE CODES & INDUSTRY STANDARDS	
	Doc. Number : : DB-1516-999-P332-203	


ISO 8501 Preparation of Steel Substrates before Application of Paints and Related Products -- Visual Assessment of Surface Cleanliness -- Part 1: Rust Grades and Preparation Grades of Uncoated Steel Substrates and of Steel Substrated after Overall Removal of Previous Coatings.

SSPC (Steel Structures Painting Council)

SSPC-PA 2 Measurement of Dry Film Thickness with Magnetic gauges
SSPC-PA 3 A guide to Safety in Paint Application
SSPC-Vis 1 Visual Standard for Abrasive Blast Cleaned Steel
SP1 Solvent Cleaning
SP3 Power Tool Cleaning
SP5 White Metal Blast Cleaning
SP6 Commercial Blast Cleaning.
SP8 Pickling
SP10 Near-White Blast Cleaning
SP11 Power Tool Cleaning to Bare Metal
SSPC PA-1 Shop, field and maintenance painting
SSPC-SP 20 Zinc rich primers (Type I, "Inorganic", and type II, "Organic")
SP2 Hand tool Cleaning
SP7 Brush-off blast cleaning
SSPC AB1 Abrasive Specification NO.1 Manual and Slag Abrasive
SSPC VIS3 Visual Standard for Power and Hand Tool Cleaned Steel

ASTM (American Society for Testing and Materials)

ASTM D3359 Measuring Adhesion by Tape Test
ASTM D4417 Field Measurement of Surface Profile of Blast Cleaned Steel
ASTM D4541 Standard Test Method for Pull-off Strength of Coatings Using Portable Adhesion
ASTM D4752 Standard Test Method for Measuring MK resistance of Ethyl Silicate (Inorganic) Zinc Rich Primers by Solvent Rub

	South Pars Gas Field Development Phases 15&16 Onshore Facilities	 N.I.O.C. Pars Oil and Gas Company Rev. No.: 4 Class:1
Doc Title : LIST OF APPLICABLE CODES & INDUSTRY STANDARDS		
Doc. Number : : DB-1516-999-P332-203		

ASTM E337 Standards Test Method for Measuring Humidity with a Psychrometer Measurement of Wet and Dry Bulb Temperature

ASTM D520 Standard Specification for Zinc Dust Pigment

ASTM D4285 Standard Test Method for Indicating Oil or Water in Compressed Air

BSI (British Standards Institute)

BS 1710 Specifications for Identification of Pipelines and Services

BS 3900 Methods of Tests for Paints

NACE (National Association of Corrosion Engineers)

NACE RP 0178 Fabrication Details, Surface Finish Requirements and Proper Design

Considerations for Tanks and Vessels to be Lined for Immersion Service

NACE RP 0188 Discontinuity (Holiday) Testing of Protective Coatings

NACE RP 288 Inspection of Linings on Steel and Concrete

NACE MR 0175/ISO 15156 Petroleum and natural gas industries—Materials for use in H₂S-containing Environments in oil and gas production

NP 6 H 189 A State-of-the-Art Report of Protective Coatings for Carbon Steel and Austenitic Stainless Steel Surfaces Under Thermal Insulation and Cementitious Fireproofing

TM-O1 Visual Standard for Surfaces of New Steel Airblast Cleaned with Sand Abrasives

Others

NF 30124 Measuring of Dry Film Thickness Non Destructive method with magnetic flux.

 	South Pars Gas Field Development Phases 15&16 Onshore Facilities	 Pars Oil and Gas Company
	Doc Title : LIST OF APPLICABLE CODES & INDUSTRY STANDARDS	
	Doc. Number : : DB-1516-999-P332-203	Rev. No.: 4 Class:1

3.17 INSULATION

ASTM (American Society for Testing and Materials)

ASTM A167	Stainless Steel and Heat Resisting Chromium - Nickel Steel Plate, Sheet and Strip
ASTM A463	Steel Sheet, Cold-Rolled, Aluminum-coated, Type 1 and Type 2
ASTM C165	Measuring Compressive Properties of Thermal Insulations
ASTM C167	iberglass Material Density
ASTM C240	Foamglas Density
ASTM C450	Prefabrication and Field Fabrication of Thermal Insulating Fitting Covers, Adjunct No. 12-304500-00
ASTM C461	Mastics and Coatings Used with Thermal Insulation (R 1990)
ASTM C518	Steady-Sate Heat Flux Measurements and Thermal Transmission Properties by Means of The Heat Flow Meter Apparatus
ASTM C547	Mineral Fiber Performed Pipe Insulation
ASTM C552	Cellular Glass Thermal Insulation
ASTM C591	Unfaced Performed Rigid Cellular Polyurethane Thermal Insulation
ASTM C592	Mineral Fiber Blanket Insulation & Blanket Type Pipe Insulation (metal meshcovered)
ASTM C612	Mineral Fiber Block and Board Thermal Insulation
ASTM C680	Determination of Heat Gain or Loss and the Surface Temperature of Insulated pipe and Equipment Systems by the Use of a Computer Program
ASTM C795	Wicking Type Thermal Insulation for use over austenitic stainless steel
ASTM C871	Thermal Insulation Materials for Leachable Chloride, Fluoride, Silicate, and Sodium Ions
ASTM D93	Flash Point by Pensky-Martens Closed Tester
ASTM D1621	Compressive Properties of Rigid Cellular Plastics (R 1979)

	South Pars Gas Field Development Phases 15&16 Onshore Facilities	 N.I.O.C. Pars Oil and Gas Company Rev. No.: 4 Class:1
Doc Title : LIST OF APPLICABLE CODES & INDUSTRY STANDARDS		
Doc. Number : : DB-1516-999-P332-203		

ASTM D1622	Apparent Density of Ragid Cellular Plastics
ASTM D1623	Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics
ASTM D2341	Rigid Urethane Foam
ASTM D2856	Open Cell Content of Rigid Cellular Plastics by the Air Pycnometer.
ASTM E84	Surface Burning Characteristics of Building Materials
ASTM E90	Measurement of Airborn Sound Transmission Loss in Building Partitions
ASTM E96	Water Vapour Transmission of Materials

BSI (British Standard Institute)

BS 4735	Laboratory Method of Test for Assessment of the Horizontal Burning Characteristics of Specimens no longer than 150mm x 50mm x 13mm of Cellular Plastics and Cellular Rubber Materials when subjected to a Small Flame
BS 5970	Thermal Insulation of Pipe Work and Equipment (in the temperature range of -100°C to +870°C)

3.18 FIREPROOFING

UL 1709 Fire Tests on Building Materials and Structures
(Underwriter Laboratories)

3.19 WELDING / WELDING AND STEEL MATERIAL INSPECTIONS

European Norms

EN 10 204	Metallic Products - Types of Inspection Documents
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British Standards

BS EN 287	Approval Testing of Welders
BS EN 288	Welding Procedure for Metallic Materials
BS EN 473	Qualification and Certification of Non-destructive Personnel

 	South Pars Gas Field Development Phases 15&16 Onshore Facilities	 Pars Oil and Gas Company
	Doc Title : LIST OF APPLICABLE CODES & INDUSTRY STANDARDS	
	Doc. Number : : DB-1516-999-P332-203	Rev. No.: 4 Class:1


BS EN 584	Non-destructive testing - Industrial Radiographic Film
BS 2600	Method for Radiographic Examination of Fusion Welded Butts Joints in Steel
BS 2910	Method for Radiographic Examination of Welded Circumferential Butts Joints in Steel Pipes
BS 3923	Method for Ultrasonic Examination
BS 3971	Specification for Image Quality Indicators for Industrial Radiography
BS 4870	Approval Testing of Welding Welding Procedures.
BS 4871	Approval Testing of Welders to Approved Welding Procedures
BS 5996	Methods for Ultrasonic Testing and Specifying Quality Grades of Ferritic Steel Grades
BS 6072	Method for Magnetic Particle Flaw detection
BS 6443	Method for Penetrant Flaw Detection
BS 7257	Method for Radiographic Examination of Welded Branch Nozzle Joints

ASME (American Society of Mechanical Engineers) Codes

Section II -Part C :	Welding Rods, Electrodes and Filler Metals
Section V	Non-destructive Examination
Section VIII	Unfired Pressure Vessels, Divisions 1 and 2
Section IX	Welding Qualification

ASTM (American Society for Testing and Material(s) Standards

E92	Test Method for Vickers Hardness of Metallic Materials
E94	Guide for Radiographic Testing
E114	Ultrasonic Pulse-Echo Straight Beam Examination by the Contact Method
E125	Magnetic Particle Indications on Ferrous Castings
E142	Controlling Quality of Radiographic Testing
E165	Liquid Penetrant Inspection Examination
E709	Magnetic Particle Examination.

	South Pars Gas Field Development Phases 15&16 Onshore Facilities	 N.I.O.C. Pars Oil and Gas Company Rev. No.: 4 Class:1
	Doc Title : LIST OF APPLICABLE CODES & INDUSTRY STANDARDS	
	Doc. Number : : DB-1516-999-P332-203	

A578	Specification for Straight-Beam Ultrasonic Examination of Plain and Clad Steel Plates for Special Applications
A833	Indentation Hardness of Metallic Materials by Comparison Hardness Testers
E110	Standard Test Method for Indentation Hardness of Metallic Materials by Portable Hardness Testers
E140	Standard Hardness Conversion Tables of Metals

AWS (American Welding Society)

AWS A 4-2	Standard Procedure for Calibrating Magnetic Instruments to Measure the Delta Ferrite Content of Austenitic and Duplex Austenitic-Ferritic Stainless Steel Weld Metal.
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ASNT (American Society of Non-destructive Testing)

SNT - TC-1a	Recommended Practice for Non-Destructive Testing Personnel Qualification and Certification.
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3.20 TELECOM

Where there are no equivalent Iranian standards, the appropriate International and European standards shall be applied to the Telecommunications system Design. These shall include, but not be limited to, all applicable sections of :

- ◆ ITU Recommendations, including ITU-R and ILU-T
- ◆ EIA, IEE, IEEE, ISO and IEC Standards
- ◆ DTI MPT Specifications
- ◆ IMO Regulations
- ◆ ICAO Regulations
- ◆ CENELEC Standards
- ◆ EUTELSAT EESS Standards.

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3.21 Management

ISO 9001

Quality management systems — Requirements