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CONTRACT NO.: GC21109200

CONTRACT TITLE: FEED FOR MM RE-DEVELOPMENT AND PS-3 LIFE EXTENSION.

DOCUMENT TITLE:

**MAYDAN MAHZAM (MM) & BUL HANINE (BH) FIELD (GENOF)
SPECIFICATION FOR SP ITEMS**

wood.

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1.0 PURPOSE AND SCOPE

1.1 Project Description

Maydan Mahzam (MM) and Bul Hanine (BH) fields are two mature oil fields in Qatar Offshore, operated by QatarEnergy. The two fields have been producing oil and associated gas for over 50 years with the production rates continuously declining. The existing facilities have already exceeded their design life whilst significant quantity of oil and gas reserves remain to be recovered from the reservoirs. However, such potential cannot be realized through the existing facilities alone due to ageing and/or specific process requirements, and therefore QatarEnergy is undertaking extension of the field life through redevelopment of the assets under the “MM Redevelopment and PS-3 Life Extension Project”.

Each of these fields have an existing central production complex called PS2 (in MM field) and PS3 (in BH field) and several remote Well Head Platforms (hereafter commonly referred to as WHJ) with one or more wells. Well fluid from the WHJs is transported through a network of sub-sea pipelines to their respective Production Stations. Each Production Station complex has eight (8) bridge-linked platforms where oil, water and gas are separated and processed. The partially stabilized oil from PS2 and PS3 are routed to Halul Island for further dewatering, storage, and export. The excess associated gas is routed to onshore facilities through PS1 production station.

The Project aims to extend the life of these two fields by 30 years, by maximizing the use of existing facilities to the extent possible and by installing new facilities, as summarised below, to support the forecasted production profiles.

- a. The existing PS2 and PS3 production complex facilities and platforms will largely be redundant and shall be decommissioned, except for riser and production manifold platforms (1 no. in PS2 and 2 nos. in PS3), a support platform in PS2 and a WHJ in PS3. Following new platforms will be installed, bridge linked to existing complex:
 - Process Platform, Utilities and Living Quarters Platform, Riser platform, Flare Platform, and bridge support props at PS2.
 - Process Platform, Utilities and Living Quarters Platform, Gas Injection Compression Platform, Riser platform, Flare Platform, and bridge support props at PS3.
- b. New 16-slot WHJ in MM field with associated pipelines and umbilical.



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- c. Selected existing WHJs will be modified in both BH and MM fields to support the field life extension goals.
- d. Number of new pipelines and umbilical/power cables in BH and MM Fields. Majority of these are to replace existing pipelines, power cables, umbilical(s) and flatpacks which are rendered redundant and will be decommissioned.
- e. New 132kV subsea power cable from Halul to PS2 and PS3 with associated modifications at Halul.
- f. Modifications at PS1 for installation of new gas export and condensate return pipelines.

The engineering design will be developed in FEED to an acceptable level of detail, where QatarEnergy can initiate the bidding process and enter into the EPIC phase, on a lumpsum basis, efficiently without further work.

1.2 Purpose

The purpose of this specification together with the referenced COMPANY Standards, Specifications, and Project documents is to describe the minimum technical and functional requirements for the design, manufacture, supply and testing of piping special items required for this project. This shall be updated by EPIC CONTRACTOR by incorporating detailed engineering requirements and submitted for QatarEnergy approval during EPIC stage.

This document is written as amendments and supplements to the relevant Shell DEPs.

1.3 Scope

This document applies to all piping special items. Piping special items as per the applicable design conditions of the DEP piping classes, including Automatic Recirculation Valves (ARV), Barred Tees, Chemical Injection Quills, Corrosion Coupons, Flame Arresters, Flexible Hoses and Connections, and Strainers. All SPs to be supplied as per the SP datasheets.

2.0 DEFINITIONS AND ABBREVIATIONS

2.1 DEFINITIONS

Abbreviation	Description
Shall	the word “shall” is to be understood as mandatory
Should	the word “should” is to be understood as being strongly recommended
May	the word “may” is used where alternatives are equally acceptable
QE	QatarEnergy and its representatives or inspectors
Contractor / Purchaser	Company / Firm or Party appointed by QatarEnergy to perform the works in accordance with this specification
Manufacturer	The Party that manufactures, fabricates or produces materials or products covered by this specification
Supplier / Vendor	Company / Firm or Party appointed by Contractor to supply material, equipment, or other products in accordance with this specification

Table 1 – Definitions

2.2 ABBREVIATIONS & ACRONYMS

Abbreviation	Description
API	American Petroleum Institute
ARV	Automatic Recirculation Valve
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing & Materials
BS	British Standards
CRA	Corrosion Resistance Alloy
DEP	Design & Engineering Practice
FB	Full Bore
H ₂ S	Hydrogen Sulphide
ISO	International Organization of Standardization
ITP	Inspection and Test Plan
MESC	Materials and Equipment Standards and Code
MSS	Manufacturer’s Standardization Society
MT	Magnetic-particle Testing
MTO	Material Take Off

NACE	National Association of Corrosion Engineer
NDE	Non Destructive Examination
NPS	Nominal Pipe Size (inch)
NRV	Non Return Valve (Check valve)
P&ID	Piping and Instrument Diagram
PMC	Piping Material Class
PMS	Piping Material Specification
PT	Penetrant Testing
PTFE	Polytetrafluoroethylene
PEEK	Polyetheretherketone
PWHT	Post Weld Heat Treatment
QA/QC	Quality Assurance/Quality Control
RB	Reduced Bore
RT	Radiographic Testing
SP	Special Piping Item
SPIR	Spare Parts Interchangeability Record
TPC	Third Party Contractor
TPI	Third Party Inspector
UT	Ultrasonic Testing

Table 2 – Abbreviations & Acronyms

3.0 REFERENCES

This section identifies the applicable QatarEnergy Standards, SHELL's DEP and International Codes and Standards to be used for piping design of this project but not limited to. Latest edition shall be used unless specified otherwise. The codes and standards shall include but not limited to those listed below. Alternative standards may be considered, provided it can be shown that they are equivalent.



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3.1 QATARENERGY CORPORATE STANDARDS

Document Title	Document No.
Specification for Painting & Wrapping of Metal Surfaces	QP-SPC-L-002
QatarEnergy Corporate Philosophy for Fire and Safety	QP-PHL-S-001
QatarEnergy Technical Specification for Corrosion Monitoring in Oil and Gas Production Systems	QP-STD-L-009
QatarEnergy Engineering Standard for Specification for Sour Services Material	QP-STD-R-001
QatarEnergy Standard for Fabrication, Inspection and Installation of Carbon, Carbon-Manganese and Low Alloy Ferritic Steel Process Pipe Work	QP-STD-R-002
QatarEnergy Standard for Fabrication, Inspection and Installation of Austenitic and 25% Cr. Super Duplex Stainless Steel, Copper Base and Nickel Base Alloys Process Pipework.	QP-STD-R-003
QatarEnergy Standard for Non-Destructive Testing (NDT) Part 1: Management System and Personnel Qualification	QP-STD-R-008-1
QatarEnergy Standard for Non-Destructive Testing Part 2: Radiographic Testing (RT).	QP-STD-R-008-2
QatarEnergy Standard for Non-Destructive Testing Part 3: Ultrasonic Testing (UT).	QP-STD-R-008-3
QatarEnergy Standard for Non-Destructive Testing Part 4: Magnetic Particle Testing (MT).	QP-STD-R-008-4
QatarEnergy Standard for Non-Destructive Testing Part 5: Penetrant Testing (PT).	QP-STD-R-008-5
Quality Requirement for Procurement of Materials & Equipment	QP-STD-Q-003
Quality Requirements for Projects	QP-STD-Q-004
Procedure for Evaluating Deviations from Project Specification	QPR-VP-013
Procedure for Vendor Evaluation for PVL for Engineering Projects	QPR-VP-054

Table 3 – QatarEnergy Corporate Standards

3.2 SHELL DEP (VERSION 45)

Document Title	Document No.
Human Factor Engineering In Projects.	DEP.30.00.60.10-Gen
Human Factor Engineering Physical Workspace	DEP.30.00.60.20-Gen
Positive Material Identification Program	DEP.31.10.00.10-Gen
Metallic Material – Selected Standards.	DEP.30.10.02.11-Gen
Technical Requirements for the Supply of Components in 6MO Austenitic, 22CRr Duplex and 25CR Super Duplex Stainless Steel	DEP.30.10.02.35-Gen
Welding of Metals (Amendments / Supplements to API RP 582)	DEP 30.10.60.18-Gen
Protective Coatings for Onshore and Offshore Facilities (Including adoption of IOGP S-715)	DEP 30.48.00.31-Gen
Pipeline Transportation Systems - Pipeline Valves (Amendments or Supplements To ISO 14313)	DEP.31.36.00.30-Gen
Piping Class – Basis Of Design	DEP.31.38.01.10-Gen
Piping – Engineering and Layout Requirements	DEP.31.38.01.24-Gen
Piping – Process Design Requirements	DEP.31.38.01.25-Gen
Piping – Pipe Stress Analysis Requirements	DEP.31.38.01.26-Gen
Piping Classes – Exploration And Production	DEP.31.38.01.84-Gen
Shop and Field Fabrication of Piping Systems	DEP.31.38.01.31-Gen
Selection Of Materials For Life Cycle Performance (Upstream Equipment) Including H2S-Containing Environments (Amendments And Supplements To ISO 15156:2009)	DEP 39.01.10.12-Gen
Selection of Materials for Upstream Equipment (Amendments and Supplements to ISO 15156:2015)	DEP 39.01.10.12-Gen
Age-Hardened Nickel-Based Alloys for Oil and Gas Drilling and Production Equipment (Amendments/Supplements to API STD 6ACRA)	DEP 39.01.10.32-Gen
Spare Parts	DEP 70.10.90.11-Gen
Hydrogen Induced Cracking Sensitivity Test (Amendments/Supplements to NACE TM0284)	SPE 74/125
Flanges (Amendments/Supplements to ASME B16.5)	SPE 76/100
Flanges (Amendments/Supplements to ASME B16.47)	SPE 76/101
Carbon Steel Forgings (Amendments/Supplements to ASTM A105)	SPE 76/210
MESC Additional Requirements Ball Valves to BS 5351	SPE 77/100
Procedure and Technical Specification for Type Acceptance Testing (TAT) Of Industrial Valves	SPE 77/300
Synopsis Of Procedure and Technical Specification for Type Acceptance Testing (TAT) Of Industrial Valves	SPE 77/300A

Valves General Requirements.	SPE 77/302
Valves In Special Service.	SPE 77/303
Painting and Coating of Valves	SPE 77/310
Fugitive Emission Production Testing (Amendments/Supplements to ISO 15848- 2)	SPE 77/312
Valves with Corrosion Resistance Alloy (CRA) weld overlay cladding	SPE 77/313
Alloy And Stainless Steel Bolts (Amendments/Supplements to ASTM A 193)	SPE 81/001
Carbon And Alloy Steel Nuts (Amendments/Supplements to ASTM A194)	SPE 81/002
Coating Requirements for Bolts and Nuts (Amendments/Supplements to ASTM B 841)	SPE 81/007
Non-Metallic Flat Gaskets, With or Without Insert (Amendments/Supplements to ASME B16.21)	SPE 85/101
Spiral Wound Gaskets (Amendments/Supplements to ASME B16.20)	SPE 85/103
Graphite Packing Material (Amendments/Supplements to ASTM F 2168)	SPE 85/203
Packing Material Graphite and Carbon Braided Yarn (Amendments / Supplements to ASTM F 2191)	SPE 85/204
Type acceptance testing of gaskets	SPE 85/300

Table 4 – Shell DEP

3.3 PROJECT DOCUMENTS

Document Title	Document No.
Piping and Equipment Layout Design Basis	4355-GENOF-5-29-0001
Piping Material Specification	4355-GENOF-5-14-0001
Valve Specification	4355-GENOF-5-14-0005
Valve Data Sheets	4355-GENOF-5-13-0002
Actuated Valves Instrument Specification	4355-GENOF-4-14-0001
Topside Coating Selection Report	4355-GENOF-5-17-0020

Table 5 – Project Documents

3.4 AMERICAN SOCIETY OF MECHANICAL ENGINEERS

Document Title	Document No.
Process Piping	ASME B31.3
Non Destructive Examinations	ASME Sec V
Unified Inch Screw Threads (UN and UNR Thread form)	ASME B1.1
Pipe Flanges and Flanged Fittings	ASME B 16.5
Face to Face and End to End dimensions of valves	ASME B 16.10
Metallic Gaskets for Pipe Flanges–Ring Joint, Spiral Wound and Jacketed	ASME B 16.20
Nonmetallic Gaskets for Pipe Flanges	ASME B 16.21
Valves-Flanged, Threaded and Welding Ends	ASME B 16.34
Large diameter Steel Flanges	ASME B16.47
Welded and Seamless Wrought Steel Pipes	ASME B 36.10
Square and Hex Bolts and Screws (Inch series)	ASME B 18.2.1
Square and Hex Nuts (Inch Series)	ASME B 18.2.2
Surface Texture (Surface Roughness, Waviness and lag)	ASME B 46.1
Qualification Standard for Welding, Brazing, and Fusing Procedures; Welders; Brazers; and Welding, Brazing, and Fusing Operators	ASME SEC IX

Table 6 – American Society of Mechanical Engineers

3.5 AMERICAN SOCIETY FOR TESTING OF MATERIALS

Document Title	Document No.
Standard Specification for Carbon Steel Forgings for Piping application.	ASTM A 105
Standard Specification for Steel Castings, Carbon, Suitable for Fusion Welding, for High-Temperature Service	ASTM A 216
Standard Specification for Stainless Steel Bars and Shapes	ASTM A 276
Standard Specification for Stainless Steel Bars and Shapes for Use in Boilers and Other Pressure Vessels	ASTM A 479
Standard Specification for Castings, Nickel and Nickel Alloy	ASTM A 494
Standard Specification for Alloy-Steel and Stainless Steel Bolting Materials for High Temperature Service.	ASTM A 193
Standard Specification for Carbon and Alloy Steel Nuts for Bolts for High Pressure or High Temperature Service, or Both.	ASTM A 194
Standard Specification for Carbon and Low-Alloy Steel Forgings, Requiring Notch Toughness Testing for Piping Components	ASTM A 350



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Standard Specification for Castings, Austenitic, for Pressure-Containing Parts	ASTM A 351
Standard Specification for Steel Castings, Ferritic and Martensitic, for Pressure-Containing Parts, Suitable for Low-Temperature Service	ASTM A 352
Standard Specification for Forged or Rolled Alloy and Stainless Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service	ASTM A 182
Standard Specification for Ni-Fe-Cr-Mo-Cu Alloy (UNS N08825, UNS N08221, and UNS N06845) Rod and Bar	ASTM B 425
Standard Specification for Nickel Alloy Forgings	ASTM B 564
Test Methods and Definitions for Mechanical Testing of Steel Products	ASTM A370
Standard Practices for Detecting Susceptibility to Intergranular Attack in Austenitic Stainless Steels	ASTM A 262
Standard Specification for Castings, Austenitic-Ferritic (Duplex) Stainless Steel, for Pressure-Containing Parts	ASTM A 995
Standard Specification for Packing Material, Graphitic, Corrugated Ribbon or Textured Tape, and Die-Formed Ring	ASTM F2168
Standard Specification for Packing Material, Graphitic or Carbon Braided Yarn	ASTM F2191
Standard Test Methods for Detecting Susceptibility to Intergranular Corrosion in Wrought, Nickel-Rich, Chromium-Bearing Alloys	ASTM G28
Standard Test Methods for Pitting and Crevice Corrosion Resistance of Stainless Steels and Related Alloys by Use of Ferric Chloride Solution	ASTM G48
Standard Specification for Alloy Steel and Stainless Steel bolting material for Low temperature service	ASTM A320

Table 7 – American Society for Testing of Materials

3.6 AMERICAN PETROLEUM INSTITUTE STANDARDS

Document Title	Document No.
Pipeline Valves	API 6D
Specification for Wellhead and Christmas Tree Equipment	API 6A
Specification For Fire Test for Valves.	API Spec 6FA
Check Valves: Flanged, Lug, Wafer, and Butt-welding	API 594
Valve Inspection and testing	API 598
Steel Gate Valves Flanged and Butt Welding Ends, Bolted Bonnets	API 600
Steel gate, Globe and Check Valves for NPS 4 and smaller for Petroleum and Natural Gas Industries	API 602
Fire Test for quarter-turn Valves and Valves Equipped with Nonmetallic Seats	API 607

Table 8 – American Petroleum Institute Standards

3.7 BRITISH STANDARDS

Document Title	Document No.
Steel Check Valves (Flanged and butt-welding ends)	BS 1868
Steel Globe & Globe stop and Check Valves (Flanged and butt-welding ends) for petroleum, petrochemical and allied industries	BS 1873
Specification for copper alloy globe, globe stop and check, check and gate valves	BS 5154
Industrial valves. Copper alloy gate valves	BS EN 12288
Industrial valves. Testing of valves. Pressure tests, test procedures and acceptance criteria. Mandatory requirements	BS EN 12266-1
Industrial valves. Testing of valves. Tests, test procedures and acceptance criteria. Supplementary requirements	BS EN 12266-2
Metallic Products – Type of Inspection Documents	BS EN 10204

Table 9 – British Standards

3.8 MANUFACTURERS STANDARDISATION SOCIETY

Document Title	Document No.
Standard Finishes for Contact Faces of Pipe Flanges and Connecting end Flanges of Valves and Fittings.	MSS-SP-6
Standard Marking System for Valves, Fittings, Flanges and Unions	MSS-SP-25
Specification for High test Wrought Butt Welding Fitting	MSS-SP-75
Quality Standard for Steel Casting and Forgings for Valves, Flanges and Fittings and Other Piping Components – Magnetic Particle Examination Method.	MSS-SP-53
Integrally Reinforced Forged branch outlet Fittings-Socket Welding, Threaded and Butt welding Ends	MSS-SP-97

Table 10 – Manufacturers Standardisation Society

3.9 NATIONAL ASSOCIATION OF CORROSION ENGINEERS

Document Title	Document No.
Petroleum, Petrochemical and natural gas industries – Material for use in H ₂ S containing environments in oil and gas production.	NACE MR0175/ ISO 15156
Laboratory Testing of Metals for Resistance to Sulfide Stress Cracking and Stress Corrosion Cracking in H ₂ S Environments	TM 0177
Evaluation of Pipeline and Pressure Vessel Steels for Resistance to Hydrogen-Induced Cracking	TM 0284

Table 11 – National Association of Corrosion Engineers

3.10 INTERNATIONAL ORGANISATION FOR STANDARDISATION (ISO)

Document Title	Document No.
Industrial Valves-Pressure Testing of Valves	ISO 5208
Quality Management and Quality Assurance standard Guidelines for selection and use	ISO 9000
Steel and Steel Products- Inspection Documents	ISO 10474
Testing of Valves – Specification for Fire Type testing requirements	ISO 10497
Bolted bonnet steel Gate Valves for the petroleum, petrochemical and allied industries.	ISO 10434
Steel gate, globe and check valves 100 mm and smaller for the petroleum, petrochemical and allied industries.	ISO 15761

Table 12 – International Organisation for Standardisation (ISO)



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The above listing from section 3.1 to 3.10 is not an exhaustive list. Each material shall comply with its own ASTM standard and any other code / standard / requirements, that are deemed to be applicable as listed in individual MESC datasheets. The latest / current revisions, version, year of publication, etc. are to be followed.

3.11 ORDER OF PRECEDENCE

The FEED for the Redevelopment of MM & BH shall comply with all relevant rules and regulations in Qatar. In the event of conflict between the requirements of QatarEnergy Corporate Regulations and Philosophies and the DEPs, CONTRACTOR shall report the conflict to QatarEnergy for decision-making. The following order of precedence shall apply:

1. Qatar Statutory Regulations
2. QatarEnergy Corporate Regulations
3. QatarEnergy Corporate Philosophies
4. QatarEnergy Corporate Standards
5. QatarEnergy Addenda to Shell DEPs
6. Shell DEPs and MESCs
7. Project Specific Specifications
8. QatarEnergy Engineering Standards & Specifications (for items not covered by DEPs)
9. QatarEnergy recognized International / regional / national / industry Code & Standards for requirements not specified in any of above listed documents.



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4.0 DESIGN AND ENGINEERING REQUIREMENTS

4.1 SCOPE OF WORK

This specification together with the attachments covers the general requirements for the piping material and components including SPs used in the design, fabrication, construction and testing of process and utility piping of FEED for Maydan Mahzam and Bul Hanine fields.

4.2 DESIGN LIFE

The design life shall be 30 years, with due consideration of the operating and environmental conditions.

4.3 GENERAL

- Design of piping system shall comply with relevant project piping classes as per ASME B31.3, DEP 31.38.01.24-Gen Piping – Engineering and Layout Requirements, DEP 31.38.01.84 Piping Classes – Exploration and Production, together with other relevant Industry Codes and Standards as stated within this specification in the order of precedence.
- SHELL DEP Piping Classes are modified to suit the project requirements with respect to pressure, temperature, size, corrosion allowance etc, which shall not be changed/revised/updated without QatarEnergy approval.
- Piping materials for each piping component and limitation (pressure, temperature, size etc) are stated in the piping classes. Pressure and temperature stated in each piping class are the design limitations and shall not be exceeded except for short duration pressure excursion as allowed in clause no. 302.2.4 of ASME B31.3 with QatarEnergy approval.
- All metallic components in sour service shall meet the requirements of QP-STD- R-001 Rev 3 and NACE MR0175; in case of conflict, QP-STD-R-001 shall apply. Fabrication shall be in accordance with QP-STD-R-002 Rev 1 and NACE MR0175 in case of conflict, QP-STD-R-002 shall apply.
- Coating, painting, and wrapping for all piping shall be as per project specification, including inspection and certification, shall meet the requirements of QP-SPC-L-002 and DEP 30.48.00.31; in case of conflict, QP-SPC-L-002 shall apply.

5.0 ATTACHMENTS LIST

Attachment No.	Description	No. of Pages
1	SUMMARY OF SP ITEMS (INDEX)	16
2	AUTOMATIC RECIRCULATION VALVE DATASHEETS	14
3	BARRED TEE DATASHEETS	16
4	CHEMICAL INJECTION QUILL C/W DBB DATASHEETS	19
5	CORROSION COUPON AND PROBE DATASHEETS	52
6	FLAME ARRESTER DATASHEETS	5
7	FLEXIBLE HOSES AND CONNECTIONS DATASHEETS	24
8	STRAINER DATASHEETS	28
9	NON SLAM AXIAL FLOW CHECK VALVES	14
10	LINE LIST DETAILS FOR PIPING SPECIAL ITEMS	25

Table 8 – Attachments

6.0 NOTES

NOTE No.	Description
1	To be defined during EPIC phase.
2	Non Metallic wall thicknesses to be defined during EPIC phase.

Table 9 - Notes

Description	Size	Spec	Process Owner	PROCESS Special Item No	Drawing No	Piping SP Datasheet
AUTOMATIC RECIRCULATION VALVE	6"	11432	6"-630-WT-0040-11432	630-32-ARV-XXX	PS3L-6-51-0064-001	SP-ARV-001
AUTOMATIC RECIRCULATION VALVE	6"	11432	6"-630-WT-0039-11432	630-32-ARV-XXX	PS3L-6-51-0064-001	SP-ARV-001
AUTOMATIC RECIRCULATION VALVE	6"	36620	6"-632-PW-0075-36620	632-83-ARV-0011	PS3K-6-50-0026-001	SP-ARV-002
AUTOMATIC RECIRCULATION VALVE	6"	36620	6"-632-PW-0087-36620	632-83-ARV-0012	PS3K-6-50-0026-001	SP-ARV-002
AUTOMATIC RECIRCULATION VALVE	8"	31503	8"-632-OC-0040-31503	632-84-ARV-0020	PS3K-6-50-0018-001	SP-ARV-003
AUTOMATIC RECIRCULATION VALVE	8"	31503	8"-632-OC-0029-31503	632-84-ARV-0021	PS3K-6-50-0018-001	SP-ARV-003
AUTOMATIC RECIRCULATION VALVE	8"	31503	8"-632-OC-0034-31503	632-84-ARV-0022	PS3K-6-50-0018-001	SP-ARV-003
AUTOMATIC RECIRCULATION VALVE	10"	17320	10"-630-WR-0113-17320	630-30-ARV-0011	PS3L-6-51-0175-001	SP-ARV-004
AUTOMATIC RECIRCULATION VALVE	10"	17320	10"-630-WR-0116-17320	630-30-ARV-0012	PS3L-6-51-0176-001	SP-ARV-004
AUTOMATIC RECIRCULATION VALVE	12"	36620	3/4"-632-PW-0080-36620	632-83-ARV-0013	PS3K-6-50-0026-001	SP-ARV-005
AUTOMATIC RECIRCULATION VALVE	18"	17012	18"-630-WF-0002-17012	630-33-ARV-0021	PS3L-3-59-0001-001	SP-ARV-006
AUTOMATIC RECIRCULATION VALVE	18"	17012	18"-630-WF-0008-17012	630-33-ARV-0023	PS3L-3-59-0003-001	SP-ARV-006
AUTOMATIC RECIRCULATION VALVE	18"	17012	18"-630-WF-0003-17102	630-33-ARV-0022	PS3L-3-59-0002-001	SP-ARV-007
AUTOMATIC RECIRCULATION VALVE	18"	17012	18"-630-WF-0010-17012	630-33-ARV-0024	PS3L-3-59-0004-001	SP-ARV-007
AUTOMATIC RECIRCULATION VALVE	18"	17320	18"-630-WR-0002-17320	630-20-ARV-0011	PS3L-6-51-0060-001	SP-ARV-008
AUTOMATIC RECIRCULATION VALVE	18"	17320	18"-630-WR-0001-17320	630-20-ARV-0012	PS3L-6-51-0060-001	SP-ARV-008
AUTOMATIC RECIRCULATION VALVE	24"	17320	24"-633-WR-0013-17320	633-21-ARV-0014	PS3M-6-51-0040-001	SP-ARV-009
AUTOMATIC RECIRCULATION VALVE	24"	17320	24"-632-WR-0025-17320	632-21-ARV-0015	PS3K-6-51-0052-001	SP-ARV-009
AUTOMATIC RECIRCULATION VALVE	24"	17320	24"-633-WR-0019-17320	633-21-ARV-0015	PS3M-6-51-0041-001	SP-ARV-009
AUTOMATIC RECIRCULATION VALVE	24"	17320	24"-633-WR-0014-17320	633-21-ARV-0016	PS3M-6-51-0040-001	SP-ARV-009
AUTOMATIC RECIRCULATION VALVE	24"	17320	24"-632-WR-0019-17320	632-21-ARV-0018	PS3K-6-51-0040-001	SP-ARV-009
AUTOMATIC RECIRCULATION VALVE	24"	17320	24"-632-WR-0020-17320	632-21-ARV-0019	PS3K-6-51-0040-001	SP-ARV-009
BARRED TEE	6"	91ZZZ	6"-646-GP-0026-91ZZZ	646-84-BT-0001	MMI06C-6-50-0040-001	SP-BTE-001
BARRED TEE	6"	91ZZZ	6"-631-GP-0018-91ZZZ	631-84-BT-0003	PS3R-6-50-0022-001	SP-BTE-001
BARRED TEE	6"	91ZZZ	6"-631-GP-0036-91ZZZ	631-84-BT-0012	PS3R-6-50-0023-001	SP-BTE-001
BARRED TEE	6"	91ZZZ	6"-631-GP-0041-91ZZZ	631-84-BT-0013	PS3R-6-50-0024-001	SP-BTE-001
BARRED TEE	6"	91ZZZ	6"-GP-BH-G04A-0006-91ZZZ	73-SP-0002	4355-BHG04A-6-50-0002-001	SP-BTE-001
BARRED TEE	6"	91ZZZ	6"-GP-BH-SA-0026-91ZZZ	73-SP-0007	4355-BHSA-6-50-0002-001	SP-BTE-001
BARRED TEE	6"	91ZZZ	6"-GP-BH-SC-0087-91ZZZ	73-SP-0011	4355-BHSC-6-50-0002-001	SP-BTE-001
BARRED TEE	6"	91ZZZ	6"-GP-BH-SC-0095-91ZZZ	73-SP-0012	4355-BHSC-6-50-0003-001	SP-BTE-001
BARRED TEE	6"	91ZZZ	6"-GP-BH-I07A-0034-91ZZZ	73-SP-0013	4355-BHI07A-6-50-0006-001	SP-BTE-001
BARRED TEE	6"	91ZZZ	6"-GP-BH-I07A-X001-91ZZZ	73-SP-0016	4355-BHI07A-6-50-0004-001	SP-BTE-001
BARRED TEE	6"	91ZZZ	6"-GP-BH-K05A-0017-91ZZZ	73-SP-0017	4355-BHK05A-6-50-0002-001	SP-BTE-001
BARRED TEE	6"	91ZZZ	6"-GP-BH-K06B-X001-91ZZZ	73-SP-0019	4355-BHK06B-6-50-0007-001	SP-BTE-001
BARRED TEE	6"	91ZZZ	6"-GP-BH-G07A-X002-91ZZZ	73-SP-0021	4355-BHG07A-6-50-0001-008	SP-BTE-001
BARRED TEE	6"	91ZZZ	6"-620-GP-0070-91ZZZ	84-SP-0003	4355-PS3MP01-6-50-1015-001	SP-BTE-001
BARRED TEE	8"	91ZZZ	8"-646-GP-0027-91ZZZ	646-84-BT-0003	MMI06C-6-50-0035-001	SP-BTE-002
BARRED TEE	8"	151ZZZ	8"-631-OC-0029-151ZZZ	631-84-BT-0015	PS3R-6-50-0002-001	SP-BTE-003
BARRED TEE	8"	151ZZZ	8"-OC-BH-G04A-0005-151ZZZ	73-SP-0003	4355-BHG04A-6-50-0004-001	SP-BTE-003
BARRED TEE	8"	151ZZZ	8"-OC-BH-K04A-0010-151ZZZ	73-SP-0008	4355-BHK04A-6-50-0001-004	SP-BTE-003
BARRED TEE	8"	151ZZZ	8"-OC-BH-N09A-X002-151ZZZ	73-SP-0010	4355-BHN09A-6-50-0003-001	SP-BTE-003
BARRED TEE	8"	151ZZZ	8"-OC-BH-L09A-X001-151ZZZ	73-SP-0020	4355-BHL09A-6-50-0002-001	SP-BTE-003
BARRED TEE	8"	151ZZZ	8"-OC-BH09A-X006-151ZZZ	73-SP-0024	4355-BHG09A-6-50-0014-001	SP-BTE-003
BARRED TEE	10"	91ZZZ	10"-631-GP-0044-91ZZZ	631-84-BT-0011	PS3R-6-50-0025-001	SP-BTE-004
BARRED TEE	10"	91ZZZ	10"-GP-BH-I07A-0019-91ZZZ	73-SP-0015	4355-BHI07A-6-50-0003-001	SP-BTE-004
BARRED TEE	10"	151ZZZ	10"-631-OC-0011-151ZZZ	631-84-BT-0014	PS3R-6-50-0001-001	SP-BTE-005
BARRED TEE	10"	151ZZZ	10"-631-OC-0141-151ZZZ	631-84-BT-0016	PS3R-6-50-0003-001	SP-BTE-005
BARRED TEE	10"	151ZZZ	10"-OC-BH-G04A-X001-151ZZZ	73-SP-0004	4355-BHG04A-6-50-0005-001	SP-BTE-005
BARRED TEE	10"	151ZZZ	10"-OC-BH-N09A-0059-151ZZZ	73-SP-0009	4355-BHN09A-6-50-0002-001	SP-BTE-005
BARRED TEE	12"	151ZZZ	12"-631-OC-0014-151ZZZ	631-84-BT-0004	PS3R-6-50-0011-001	SP-BTE-006
BARRED TEE	12"	151ZZZ	12"-631-OC-0151-151ZZZ	631-84-BT-0018	PS3R-6-50-0014-001	SP-BTE-006
BARRED TEE	12"	151ZZZ	12"-631-OC-0146-151ZZZ	631-84-BT-0019	PS3R-6-50-0017-001	SP-BTE-006
BARRED TEE	12"	151ZZZ	12"-631-OC-0156-151ZZZ	631-84-BT-0020	PS3R-6-50-0012-001	SP-BTE-006
BARRED TEE	12"	151ZZZ	12"-OC-BH-D05A-X001-151ZZZ	73-SP-0001	4355-BHD05A-6-50-0014-001	SP-BTE-006
BARRED TEE	12"	151ZZZ	12"-OC-BH-I03A-0050-151ZZZ	73-SP-0005	4355-BHI03A-6-50-0014-001	SP-BTE-006
BARRED TEE	12"	151ZZZ	12"-OC-BH-M04A-0037-151ZZZ	73-SP-0023	4355-BHM04A-6-50-0015-001	SP-BTE-006
BARRED TEE	14"	151ZZZ	14"-631-OC-0077-151ZZZ	631-84-BT-0001	PS3R-6-50-0016-001	SP-BTE-007
BARRED TEE	16"	151ZZZ	16"-631-OC-0083-151ZZZ	631-84-BT-0002	PS3R-6-50-0018-001	SP-BTE-008
BARRED TEE	16"	151ZZZ	16"-631-OC-0161-151ZZZ	631-84-BT-0017	PS3R-6-50-0013-001	SP-BTE-008
BARRED TEE	16"	151ZZZ	16"-OC-BH-I07A-0016-151ZZZ	73-SP-0014	4355-BHI07A-6-50-0002-001	SP-BTE-008
BARRED TEE	16"	151ZZZH	16"-646-PS-0038-151ZZZH	646-84-BT-0002	MMI06C-6-50-0034-001	SP-BTE-009
BARRED TEE	16"	151ZZZH	16"-620-PS-0034-151093KS	84-SP-0002	4355-PS3MP01-6-50-1006-002	SP-BTE-009
BARRED TEE	6"	91ZZZ	6"-GP-BH-I03A-0077-91ZZZ	73-SP-0006	4355-BHI03A-6-50-0015-001	SP-BTE-010
BARRED TEE	14x12	151ZZZ	14"-620-PS-X010-151ZZZ	84-SP-0001	4355-BHH09A-6-50-1017-001	SP-BTE-011
CHEMICAL INJECTION QUILL	1/2"	16620	1/2"-632-CI-0020-16620	632-42-IQ-0001	PS3K-6-50-0012-001	SP-CIQ-001
CHEMICAL INJECTION QUILL	1/2"	16620	1/2"-632-CI-0158-16620	632-42-IQ-0002	PS3K-6-50-0017-001	SP-CIQ-001
CHEMICAL INJECTION QUILL	1/2"	13461	1/2"-632-CI-0223-13461	632-42-IQ-0005	PS3K-6-51-0057-001	SP-CIQ-001
CHEMICAL INJECTION QUILL	1/2"	13461	1/2"-633-CI-0134-13461	633-42-IQ-0008	PS3M-6-51-0059-001	SP-CIQ-001
CHEMICAL INJECTION QUILL	1/2"	16620	1/2"-632-CI-0024-16620	632-42-IQ-0008	PS3K-6-50-0013-001	SP-CIQ-001
CHEMICAL INJECTION QUILL	1/2"	13461	1/2"-633-CI-?-13461	633-42-IQ-0009	PS3M-6-51-0053-001	SP-CIQ-001
CHEMICAL INJECTION QUILL	1/2"	13461	1/2"-633-CI-0131-13461	633-42-IQ-0010	PS3M-6-51-0053-001	SP-CIQ-001
CHEMICAL INJECTION QUILL	1/2"	16620	1/2"-632-CI-0041-16620	632-42-IQ-0011	PS3K-6-50-0019-001	SP-CIQ-001
CHEMICAL INJECTION QUILL	1/2"	13461	1/2"-633-CI-0132-13461	633-42-IQ-0011	PS3M-6-51-0053-001	SP-CIQ-001
CHEMICAL INJECTION QUILL	1/2"	13461	1/2"-633-CI-0133-13461	633-42-IQ-0012	PS3M-6-51-0053-001	SP-CIQ-001
CHEMICAL INJECTION QUILL	1/2"	16620	1/2"-632-CI-0058-16620	632-42-IQ-0013	PS3K-6-50-0026-001	SP-CIQ-001
CHEMICAL INJECTION QUILL	1/2"	16620	1/2"-632-CI-0040-16620	632-42-IQ-0014	PS3K-6-50-0022-001	SP-CIQ-001
CHEMICAL INJECTION QUILL	1/2"	16620	1/2"-632-CI-0039-16620	632-42-IQ-0015	PS3K-6-50-0021-001	SP-CIQ-001
CHEMICAL INJECTION QUILL	1/2"	13461	1/2"-632-CI-?-13461	632-42-IQ-0016	PS3K-6-51-0046-001	SP-CIQ-001
CHEMICAL INJECTION QUILL	1/2"	13461	1/2"-632-CI-0167-13461	632-42-IQ-0017	PS3K-6-51-0046-001	SP-CIQ-001

Description	Size	Spec	Process Owner	PROCESS Special Item No	Drawing No	Piping SP Datasheet
CHEMICAL INJECTION QUILL	1/2"	13461	1/2"-632-CI-0195-13461	632-42-IQ-0018	PS3K-6-51-0046-001	SP-CIQ-001
CHEMICAL INJECTION QUILL	1/2"	13461	1/2"-632-CI-0222-13461	632-42-IQ-0019	PS3K-6-51-0046-001	SP-CIQ-001
CHEMICAL INJECTION QUILL	1/2"	13461	1/2"-630-CI-0071-13461	630-42-IQ-0020	PS3L-6-51-0068-001	SP-CIQ-001
CHEMICAL INJECTION QUILL	1/2"	16620	1/2"-632-CI-0066-16620	632-42-IQ-0020	PS3K-6-50-0013-001	SP-CIQ-001
CHEMICAL INJECTION QUILL	1/2"	13461	1/2"-630-CI-0008-13461	630-42-IQ-0021	PS3L-6-51-0063-001	SP-CIQ-001
CHEMICAL INJECTION QUILL	1/2"	13461	1/2"-630-CI-0027-13461	630-42-IQ-0022	PS3L-6-51-0063-001	SP-CIQ-001
CHEMICAL INJECTION QUILL	1/2"	16620	1/2"-632-CI-0065-16620	632-42-IQ-0022	PS3K-6-50-0012-001	SP-CIQ-001
CHEMICAL INJECTION QUILL	1/2"	13461	1/2"-630-CI-0069-13461	630-42-IQ-0023	PS3L-6-51-0063-001	SP-CIQ-001
CHEMICAL INJECTION QUILL	1/2"	16620	1/2"-632-CI-0028-16620	632-42-IQ-0023	PS3K-6-50-0014-001	SP-CIQ-001
CHEMICAL INJECTION QUILL	1/2"	16620	1/2"-632-CI-0067-16620	632-42-IQ-0024	PS3K-6-50-0014-001	SP-CIQ-001
CHEMICAL INJECTION QUILL	1/2"	15341	1/2"-CI-BH-K05-06-15341	73-IQ-0076	BHK05A	SP-CIQ-001
CHEMICAL INJECTION QUILL	1/2"	15341	1/2"-CI-BH-K05-05-15341	73-IQ-0077	BHK05A	SP-CIQ-001
CHEMICAL INJECTION QUILL	1/2"	15341	1/2"-CI-BH-K05-02-15341	73-IQ-0122	BHK05A	SP-CIQ-001
CHEMICAL INJECTION QUILL	3/4"	13461	3/4"-630-WT-?-13461	630-42-IQ-0024	PS3L-6-51-0063-001	SP-CIQ-002
CHEMICAL INJECTION QUILL	3/4"	15341	1/2"-CI-BH-K05-08-15341	73-IQ-0123	BHK05A	SP-CIQ-002
CHEMICAL INJECTION QUILL	1 1/2"	16620	1 1/2"-632-CI-0038-16620	632-42-IQ-0012	PS3K-6-50-0024-001	SP-CIQ-003
CHEMICAL INJECTION QUILL	1/2"	36620	1/2"-632-CI-0261-36620	632-42-IQ-0021	PS3K-6-50-0017-001	SP-CIQ-004
CHEMICAL INJECTION QUILL	1/2"	36620	1/2"-632-CI-0036-36620	632-42-IQ-0025	PS3K-6-50-0018-001	SP-CIQ-004
CHEMICAL INJECTION QUILL	1/2"	66620	1/2"-632-CG-0015-66620	632-42-IQ-0010	PS3K-6-50-0090-001	SP-CIQ-005
CHEMICAL INJECTION QUILL	1/2"	66620	1/2"-631-CG-0022-66620	631-42-IQ-0014	PS3R-6-51-0046-001	SP-CIQ-005
CHEMICAL INJECTION QUILL	1/2"	153461	1/2"-631-CI-0011-153461	631-42-IQ-0001	PS3R-6-50-0015-001	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	156620	1/2"-633-CG-0161-156620	633-42-IQ-0002	PS3M-6-51-0037-001	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	153461	1/2"-631-CI-0012-153461	631-42-IQ-0002	PS3R-6-50-0015-001	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	153461	1/2"-631-CI-0013-153461	631-42-IQ-0003	PS3R-6-50-0015-001	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	96620	1/2"-633-CG-0162-96620	633-42-IQ-0005	PS3M-6-51-0037-001	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	96620	1/2"-631-CG-0021-96620	631-42-IQ-0006	PS3R-6-51-0046-001	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	96620	1/2"-633-CG-0017-96620	633-42-IQ-0006	PS3M-6-50-0026-001	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	156620	1/2"-631-CI-0005-156620	631-42-IQ-0010	PS3R-6-50-0004-001	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	156620	1/2"-631-CI-0008-156620	631-42-IQ-0011	PS3R-6-50-0004-001	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	156620	1/2"-631-CI-0007-156620	631-42-IQ-0011	PS3BR14-6-50-0001-001	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	156620	1/2"-631-CI-0010-156620	631-42-IQ-0012	PS3R-6-50-0004-001	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	156620	1/2"-631-CI-0010-156620	631-42-IQ-0012	PS3BR14-6-50-0001-001	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	156620	1/2"-631-CI-0007-156620	631-42-IQ-0013	PS3R-6-50-0004-001	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	156620	1/2"-631-CI-0014-156620	631-42-IQ-0013	PS3BR14-6-50-0001-001	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	96620	1/2"-633-CG-0018-96620	633-42-IQ-0013	PS3M-6-50-0027-001	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	156620	1/2"-631-CI-0016-156620	631-42-IQ-0014	PS3BR14-6-50-0001-001	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	156620	1/2"-631-CI-0017-156620	631-42-IQ-0015	PS3BR14-6-50-0001-001	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	96620	1/2"-633-CI-0012-96620	633-42-IQ-0015	PS3M-6-50-0027-001	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	156620	1/2"-631-CI-0018-156620	631-42-IQ-0016	PS3BR14-6-50-0001-001	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	96620	1/2"-633-CG-0011-96620	633-42-IQ-0016	PS3M-6-50-0027-001	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	156620	1/2"-631-CI-0019-156620	631-42-IQ-0017	PS3BR14-6-50-0001-001	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	156620	1/2"-631-CI-0051-156620	631-42-IQ-0018	PS3BR14-6-50-0001-001	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	96620	1/2"-633-CG-0014-96620	633-42-IQ-0018	PS3M-6-50-0027-001	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	96620	1/2"-633-CI-0008-96620	633-42-IQ-0019	PS3M-6-50-0026-001	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	96620	1/2"-633-CG-0007-96620	633-42-IQ-0020	PS3M-6-50-0026-001	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	96620	1/2"-633-CG-0009-96620	633-42-IQ-0021	PS3M-6-50-0026-001	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	96620	1/2"-633-CI-0019-96620	633-42-IQ-0022	PS3M-6-50-0026-001	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	96620	1/2"-633-CG-0015-96620	633-42-IQ-0035	PS3M-6-50-0052-001	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	96620	1/2"-633-CG-0091-96620	633-42-IQ-0036	PS3M-6-50-0053-001	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	151503	2"-GP-BH-31-X003-151503	73-IQ-0124	BHK04A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	151503	2"-GP-BH-32-X002-151503	73-IQ-0125	BHK04A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	151503	2"-GP-BH-30-X004-151503	73-IQ-0126	BHK04A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	151093KS	8"-OC-BH-K04A-0009-151093KS	73-IQ-0036	BHK04A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	151093KS	8"-OC-BH-K04A-0009-151093KS	73-IQ-0037	BHK04A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	151093KS	8"-OC-BH-K04A-0009-151093KS	73-IQ-0038	BHK04A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	151093KS	8"-OC-BH-K04A-0009-151093KS	73-IQ-0039	BHK04A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	91503	2"-GP-BH-211-X001-91503	73-IQ-0110	BHI03A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	91503	2"-GP-BH-125-X002-91503	73-IQ-0111	BHI03A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	91503	2"-GP-BH-202-X003-91503	73-IQ-0112	BHI03A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	151503	2"-GP-BH-349-0060-151503	73-IQ-0020	BHI03A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	151093KS	4"-OC-BH-349-0042-151093KS	73-IQ-0021	BHI03A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	151503	2"-GP-BH-344-0064-151503	73-IQ-0022	BHI03A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	151093KS	4"-OC-BH-344-0043-151093KS	73-IQ-0023	BHI03A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	151503	2"-GP-BH-369-0068-151503	73-IQ-0024	BHI03A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	151503	2"-GP-BH-432-0072-151503	73-IQ-0025	BHI03A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	151093KS	4"-OC-BH-432-0045-151093KS	73-IQ-0026	BHI03A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	151093KS	10"-OC-BH-I03A-0041-151093KS	73-IQ-0113	BHI03A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	151093KS	10"-OC-BH-I03A-0041-151093KS	73-IQ-0027	BHI03A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	153461	1/2"-CI-BH-D05A-X001-153461	73-IQ-0051	BHD05A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	151503	2"-GP-BH-D05A-09-15151	73-IQ-0127	BHD05A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	151503	2"-GP-BH-D05A-0109-151503	73-IQ-0001	BHD05A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	151093KS	6"-OC-BH-355-0077-151093KS	73-IQ-0002	BHD05A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	151503	2"-GP-BH-334-0113-151503	73-IQ-0003	BHD05A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	151093KS	6"-OC-BH-334-0078-151093KS	73-IQ-0004	BHD05A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	151503	2"-GP-BH-336-0117-151503	73-IQ-0005	BHD05A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	151093KS	6"-OC-BH-336-0079-151093KS	73-IQ-0006	BHD05A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	151503	2"-GP-BH-328-0121-151503	73-IQ-0007	BHD05A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	151093KS	6"-OC-BH-328-0080-151093KS	73-IQ-0008	BHD05A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	151503	2"-GP-BH-430-0125-151503	73-IQ-0009	BHD05A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	151093KS	6"-OC-BH-430-0081-151093KS	73-IQ-0010	BHD05A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	151093KS	10"-OC-BH-D05A-0084-151093KS	73-IQ-0011	BHD05A	SP-CIQ-006

Description	Size	Spec	Process Owner	PROCESS Special Item No	Drawing No	Piping SP Datasheet
CHEMICAL INJECTION QUILL	1/2"	91503	2"-GP-BH-214-X001-91503	73-IQ-XXXX	BHN09A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	151503	2"-GP-BH-308-X002-151503	73-IQ-0063	BHN09A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	151503	2"-GP-BH-406-X003-151503	73-IQ-0065	BHN09A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	151503	2"-GP-BH-314-X004-151503	73-IQ-0040	BHN09A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	151093KS	10"-OC-BH-N09A-0057-151093KS	73-IQ-0041	BHN09A	SP-CIQ-006
CHEMICAL INJECTION QUILL	1/2"	151093KS	12"-OC-BH-N09A-0084-151093KS	73-IQ-0075	BHN09A	SP-CIQ-006
CHEMICAL INJECTION QUILL	3/4"	151093KS	3/4"-646-PS-0054-151093KS-3PG	646-42-IQ-0001	MMI06C-6-50-0023-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	3"-646-PS-0052-151093KS-3PG	646-42-IQ-0002	MMI06C-6-50-0021-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151503	2"-646-GP-0016-151503	646-42-IQ-0003	MMI06C-6-50-0021-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151503	2"-646-GP-0013-151503	646-42-IQ-0004	MMI06C-6-50-0019-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	3/4"-646-PS-0050-151093KS-3PG	646-42-IQ-0005	MMI06C-6-50-0019-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	3/4"-646-PS-0056-151093KS-3PG	646-42-IQ-0006	MMI06C-6-50-0025-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	3/4"-646-PS-0047-151093KS-3PG	646-42-IQ-0007	MMI06C-6-50-0016-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	3/4"-646-PS-0055-151093KS	646-42-IQ-0008	MMI06C-6-50-0024-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151503	3/4"-646-GP-0020-151503	646-42-IQ-0009	MMI06C-6-50-0025-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151503	3/4"-646-GP-0019-151503	646-42-IQ-0010	MMI06C-6-50-0024-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	3/4"-646-PS-0051-151093KS-3PG	646-42-IQ-0011	MMI06C-6-50-0020-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	3/4"-646-PS-0046-151093KS-3PG	646-42-IQ-0012	MMI06C-6-50-0015-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	3/4"-646-PS-0051-151093KS-3PG	646-42-IQ-0013	MMI06C-6-50-0020-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	3/4"-646-PS-0044-151093KS-3PG	646-42-IQ-0014	MMI06C-6-50-0013-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	3/4"-646-PS-0045-151093KS	646-42-IQ-0015	MMI06C-6-50-0014-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	3/4"-646-PS-0054-151093KS-3PG	646-42-IQ-0016	MMI06C-6-50-0023-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	3"-646-PS-0050-151093KS-3PG	646-42-IQ-0018	MMI06C-6-50-0019-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	3/4"-646-PS-0053-151093KS	646-42-IQ-0019	MMI06C-6-50-0022-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	3/4"-646-CI-7-151093KS	646-42-IQ-0020	MMI06C-6-50-0016-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	3/4"-646-PS-0053-151093KS	646-42-IQ-0021	MMI06C-6-50-0022-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	3/4"-646-PS-0046-151093KS-3PG	646-42-IQ-0022	MMI06C-6-50-0015-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	3/4"-646-PS-0056-151093KS-3PG	646-42-IQ-0023	MMI06C-6-50-0025-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	3/4"-646-PS-0055-151093KS	646-42-IQ-0024	MMI06C-6-50-0024-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151503	3/4"-646-GP-0007-151503	646-42-IQ-0025	MMI06C-6-50-0013-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	3/4"-646-PS-0057-151093KS	646-42-IQ-0026	MMI06C-6-50-0026-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151503	3/4"-646-GP-0015-151503	646-42-IQ-0027	MMI06C-6-50-0020-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151503	3/4"-646-GP-0008-151503	646-42-IQ-0028	MMI06C-6-50-0014-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	3/4"-646-PS-0044-151093KS-3PG	646-42-IQ-0029	MMI06C-6-50-0013-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151503	3/4"-646-GP-0021-151503	646-42-IQ-0030	MMI06C-6-50-0026-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	3/4"-646-PS-0045-151093KS	646-42-IQ-0031	MMI06C-6-50-0014-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	3/4"-646-PS-0043-151093KS-3PG	646-42-IQ-0032	MMI06C-6-50-0012-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151503	3/4"-646-GP-0017-151503	646-42-IQ-0033	MMI06C-6-50-0022-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	3/4"-646-PS-0057-151093KS	646-42-IQ-0034	MMI06C-6-50-0026-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	3/4"-646-PS-0043-151093KS-3PG	646-42-IQ-0035	MMI06C-6-50-0012-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	3/4"-646-PS-0048-151093KS-3PG	646-42-IQ-0036	MMI06C-6-50-0017-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151503	2"-646-GP-0011-151503	646-42-IQ-0037	MMI06C-6-50-0017-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	3/4"-646-PS-0048-151093KS-3PG	646-42-IQ-0038	MMI06C-6-50-0017-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	3/4"-646-PS-0049-151093KS-3PG	646-42-IQ-0039	MMI06C-6-50-0018-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	3/4"-646-PS-0049-151093KS-3PG	646-42-IQ-0040	MMI06C-6-50-0018-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151503	3/4"-646-GP-0012-151503	646-42-IQ-0041	MMI06C-6-50-0018-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151503	3/4"-646-GP-0018-151503	646-42-IQ-0042	MMI06C-6-50-0023-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151503	3/4"-646-GP-0010-151503	646-42-IQ-0043	MMI06C-6-50-0016-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151503	3/4"-646-GP-0009-151503	646-42-IQ-0044	MMI06C-6-50-0015-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151503	3/4"-646-GP-0006-151503	646-42-IQ-0045	MMI06C-6-50-0012-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151503	3/4"-646-GP-0014-151503	646-42-IQ-0046	MMI06C-6-50-0011-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	3/4"-646-PS-0003-151093KS	646-42-IQ-0047	MMI06C-6-50-0011-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	3/4"-646-PS-0003-151093KS	646-42-IQ-0048	MMI06C-6-50-0011-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	3/4"-646-CI-7-151093KS	646-42-IQ-0049	MMI06C-6-50-0034-001	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	153461	3/4"-CI-BH-I07A-X004-153461	73-IQ-0060	BHI07A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	153461	3/4"-CI-BH-I07A-X003-153461	73-IQ-0059	BHI07A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	153461	3/4"-CI-BH-I07A-X005-153461	73-IQ-0061	BHI07A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	153461	3/4"-CI-BH-I07A-X006-153461	73-IQ-0062	BHI07A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	6"-OC-BH-30-0011-151093KS	73-IQ-0032	BHK04A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	6"-OC-BH-30-0011-151093KS	73-IQ-0033	BHK04A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	4"-OC-BH-32-X001-151093KS	73-IQ-0034	BHK04A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	4"-OC-BH-32-X001-151093KS	73-IQ-0034	BHK04A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	6"-OC-BH-33-0002-151093KS	73-IQ-0012	BHG04A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	6"-OC-BH-33-0002-151093KS	73-IQ-0013	BHG04A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	3"-OC-BH-35-X002-151093KS	73-IQ-0031	BHG04A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151503	2"-GP-BH-33-0002-151503	73-IQ-0014	BHG04A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151503	2"-GP-BH-35-0003-151503	73-IQ-0015	BHG04A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	10"-OC-BH-G04A-0003-151093KS	73-IQ-0016	BHG04A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	10"-OC-BH-G04A-0003-151093KS	73-IQ-0017	BHG04A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	10"-OC-BH-G04A-0003-151093KS	73-IQ-0018	BHG04A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	10"-OC-BH-G04A-0003-151093KS	73-IQ-0019	BHG04A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	4"-OC-BH-308-X008-151093KS	73-IQ-0064	BHN09A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	4"-OC-BH-406-X009-151093KS	73-IQ-0066	BHN09A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	8"-OC-BH-314-0056-151093KS	73-IQ-0067	BHN09A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	10"-OC-BH-N09A-0057-151093KS	73-IQ-0072	BHN09A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	10"-OC-BH-N09A-0057-151093KS	73-IQ-0073	BHN09A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	10"-OC-BH-N09A-0057-151093KS	73-IQ-0074	BHN09A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	12"-OC-BH-N09A-0084-151093KS	73-IQ-0130	BHN09A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151503	2"-GP-BH-J07A-X007-151503	73-IQ-0114	BHI07A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	6"-OC-BH-50-0018-151093KS	73-IQ-0042	BHI07A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151503	2"-GP-BH-J07A-X008-151503	73-IQ-0115	BHI07A	SP-CIQ-007

Description	Size	Spec	Process Owner	PROCESS Special Item No	Drawing No	Piping SP Datasheet
CHEMICAL INJECTION QUILL	3/4"	151093KS	6"-OC-BH-49-0017-151093KS	73-IQ-0043	BHJ07A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151503	2"-GP-BH-J07A-X002-151503	73-IQ-0116	BHJ07A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	6"-OC-BH-71-0019-151093KS	73-IQ-0044	BHJ07A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151503	2"-GP-BH-J07A-X003-151503	73-IQ-0117	BHJ07A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	6"-OC-BH-72-0020-151093KS	73-IQ-0045	BHJ07A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151503	2"-GP-BH-J07A-X004-151503	73-IQ-0118	BHJ07A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	6"-OC-BH-48-0021-151093KS	73-IQ-0046	BHJ07A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151503	2"-GP-BH-J07A-X005-151503	73-IQ-0119	BHJ07A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	6"-OC-BH-130-X003-151093KS	73-IQ-0048	BHJ07A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151503	2"-GP-BH-J07-24-15151	73-IQ-0120	BHJ07A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	6"-OC-BH-131-0012-151093KS	73-IQ-0047	BHJ07A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151503	2"-GP-BH-J07-26-15151	73-IQ-0121	BHJ07A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	6"-OC-BH-137-0013-151093KS	73-IQ-0049	BHJ07A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	12"-OC-BH-J07A-0022-151093KS	73-IQ-0109	BHJ07A	SP-CIQ-007
CHEMICAL INJECTION QUILL	3/4"	151093KS	12"-OC-BH-J07A-0022-151093KS	73-IQ-0050	BHJ07A	SP-CIQ-007
CHEMICAL INJECTION QUILL	1"	156620	1"-633-CI-0010-156620	633-42-IQ-0007	PS3M-6-50-0026-001	SP-CIQ-008
CHEMICAL INJECTION QUILL	1"	156620	1"-633-CI-0013-156620	633-42-IQ-0014	PS3M-6-50-0027-001	SP-CIQ-008
CORROSION COUPON	6"	11432	6"-630-WT-0040-11432	630-32-XCC-0020	PS3L-6-51-0064-001	SP-XCC-001
CORROSION COUPON	6"	91503	6"-631-GP-0023-91503	631-84-XCC-0012	PS3R-6-50-0024-001	SP-XCC-002
CORROSION COUPON	6"	91503	6"-631-GP-0019-91503	631-84-XCC-0013	PS3R-6-50-0023-001	SP-XCC-002
CORROSION COUPON	6"	91503	6"-631-GP-0015-91503	631-84-XCC-0014	PS3R-6-50-0022-001	SP-XCC-002
CORROSION COUPON	6"	91503	6"-646-GP-0025-91503	646-84-XCC-0025	MMI06C-6-50-0040-001	SP-XCC-002
CORROSION COUPON	6"	151093KS	4"-646-PS-0011-151093KS	646-84-XCC-0001	MMI06C-6-50-0021-001	SP-XCC-003
CORROSION COUPON	6"	151093KS	4"-646-PS-0013-151093KS	646-84-XCC-0002	MMI06C-6-50-0023-001	SP-XCC-003
CORROSION COUPON	6"	151093KS	4"-646-PS-0009-151093KS	646-84-XCC-0003	MMI06C-6-50-0019-001	SP-XCC-003
CORROSION COUPON	6"	151093KS	4"-646-PS-0012-151093KS	646-84-XCC-0005	MMI06C-6-50-0022-001	SP-XCC-003
CORROSION COUPON	6"	151093KS	4"-646-PS-0006-151093KS	646-84-XCC-0007	MMI06C-6-50-0016-001	SP-XCC-003
CORROSION COUPON	6"	151093KS	4"-646-PS-0010-151093KS	646-84-XCC-0008	MMI06C-6-50-0020-001	SP-XCC-003
CORROSION COUPON	6"	151093KS	4"-646-PS-0004-151093KS	646-84-XCC-0009	MMI06C-6-50-0014-001	SP-XCC-003
CORROSION COUPON	6"	151093KS	4"-646-PS-0007-151093KS	646-84-XCC-0010	MMI06C-6-50-0017-001	SP-XCC-003
CORROSION COUPON	6"	151093KS	4"-646-PS-0015-151093KS	646-84-XCC-0012	MMI06C-6-50-0025-001	SP-XCC-003
CORROSION COUPON	6"	151093KS	6"-646-PS-0014-151093KS	646-84-XCC-0013	MMI06C-6-50-0024-001	SP-XCC-003
CORROSION COUPON	6"	151093KS	4"-646-PS-0005-151093KS	646-84-XCC-0014	MMI06C-6-50-0015-001	SP-XCC-003
CORROSION COUPON	6"	151093KS	4"-646-PS-0016-151093KS	646-84-XCC-0015	MMI06C-6-50-0026-001	SP-XCC-003
CORROSION COUPON	6"	151093KS	4"-646-PS-0042-151093KS	646-84-XCC-0016	MMI06C-6-50-0013-001	SP-XCC-003
CORROSION COUPON	6"	151093KS	4"-646-PS-0002-151093KS	646-84-XCC-0018	MMI06C-6-50-0012-001	SP-XCC-003
CORROSION COUPON	6"	151093KS	4"-646-PS-0008-151093KS	646-84-XCC-0020	MMI06C-6-50-0018-001	SP-XCC-003
CORROSION COUPON	6"	151093KS	6"-646-PS-0001-151093KS	646-84-XCC-0024	MMI06C-6-50-0011-001	SP-XCC-003
CORROSION COUPON	8"	91503	8"-646-GP-0003-91503	646-84-XCC-0021	MMI06C-6-50-0035-001	SP-XCC-004
CORROSION COUPON	8"	151093KS	8"-631-OC-0030-151093KS	631-84-XCC-0016	PS3R-6-50-0002-001	SP-XCC-005
CORROSION COUPON	10"	11503	10"-632-GP-0092-11503	632-11-XCC-0013	PS3K-6-50-0014-001	SP-XCC-006
CORROSION COUPON	10"	91093KS	10"-633-OC-0027-91093KS	633-84-XCC-0011	PS3BR12-6-50-0001-001	SP-XCC-007
CORROSION COUPON	10"	91503	10"-631-GP-0027-91503	631-84-XCC-0011	PS3R-6-50-0025-001	SP-XCC-008
CORROSION COUPON	10"	151093KS	10"-631-OC-0012-151093KS	631-84-XCC-0015	PS3R-6-50-0001-001	SP-XCC-009
CORROSION COUPON	10"	151093KS	10"-631-OC-0031-151093KS	631-84-XCC-0017	PS3R-6-50-0003-001	SP-XCC-009
CORROSION COUPON	10"	151093KS	10"-631-OC-0004-151093KS	631-84-XCC-0019	PS3BR14-6-50-0001-001	SP-XCC-009
CORROSION COUPON	12"	11093KS	12"-632-OC-0013-11093KS	632-11-XCC-0018	PS3K-6-50-0013-001	SP-XCC-010
CORROSION COUPON	12"	11093KS	12"-632-OC-0012-11093KS	632-84-XCC-0019	PS3K-6-50-0012-001	SP-XCC-010
CORROSION COUPON	12"	31503	8"-632-OC-0038-31503	632-84-XCC-0015	PS3K-6-50-0018-001	SP-XCC-011
CORROSION COUPON	12"	151093KS	12"-631-OC-0015-151093KS	631-84-XCC-0003	PS3R-6-50-0011-001	SP-XCC-012
CORROSION COUPON	12"	151093KS	12"-631-OC-0035-151093KS	631-84-XCC-0022	PS3BR14-6-50-0001-001	SP-XCC-012
CORROSION COUPON	12"	151093KS	12"-631-OC-0069-151093KS	631-84-XCC-0024	PS3R-6-50-0012-001	SP-XCC-012
CORROSION COUPON	12"	151093KS	12"-631-OC-0048-151093KS	631-84-XCC-0025	PS3R-6-50-0014-001	SP-XCC-012
CORROSION COUPON	12"	151093KS	12"-631-OC-0050-151093KS	631-84-XCC-0026	PS3R-6-50-0017-001	SP-XCC-012
CORROSION COUPON	14"	91503	14"-633-GP-0121-91503	633-84-CC-0014-XCC	PS3M-6-50-0026-001	SP-XCC-013
CORROSION COUPON	14"	91503	14"-633-GP-0120-91503	633-84-XCC-0013	PS3M-6-50-0027-001	SP-XCC-013
CORROSION COUPON	14"	151093KS	14"-631-OC-0067-151093KS	631-84-XCC-0001	PS3R-6-50-0016-001	SP-XCC-014
CORROSION COUPON	14"	151093KS	14"-631-OC-0002-151093KS	631-84-XCC-0018	PS3BR14-6-50-0001-001	SP-XCC-014
CORROSION COUPON	16"	151093KS	16"-631-OC-0066-151093KS	631-84-XCC-0002	PS3R-6-50-0018-001	SP-XCC-015
CORROSION COUPON	16"	151093KS	16"-646-PS-0036-151093KS	646-84-XCC-0022	MMI06C-6-50-0034-001	SP-XCC-015
CORROSION COUPON	16"	151093KS	16"-631-OC-0068-151093KS	631-84-XCC-0023	PS3R-6-50-0013-001	SP-XCC-015
CORROSION COUPON	20"	11503	20"-632-GP-0107-11503	632-11-XCC-0017	PS3K-6-50-0017-001	SP-XCC-016
CORROSION COUPON	20"	11093KS	20"-632-OC-0017-11093KS	632-84-XCC-0012	PS3K-6-50-0017-001	SP-XCC-017
CORROSION COUPON	24"	31432	24"-633-WT-0222-31432	633-32-XCC-0012	PS3M-6-51-0060-001	SP-XCC-018
CORROSION COUPON	24"	31432	24"-632-WT-0210-31432	632-32-XCC-0016-CC	PS3K-6-51-0059-001	SP-XCC-018
CORROSION COUPON	24"	11503	24"-632-GP-0084-11503	632-11-XCC-0027	PS3K-6-50-0013-001	SP-XCC-019
CORROSION COUPON	24"	151093KS	24"-631-OC-0006-151093KS	631-84-XCC-0020	PS3BR14-6-50-0001-001	SP-XCC-020
CORROSION COUPON	24"	151093KS	24"-631-OC-0008-151093KS	631-84-XCC-0021	PS3BR14-6-50-0001-001	SP-XCC-020
CORROSION COUPON	36"	11503	24"-632-GP-0080-11503	632-11-XCC-0014	PS3K-6-50-0012-001	SP-XCC-021
CORROSION PROBE	6"	91503	6"-631-GP-0023-91503	631-84-XCP-0012	PS3R-6-50-0024-001	SP-XCP-001
CORROSION PROBE	6"	91503	6"-631-GP-0019-91503	631-84-XCP-0013	PS3R-6-50-0023-001	SP-XCP-001
CORROSION PROBE	6"	91503	6"-631-GP-0015-91503	631-84-XCP-0014	PS3R-6-50-0022-001	SP-XCP-001
CORROSION PROBE	6"	91503	6"-646-GP-0025-91503	646-84-XCP-0025	MMI06C-6-50-0040-001	SP-XCP-001
CORROSION PROBE	6"	151093KS	4"-646-PS-0011-151093KS	646-84-XCP-0001	MMI06C-6-50-0021-001	SP-XCP-002
CORROSION PROBE	6"	151093KS	4"-646-PS-0013-151093KS	646-84-XCP-0002	MMI06C-6-50-0023-001	SP-XCP-002
CORROSION PROBE	6"	151093KS	4"-646-PS-0009-151093KS	646-84-XCP-0003	MMI06C-6-50-0019-001	SP-XCP-002
CORROSION PROBE	6"	151093KS	4"-646-PS-0012-151093KS	646-84-XCP-0005	MMI06C-6-50-0022-001	SP-XCP-002
CORROSION PROBE	6"	151093KS	4"-646-PS-0006-151093KS	646-84-XCP-0007	MMI06C-6-50-0016-001	SP-XCP-002
CORROSION PROBE	6"	151093KS	4"-646-PS-0010-151093KS	646-84-XCP-0008	MMI06C-6-50-0020-001	SP-XCP-002
CORROSION PROBE	6"	151093KS	4"-646-PS-0004-151093KS	646-84-XCP-0009	MMI06C-6-50-0014-001	SP-XCP-002

Description	Size	Spec	Process Owner	PROCESS Special Item No	Drawing No	Piping SP Datasheet
CORROSION PROBE	6"	151093KS	4"-646-PS-0007-151093KS	646-84-XCP-0010	MMI06C-6-50-0017-001	SP-XCP-002
CORROSION PROBE	6"	151093KS	4"-646-PS-0015-151093KS	646-84-XCP-0012	MMI06C-6-50-0025-001	SP-XCP-002
CORROSION PROBE	6"	151093KS	6"-646-PS-0014-151093KS	646-84-XCP-0013	MMI06C-6-50-0024-001	SP-XCP-002
CORROSION PROBE	6"	151093KS	4"-646-PS-0005-151093KS	646-84-XCP-0014	MMI06C-6-50-0015-001	SP-XCP-002
CORROSION PROBE	6"	151093KS	4"-646-PS-0016-151093KS	646-84-XCP-0015	MMI06C-6-50-0026-001	SP-XCP-002
CORROSION PROBE	6"	151093KS	4"-646-PS-0042-151093KS	646-84-XCP-0016	MMI06C-6-50-0013-001	SP-XCP-002
CORROSION PROBE	6"	151093KS	4"-646-PS-0002-151093KS	646-84-XCP-0018	MMI06C-6-50-0012-001	SP-XCP-002
CORROSION PROBE	6"	151093KS	4"-646-PS-0008-151093KS	646-84-XCP-0020	MMI06C-6-50-0018-001	SP-XCP-002
CORROSION PROBE	6"	151093KS	6"-646-PS-0001-151093KS	646-84-XCP-0024	MMI06C-6-50-0011-001	SP-XCP-002
CORROSION PROBE	8"	91503	8"-646-GP-0003-91503	646-84-XCP-0021	MMI06C-6-50-0035-001	SP-XCP-003
CORROSION PROBE	8"	151093KS	8"-631-OC-0030-151093KS	631-84-XCP-0016	PS3R-6-50-0002-001	SP-XCP-004
CORROSION PROBE	10"	91093KS	10"-633-OC-0027-91093KS	633-84-XCP-0011	PS3BR12-6-50-0001-001	SP-XCP-005
CORROSION PROBE	10"	91503	10"-631-GP-0027-91503	631-84-XCP-0011	PS3R-6-50-0025-001	SP-XCP-006
CORROSION PROBE	10"	151093KS	10"-631-OC-0012-151093KS	631-84-XCP-0015	PS3R-6-50-0001-001	SP-XCP-007
CORROSION PROBE	10"	151093KS	10"-631-OC-0031-151093KS	631-84-XCP-0017	PS3R-6-50-0003-001	SP-XCP-007
CORROSION PROBE	10"	151093KS	10"-631-OC-0004-151093KS	631-84-XCP-0019	PS3BR14-6-50-0001-001	SP-XCP-007
CORROSION PROBE	12"	11093KS	12"-632-OC-0013-11093KS	632-11-XCP-0017	PS3K-6-50-0013-001	SP-XCP-008
CORROSION PROBE	12"	11093KS	12"-632-OC-0012-11093KS	632-84-XCP-0018	PS3K-6-50-0012-001	SP-XCP-008
CORROSION PROBE	12"	31503	8"-632-OC-0038-31503	632-84-XCP-0014	PS3K-6-50-0018-001	SP-XCP-009
CORROSION PROBE	12"	151093KS	12"-631-OC-0015-151093KS	631-84-XCP-0003	PS3R-6-50-0011-001	SP-XCP-010
CORROSION PROBE	12"	151093KS	12"-631-OC-0035-151093KS	631-84-XCP-0022	PS3BR14-6-50-0001-001	SP-XCP-010
CORROSION PROBE	12"	151093KS	12"-631-OC-0069-151093KS	631-84-XCP-0024	PS3R-6-50-0012-001	SP-XCP-010
CORROSION PROBE	12"	151093KS	12"-631-OC-0048-151093KS	631-84-XCP-0025	PS3R-6-50-0014-001	SP-XCP-010
CORROSION PROBE	12"	151093KS	12"-631-OC-0050-151093KS	631-84-XCP-0026	PS3R-6-50-0017-001	SP-XCP-010
CORROSION PROBE	14"	91503	14"-633-GP-0121-91503	633-84-XCP-0014-XCP	PS3M-6-50-0026-001	SP-XCP-011
CORROSION PROBE	14"	91503	14"-633-GP-0120-91503	633-84-XCP-0013	PS3M-6-50-0027-001	SP-XCP-011
CORROSION PROBE	14"	151093KS	14"-631-OC-0067-151093KS	631-84-XCP-0001	PS3R-6-50-0016-001	SP-XCP-012
CORROSION PROBE	14"	151093KS	14"-631-OC-0002-151093KS	631-84-XCP-0018	PS3BR14-6-50-0001-001	SP-XCP-012
CORROSION PROBE	16"	151093KS	16"-631-OC-0066-151093KS	631-84-XCP-0002	PS3R-6-50-0018-001	SP-XCP-013
CORROSION PROBE	16"	151093KS	16"-646-PS-0036-151093KS	646-84-XCP-0022	MMI06C-6-50-0034-001	SP-XCP-013
CORROSION PROBE	16"	151093KS	16"-631-OC-0068-151093KS	631-84-XCP-0023	PS3R-6-50-0013-001	SP-XCP-013
CORROSION PROBE	20"	11093KS	20"-632-OC-0017-11093KS	632-84-XCP-0011	PS3K-6-50-0017-001	SP-XCP-014
CORROSION PROBE	24"	151093KS	24"-631-OC-0006-151093KS	631-84-XCP-0020	PS3BR14-6-50-0001-001	SP-XCP-015
CORROSION PROBE	24"	151093KS	24"-631-OC-0008-151093KS	631-84-XCP-0021	PS3BR14-6-50-0001-001	SP-XCP-015
CORROSION PROBE	6"	11432	6"-630-WT-0040-11432	630-32-XCP-0020	PS3L-6-51-0064-001	SP-XCP-016
CORROSION PROBE	24"	31432	24"-633-WT-0222-31432	633-32-XCP-0012	PS3M-6-51-0060-001	SP-XCP-017
CORROSION PROBE	24"	31432	24"-632-WT-0210-31432	632-32-XCP-0015-CP	PS3K-6-51-0059-001	SP-XCP-017
CORROSION PROBE	10"	11503	10"-632-GP-0092-11503	632-11-XCP-0012	PS3K-6-50-0014-001	SP-XCP-018
CORROSION PROBE	20"	11503	20"-632-GP-0107-11503	632-11-XCP-0016	PS3K-6-50-0017-001	SP-XCP-019
CORROSION PROBE	24"	11503	24"-632-GP-0084-11503	632-11-XCP-0026	PS3K-6-50-0013-001	SP-XCP-020
CORROSION PROBE	36"	11503	24"-632-GP-0080-11503	632-11-XCP-0013	PS3K-6-50-0012-001	SP-XCP-021
FLAME ARRESTER	1/2"	13461	1/2"-630-GV-0005-13461	630-42-FA-0014	PS3L-6-51-0005-001	SP-FMA-001
FLAME ARRESTER	1/2"	13461	1/2"-630-GV-0009-13461	630-42-FA-0017	PS3L-6-51-0009-001	SP-FMA-001
FLAME ARRESTER	1 1/2"	13461	1 1/2"-630-GV-0001-13461	630-42-FA-0011	PS3L-6-51-0001-001	SP-FMA-002
FLAME ARRESTER	1 1/2"	13461	1 1/2"-630-GV-0035-13461	630-42-FA-0012	PS3L-6-51-0168-001	SP-FMA-002
FLAME ARRESTER	1 1/2"	13461	1 1/2"-630-GV-0004-13461	630-42-FA-0013	PS3L-6-51-0004-001	SP-FMA-002
FLAME ARRESTER	1 1/2"	13461	1 1/2"-630-GV-0007-13461	630-42-FA-0015	PS3L-6-51-0007-001	SP-FMA-002
FLAME ARRESTER	1 1/2"	13461	1 1/2"-630-GV-0008-13461	630-42-FA-0016	PS3L-6-51-0008-001	SP-FMA-002
FLAME ARRESTER	1 1/2"	13461	1 1/2"-630-GV-0010-13461	630-42-FA-0018	PS3L-6-51-0010-001	SP-FMA-002
FLAME ARRESTER	1 1/2"	13461	1 1/2"-630-GV-0011-13461	630-42-FA-0019	PS3L-6-51-0011-001	SP-FMA-002
FLAME ARRESTER	1 1/2"	13461	1 1/2"-630-GV-0012-13461	630-42-FA-0020	PS3L-6-51-0012-001	SP-FMA-002
FLAME ARRESTER	1 1/2"	13461	1 1/2"-630-GV-0014-13461	630-42-FA-0021	PS3L-6-51-0014-001	SP-FMA-002
FLAME ARRESTER	1 1/2"	13461	1 1/2"-630-GV-0033-13461	630-42-FA-0022	PS3L-6-51-0018-001	SP-FMA-002
FLAME ARRESTER	1 1/2"	13461	1 1/2"-630-GV-0025-13461	630-42-FA-0025	PS3L-6-51-0016-001	SP-FMA-002
FLAME ARRESTER	1 1/2"	13461	1 1/2"-630-GV-0026-13461	630-42-FA-0026	PS3L-6-51-0017-001	SP-FMA-002
FLAME ARRESTER	2"	13461	2"-630-GV-0002-13461	630-42-FA-0012	PS3L-6-51-0002-001	SP-FMA-003
FLAME ARRESTER	2"	13461	2"-630-GV-0015-13461	630-42-FA-0024	PS3L-6-51-0015-001	SP-FMA-003
FLAME ARRESTER	2"	13461	2"-630-GV-0038-13461	630-42-FA-0035	PS3L-6-51-0019-001	SP-FMA-003
FLAME ARRESTER	3"	16620	3"-646-GV-0025-16620	646-70-FA-0001	MMI06C-6-51-0007-001	SP-FMA-004
FLAME ARRESTER	3"	16620	3"-GV-BH-D05A-0223-16620	73-FA-0001	4355-BHD05A-6-51-0002-001	SP-FMA-004
FLAME ARRESTER	3"	16620	3"-GV-BH-G04A-0062-16620	73-FA-0002	4355-BHG04A-6-51-0002-001	SP-FMA-004
FLAME ARRESTER	3"	16620	6"-GV-BH-D07B-X021-16620	73-FA-0003	4355-BHD07B-6-51-0002-001	SP-FMA-004
FLAME ARRESTER	3"	16620	3"-GV-BH-I03A-0143-16620	73-FA-0004	4355-BHI03A-6-51-0003-001	SP-FMA-004
FLAME ARRESTER	3"	16620	3"-GV-BH-E07B-0069-16620	73-FA-0005	4355-BHE07B-6-51-0001-001	SP-FMA-004
FLAME ARRESTER	3"	16620	3"-GV-BH-K04A-0036-16620	73-FA-0006	4355-BHK04A-6-51-0002-001	SP-FMA-004
FLAME ARRESTER	3"	16620	3"-GV-BH-N09A-0165-16620	73-FA-0007	4355-BHN09A-6-51-0002-001	SP-FMA-004
FLAME ARRESTER	3"	16620	6"-GV-BH-SC-0172-16620	73-FA-0008	4355-BHSC-6-51-0002-001	SP-FMA-004
FLAME ARRESTER	3"	16620	3"-GV-BH-I07A-X014-16620	73-FA-0009	4355-BHI07A-6-51-0002-001	SP-FMA-004
FLAME ARRESTER	3"	16620	3"-GV-BH-J07A-0047-16620	73-FA-0010	4355-BHI07A-6-51-0003-001	SP-FMA-004
FLAME ARRESTER	3"	16620	3"-GV-BH-K05A-0025-16620	73-FA-0011	4355-BHK05A-6-51-0001-002	SP-FMA-004
FLAME ARRESTER	3"	16620	3"-GV-BH-K06B-0245-16620	73-FA-0012	4355-BHK06B-6-51-0002-001	SP-FMA-004
FLAME ARRESTER	3"	16620	3"-GV-BH-L09A-0193-16620	73-FA-0013	4355-BHL09A-6-51-0002-001	SP-FMA-004
FLAME ARRESTER	3"	16620	6"-GV-BH-D07A-X027-16620	73-FA-0014	4355-BHG07A-6-51-0001-002	SP-FMA-004
FLAME ARRESTER	3"	16620	3"-GV-BH-M04A-0107-16620	73-FA-0015	4355-BHM04A-6-51-0002-001	SP-FMA-004
FLAME ARRESTER	3"	16620	3"-GV-BH-M05A-X024-16620	73-FA-0016	4355-BHM05A-6-51-0001-002	SP-FMA-004
FLAME ARRESTER	3"	16620	3"-GV-BH-G09A-X022-16620	73-FA-0017	4355-BHG09A-6-51-0002-001	SP-FMA-004
FLAME ARRESTER	8"	11432	8"-630-VA-0027-11432	630-35-FA-0011	PS3L-6-51-0021-001	SP-FMA-005
FLAME ARRESTER	8"	11432	8"-630-VA-0028-11432	630-35-FA-0012	PS3L-6-51-0026-001	SP-FMA-005
HOSE CONNECTION	1"	11432	1"-646-GN-0021-11432	646-38-DJ-0001	MMI06C-6-51-0005-001	SP-HSC-001

Description	Size	Spec	Process Owner	PROCESS Special Item No	Drawing No	Piping SP Datasheet
HOSE CONNECTION	1"	11432	1"-646-GN-0023-11432	646-38-DJ-0002	MMI06C-6-51-0007-001	SP-HSC-001
HOSE CONNECTION	1"	11432	1"-646-GN-0005-11432	646-38-DJ-0003	MMI06C-6-50-0038-001	SP-HSC-001
HOSE CONNECTION	1"	11432	1"-646-GN-0002-11432	646-38-DJ-0004	MMI06C-6-50-0032-001	SP-HSC-001
HOSE CONNECTION	1"	11432	1"-646-GN-0007-11432	646-38-DJ-0005	MMI06C-6-50-0040-001	SP-HSC-001
HOSE CONNECTION	1"	11432	1"-646-GN-0001-11432	646-38-DJ-0006	MMI06C-6-50-0031-001	SP-HSC-001
HOSE CONNECTION	1"	11432	1"-646-GN-0025-11432	646-38-DJ-0010	MMI06C-6-51-0007-001	SP-HSC-001
HOSE CONNECTION	1"	11432	1"-646-GN-0006-11432	646-38-DJ-0013	MMI06C-6-50-0032-001	SP-HSC-001
HOSE CONNECTION	1"	11432	1"-646-GN-0016-11432	646-38-DJ-0015	MMI06C-6-50-0037-001	SP-HSC-001
HOSE CONNECTION	1"	11432	1"-646-GN-0027-11432	646-38-DJ-0016	MMI06C-6-51-0001-001	SP-HSC-001
HOSE CONNECTION	1"	11432	1"-646-GN-0003-11432	646-38-DJ-0018	MMI06C-6-50-0035-001	SP-HSC-001
HOSE CONNECTION	1"	11432	1"-?-CI-?-11432	XXX-38-DJ-0019	MMI06C-6-50-0011-001	SP-HSC-001
HOSE CONNECTION	1"	11432	1"-?-CI-?-11432	XXX-38-DJ-0020	MMI06C-6-50-0012-001	SP-HSC-001
HOSE CONNECTION	1"	11432	1"-?-CI-?-11432	XXX-38-DJ-0021	MMI06C-6-50-0013-001	SP-HSC-001
HOSE CONNECTION	1"	11432	1"-?-CI-?-11432	XXX-38-DJ-0022	MMI06C-6-50-0014-001	SP-HSC-001
HOSE CONNECTION	1"	11432	1"-?-CI-?-11432	XXX-38-DJ-0023	MMI06C-6-50-0015-001	SP-HSC-001
HOSE CONNECTION	1"	11432	1"-?-CI-?-11432	XXX-38-DJ-0024	MMI06C-6-50-0016-001	SP-HSC-001
HOSE CONNECTION	1"	11432	1"-?-CI-?-11432	XXX-38-DJ-0025	MMI06C-6-50-0017-001	SP-HSC-001
HOSE CONNECTION	1"	11432	1"-?-CI-?-11432	XXX-38-DJ-0026	MMI06C-6-50-0018-001	SP-HSC-001
HOSE CONNECTION	1"	11432	1"-?-CI-?-11432	XXX-38-DJ-0027	MMI06C-6-50-0019-001	SP-HSC-001
HOSE CONNECTION	1"	11432	1"-?-CI-?-11432	XXX-38-DJ-0028	MMI06C-6-50-0020-001	SP-HSC-001
HOSE CONNECTION	1"	11432	1"-?-CI-?-11432	XXX-38-DJ-0029	MMI06C-6-50-0021-001	SP-HSC-001
HOSE CONNECTION	1"	11432	1"-?-CI-?-11432	XXX-38-DJ-0030	MMI06C-6-50-0022-001	SP-HSC-001
HOSE CONNECTION	1"	11432	1"-?-CI-?-11432	XXX-38-DJ-0031	MMI06C-6-50-0023-001	SP-HSC-001
HOSE CONNECTION	1"	11432	1"-646-CI-?-11432	646-38-DJ-0032	MMI06C-6-50-0024-001	SP-HSC-001
HOSE CONNECTION	1"	11432	1"-?-CI-?-11432	XXX-38-DJ-0033	MMI06C-6-50-0025-001	SP-HSC-001
HOSE CONNECTION	1"	11432	1"-?-CI-?-11432	XXX-38-DJ-0034	MMI06C-6-50-0026-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-G04A-0001-11432	73-DJ-0007	4355-BHG04A-6-50-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-G04A-0003-11432	73-DJ-0008	4355-BHG04A-6-50-0004-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-G04A-X002-11432	73-DJ-0009	4355-BHG04A-6-50-0005-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-G04A-0019-11432	73-DJ-0011	4355-BHG04A-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-D07B-X001-11432	73-DJ-0013	4355-BHD07B-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-I03A-X001-11432	73-DJ-0015	4355-BHI03A-6-50-0013-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-I03A-X002-11432	73-DJ-0016	4355-BHI03A-6-50-0013-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-I03A-X003-11432	73-DJ-0017	4355-BHI03A-6-50-0014-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-I03A-X004-11432	73-DJ-0018	4355-BHI03A-6-50-0015-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-I03A-X009-11432	73-DJ-0019	4355-BHI03A-6-51-0003-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-SA-X001-11432	73-DJ-0021	4355-BHSA-6-50-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-E07B-0021-11432	73-DJ-0022	4355-BHE07B-6-51-0001-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-K04A-X017-11432	73-DJ-0024	4355-BHK04A-6-50-0001-002	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-K04A-X018-11432	73-DJ-0025	4355-BHK04A-6-50-0001-002	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-K04A-X016-11432	73-DJ-0026	4355-BHK04A-6-50-0001-002	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-K04A-X007-11432	73-DJ-0027	4355-BHK04A-6-50-0001-004	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-K04A-0011-11432	73-DJ-0028	4355-BHK04A-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-N09A-X001-11432	73-DJ-0030	4355-BHN09A-6-50-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-N09A-0033-11432	73-DJ-0031	4355-BHN09A-6-50-0003-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-N09A-0034-11432	73-DJ-0032	4355-BHN09A-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	1"-GI-BH-SC-0036-11432	73-DJ-0034	4355-BHSC-6-50-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	1"-GI-BH-SC-X001-11432	73-DJ-0035	4355-BHSC-6-50-0003-001	SP-HSC-001
HOSE CONNECTION	1"	11432	1"-GI-BH-SC-0038-11432	73-DJ-0036	4355-BHSC-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-I07A-0023-11432	73-DJ-0038	4355-BHI07A-6-50-0006-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-I07A-0025-11432	73-DJ-0039	4355-BHI07A-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-J07A-X001-11432	73-DJ-0042	4355-BHJ07A-6-50-0001-004	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-J07A-X002-11432	73-DJ-0043	4355-BHJ07A-6-50-0001-004	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-J07A-X001-11432	73-DJ-0044	4355-BHJ07A-6-50-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-J07A-0013-11432	73-DJ-0045	4355-BHJ07A-6-50-0003-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-J07A-0003-11432	73-DJ-0046	4355-BHJ07A-6-50-0004-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-J07A-0014-11432	73-DJ-0047	4355-BHJ07A-6-51-0003-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-K05A-0005-11432	73-DJ-0049	4355-BHK05A-6-50-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-K05A-0009-11432	73-DJ-0050	4355-BHK05A-6-51-0001-002	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-K06B-0061-11432	73-DJ-0052	4355-BHK06B-6-50-0004-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-K06B-0060-11432	73-DJ-0053	4355-BHK06B-6-50-0004-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-K06B-0062-11432	73-DJ-0054	4355-BHK06B-6-50-0006-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-K06B-0063-11432	73-DJ-0055	4355-BHK06B-6-50-0006-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-K06B-0064-11432	73-DJ-0056	4355-BHK06B-6-50-0007-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-K06B-0066-11432	73-DJ-0057	4355-BHK06B-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-J07A-X003-11432	73-DJ-0062	4355-BHJ07A-6-51-0003-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-K04A-X019-11432	73-DJ-0063	4355-BHK04A-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-D07B-X002-11432	73-DJ-0064	4355-BHD07B-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-G07A-X001-11432	73-DJ-0065	4355-BHG07A-6-50-0001-008	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-G07A-X002-11432	73-DJ-0067	4355-BHG07A-6-51-0001-002	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-N09A-0054-11432	73-DJ-0069	4355-BHN09A-6-50-0005-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-K06B-X001-11432	73-DJ-0070	4355-BHK06B-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-K05A-X001-11432	73-DJ-0071	4355-BHK05A-6-51-0001-002	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-N09A-X002-11432	73-DJ-0072	4355-BHN09A-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-M05A-X001-11432	73-DJ-0079	4355-BHM05A-6-51-0001-002	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-M05A-X002-11432	73-DJ-0080	4355-BHM05A-6-51-0001-002	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-D05A-0056-11432	73-DJ-0091	4355-BHD05A-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-E07B-X001-11432	73-DJ-0094	4355-BHE07B-6-51-0001-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-BH-G04A-X001-11432	73-DJ-0096	4355-BHG04A-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	1"-GI-BH-SC-0038-11432	73-DJ-0097	4355-BHSC-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-620-GN-0046-11441M	84-DJ-0001	4355-PS3MP01-6-50-1006-002	SP-HSC-001

Description	Size	Spec	Process Owner	PROCESS Special Item No	Drawing No	Piping SP Datasheet
HOSE CONNECTION	1"	11432	2"-620-GN-X001-11432	84-DJ-0002	4355-PS3MP01-6-50-1015-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-620-GN-X001-11432	84-DJ-0003	4355-PS3MP01-6-50-1005-002	SP-HSC-001
HOSE CONNECTION	1"	11503	1"-631-GN-0019-11503	631-38-DJ-0001	PS3R-6-50-0016-001	SP-HSC-002
HOSE CONNECTION	1"	11503	1"-632-GN-0031-11503	632-38-DJ-0001	PS3K-6-50-0005-001	SP-HSC-002
HOSE CONNECTION	1"	11503	1"-633-GN-0121-11503	633-38-DJ-0001	PS3M-6-50-0025-001	SP-HSC-002
HOSE CONNECTION	1"	11503	1"-631-GN-0014-11503	631-38-DJ-0002	PS3R-6-50-0016-001	SP-HSC-002
HOSE CONNECTION	1"	11503	1"-632-GN-0033-11503	632-38-DJ-0002	PS3K-6-50-0005-001	SP-HSC-002
HOSE CONNECTION	1"	11503	1"-633-GN-0122-11503	633-38-DJ-0002	PS3M-6-50-0025-001	SP-HSC-002
HOSE CONNECTION	1"	11503	1"-631-GN-0022-11503	631-38-DJ-0003	PS3R-6-50-0018-001	SP-HSC-002
HOSE CONNECTION	1"	11503	1"-631-GN-0017-11503	631-38-DJ-0004	PS3R-6-50-0018-001	SP-HSC-002
HOSE CONNECTION	1"	11503	1"-631-GN-0020-11503	631-38-DJ-0005	PS3R-6-50-0015-001	SP-HSC-002
HOSE CONNECTION	1"	11503	1"-631-GN-0021-11503	631-38-DJ-0006	PS3R-6-50-0011-001	SP-HSC-002
HOSE CONNECTION	1"	11503	1"-631-GN-0005-11503	631-38-DJ-0007	PS3R-6-50-0011-001	SP-HSC-002
HOSE CONNECTION	1"	11503	1"-631-GN-0001-11503	631-38-DJ-0008	PS3R-6-50-0004-001	SP-HSC-002
HOSE CONNECTION	1"	11503	1"-631-GN-0026-11503	631-38-DJ-0014	PS3R-6-50-0001-001	SP-HSC-002
HOSE CONNECTION	1"	11503	1"-631-GN-0003-11503	631-38-DJ-0015	PS3R-6-50-0001-001	SP-HSC-002
HOSE CONNECTION	1"	11503	1"-631-GN-0044-11503	631-38-DJ-0016	PS3R-6-50-0002-001	SP-HSC-002
HOSE CONNECTION	1"	11503	1"-631-GN-0046-11503	631-38-DJ-0017	PS3R-6-50-0002-001	SP-HSC-002
HOSE CONNECTION	1"	11503	1"-631-GN-0048-11503	631-38-DJ-0022	PS3R-6-50-0003-001	SP-HSC-002
HOSE CONNECTION	1"	11503	1"-631-GN-0050-11503	631-38-DJ-0023	PS3R-6-50-0003-001	SP-HSC-002
HOSE CONNECTION	1"	11503	1"-631-GN-0064-11503	631-38-DJ-0024	PS3R-6-50-0013-001	SP-HSC-002
HOSE CONNECTION	1"	11503	1"-631-GN-0066-11503	631-38-DJ-0025	PS3R-6-50-0013-001	SP-HSC-002
HOSE CONNECTION	1"	11503	1"-631-GN-0056-11503	631-38-DJ-0026	PS3R-6-50-0014-001	SP-HSC-002
HOSE CONNECTION	1"	11503	1"-631-GN-0058-11503	631-38-DJ-0027	PS3R-6-50-0014-001	SP-HSC-002
HOSE CONNECTION	1"	11503	1"-631-GN-0052-11503	631-38-DJ-0028	PS3R-6-50-0017-001	SP-HSC-002
HOSE CONNECTION	1"	11503	1"-631-GN-0054-11503	631-38-DJ-0029	PS3R-6-50-0017-001	SP-HSC-002
HOSE CONNECTION	1"	11503	1"-631-GN-0060-11503	631-38-DJ-0030	PS3R-6-50-0012-001	SP-HSC-002
HOSE CONNECTION	1"	11503	1"-631-GN-0062-11503	631-38-DJ-0031	PS3R-6-50-0012-001	SP-HSC-002
HOSE CONNECTION	1"	11503	1"-631-GN-0007-11503	631-84-DJ-0001	PS3R-6-50-0022-001	SP-HSC-002
HOSE CONNECTION	1"	11503	1"-631-GN-0072-11503	631-84-DJ-0011	PS3R-6-50-0025-001	SP-HSC-002
HOSE CONNECTION	1"	11503	1"-631-GN-0070-11503	631-84-DJ-0012	PS3R-6-50-0024-001	SP-HSC-002
HOSE CONNECTION	1"	11503	1"-631-GN-0068-11503	631-84-DJ-0013	PS3R-6-50-0023-001	SP-HSC-002
HOSE CONNECTION	1"	11441	2"-GI-BH-IO3A-X005-11432	73-DJ-0020	4355-BHI03A-6-51-0003-001	SP-HSC-003
HOSE CONNECTION	1"	11441	2"-GI-BH-DO5A-X001-11432	73-DJ-0092	4355-BHD05A-6-51-0002-001	SP-HSC-003
HOSE CONNECTION	2"	11432	2"-646-GN-0017-11432	646-38-DJ-0008	MMI06C-6-51-0004-001	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-646-GN-0019-11432	646-38-DJ-0009	MMI06C-6-51-0004-001	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-646-GN-0018-11432	646-38-DJ-0011	MMI06C-6-51-0004-001	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-646-GN-0020-11432	646-38-DJ-0012	MMI06C-6-51-0004-001	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-646-GN-0017-11432	646-38-DJ-0014	MMI06C-6-51-0004-001	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-633-GN-0155-11432	633-42-DJ-0001	PS3M-6-51-0066-001	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-631-GN-0092-11432	631-42-DJ-0001	PS3R-6-51-0010-001	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-633-GN-0157-11432	633-42-DJ-0002	PS3M-6-51-0073-001	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-631-GN-0101-11432	631-42-DJ-0002	PS3R-6-51-0010-001	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-631-GN-0103-11432	631-42-DJ-0003	PS3R-6-51-0011-001	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-631-GN-0105-11432	631-42-DJ-0004	PS3R-6-51-0011-001	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-632-GN-0045-11432	632-42-DJ-0011	PS3K-6-51-0100-001	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-632-GN-0047-11432	632-42-DJ-0012	PS3K-6-51-0100-001	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-632-GN-0049-11432	632-42-DJ-0013	PS3K-6-51-0101-001	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-632-GN-0051-11432	632-42-DJ-0014	PS3K-6-51-0101-001	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-GI-BH-DO5A-X001-11432	73-DJ-0001	4355-BHD05A-6-50-0012-001	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-GI-BH-DO5A-0052-11432	73-DJ-0002	4355-BHD05A-6-50-0012-001	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-GI-BH-DO5A-0054-11432	73-DJ-0003	4355-BHD05A-6-50-0014-001	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-OD-BH-SC-X001-11432	73-DJ-0037	4355-BHSC-6-51-0002-001	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-GI-BH-L09A-X001-11432	73-DJ-0059	4355-BHL09A-6-50-0002-001	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-GI-BH-L09A-0044-11432	73-DJ-0060	4355-BHL09A-6-51-0002-001	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-GI-BH-M04A-0078-11432	73-DJ-0073	4355-BHM04A-6-50-0010-001	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-GI-BH-M04A-0079-11432	73-DJ-0074	4355-BHM04A-6-50-0010-001	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-GI-BH-M04A-X001-11432	73-DJ-0075	4355-BHM04A-6-50-0015-001	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-GI-BH-M04A-X002-11432	73-DJ-0076	4355-BHM04A-6-51-0002-001	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-GI-BH-M04A-0027-11432	73-DJ-0077	4355-BHM04A-6-51-0002-001	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-GI-BH-G09A-X001-11432	73-DJ-0083	4355-BHG09A-6-50-0001-004	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-GI-BH-G09A-X003-11432	73-DJ-0084	4355-BHG09A-6-50-0001-005	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-GI-BH-G09A-X002-11432	73-DJ-0085	4355-BHG09A-6-50-0001-005	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-GI-BH-G09A-X004-11432	73-DJ-0086	4355-BHG09A-6-50-0014-001	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-GI-BH-G09A-X006-11432	73-DJ-0087	4355-BHG09A-6-51-0002-001	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-GI-BH-G09A-X005-11432	73-DJ-0088	4355-BHG09A-6-51-0002-001	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-OD-BH-IO3A-X007-11441	73-DJ-0095	4355-BHI03A-6-51-0003-001	SP-HSC-005
HOSE CONNECTION	2"	11441	2"-632-OD-0055-11441	632-39-DJ-0013	PS3K-6-51-0087-001	SP-HSC-005
HOSE CONNECTION	2"	11441	2"-632-OD-0056-11441	632-39-DJ-0014	PS3K-6-51-0087-001	SP-HSC-005
HOSE CONNECTION	2"	11441	2"-632-OD-0057-11441	632-39-DJ-0015	PS3K-6-51-0087-001	SP-HSC-005
HOSE CONNECTION	2"	11441	2"-632-OD-0058-11441	632-39-DJ-0016	PS3K-6-51-0087-001	SP-HSC-005
HOSE CONNECTION	2"	11441	2"-OD-BH-G04A-X002-11441	73-DJ-0012	4355-BHG04A-6-51-0002-001	SP-HSC-005
HOSE CONNECTION	2"	11441	2"-OD-BH-DO5A-X008-11441	73-DJ-0014	4355-BHD078-6-51-0002-001	SP-HSC-005
HOSE CONNECTION	2"	11441	2"-OD-BH-E07B-X002-11441	73-DJ-0023	4355-BHE07B-6-51-0001-001	SP-HSC-005
HOSE CONNECTION	2"	11441	2"-OD-BH-K04A-X022-11441	73-DJ-0029	4355-BHK04A-6-51-0002-001	SP-HSC-005
HOSE CONNECTION	2"	11441	2"-OD-BH-N09A-X009-11441	73-DJ-0033	4355-BHN09A-6-51-0002-001	SP-HSC-005
HOSE CONNECTION	2"	11441	2"-OD-BH-I07A-X002-11441	73-DJ-0040	4355-BHI07A-6-51-0002-001	SP-HSC-005
HOSE CONNECTION	2"	11441	2"-OD-BH-DO5A-X008-11441	73-DJ-0041	4355-BHD05A-6-51-0002-001	SP-HSC-005
HOSE CONNECTION	2"	11441	2"-OD-BH-J07A-X004-11441	73-DJ-0048	4355-BHJ07A-6-51-0003-001	SP-HSC-005
HOSE CONNECTION	2"	11441	2"-OD-BH-K05A-0028-11441	73-DJ-0051	4355-BHK05A-6-51-0001-002	SP-HSC-005
HOSE CONNECTION	2"	11441	2"-OD-BH-K06B-X001-11441	73-DJ-0058	4355-BHK06B-6-51-0002-001	SP-HSC-005

Description	Size	Spec	Process Owner	PROCESS Special Item No	Drawing No	Piping SP Datasheet
HOSE CONNECTION	2"	11441	2"-OD-BH-L09A-X001-11441	73-DJ-0061	4355-BHL09A-6-51-0002-001	SP-HSC-005
HOSE CONNECTION	2"	11441	2"-OD-BH-G07A-X002-11441	73-DJ-0068	4355-BHG07A-6-51-0001-002	SP-HSC-005
HOSE CONNECTION	2"	11441	2"-OD-BH-M04A-X004-11441	73-DJ-0078	4355-BHM04A-6-51-0002-001	SP-HSC-005
HOSE CONNECTION	2"	11441	2"-OD-BH-M05A-X007-11441	73-DJ-0081	4355-BHM05A-6-51-0001-002	SP-HSC-005
HOSE CONNECTION	2"	17320	2"-646-DO-0012-17320	646-39-DJ-0019	MMI06C-6-51-0004-001	SP-HSC-006
HOSE CONNECTION	2"	17320	2"-630-DO-0222-17320	630-39-DJ-0021	PS3L-6-51-0102-001	SP-HSC-006
HOSE CONNECTION	2"	17320	2"-630-DO-0223-17320	630-39-DJ-0022	PS3L-6-51-0102-001	SP-HSC-006
HOSE CONNECTION	2"	17320	2"-630-DO-0224-17320	630-39-DJ-0023	PS3L-6-51-0102-001	SP-HSC-006
HOSE CONNECTION	2"	17320	2"-630-DO-0228-17320	630-39-DJ-0024	PS3L-6-51-0102-001	SP-HSC-006
HOSE CONNECTION	2"	18011	2"-646-AI-0016-18011	646-37-DJ-0021	MMI06C-6-51-0002-001	SP-HSC-007
HOSE CONNECTION	2"	18011	2"-IA-BH-G04A-X010-18011	73-DJ-0010	4355-BHG04A-6-51-0001-001	SP-HSC-007
HOSE CONNECTION	2"	151503	2"-646-DC-0006-151503	646-70-DJ-0020	MMI06C-6-51-0005-001	SP-HSC-008
HOSE CONNECTION	2"	153461	2"-646-GN-0028-153461	646-38-DJ-0017	MMI06C-6-51-0001-001	SP-HSC-009
HOSE CONNECTION	3"	17320	3"-630-WR-0061-17320	630-32-DJ-0012	PS3L-6-51-0062-001	SP-HSC-010
HOSE CONNECTION	3"	17320	3"-630-WR-0062-17320	630-32-DJ-0014	PS3L-6-51-0062-001	SP-HSC-010
HOSE CONNECTION	3"	17320	3"-630-WR-0063-17320	630-32-DJ-0016	PS3L-6-51-0062-001	SP-HSC-010
HOSE CONNECTION	4"	11441	4"-633-OD-0126-11441	633-39-DJ-0011	PS3M-6-51-0013-001	SP-HSC-011
HOSE CONNECTION	4"	11441	4"-633-OD-0129-11441	633-39-DJ-0012	PS3M-6-51-0013-001	SP-HSC-011
HOSE CONNECTION	4"	11441	4"-633-OD-0127-11441	633-39-DJ-0013	PS3M-6-51-0013-001	SP-HSC-011
HOSE CONNECTION	4"	11441	4"-633-OD-0128-11441	633-39-DJ-0014	PS3M-6-51-0013-001	SP-HSC-011
MECHANICAL COUPLING	3"	11441	3"-630-OD-0087-11441	630-39-DJ-0018	PS3L-6-51-0143-001	SP-HSC-012
MECHANICAL COUPLING	3"	11441	3"-630-OD-0088-11441	630-39-DJ-0019	PS3L-6-51-0143-001	SP-HSC-012
MECHANICAL COUPLING	3"	11441	3"-630-OD-0089-11441	630-39-DJ-0020	PS3L-6-51-0143-001	SP-HSC-012
MECHANICAL COUPLING	4"	11432	4"-630-WU-0001-11432	630-24-DJ-0012	PS3L-6-51-0070-001	SP-HSC-013
MECHANICAL COUPLING	4"	11432	4"-630-WU-0002-11432	630-24-DJ-0014	PS3L-6-51-0070-001	SP-HSC-013
MECHANICAL COUPLING	4"	11432	4"-630-DF-0001-11432	630-35-DJ-0012	PS3L-6-51-0020-001	SP-HSC-013
MECHANICAL COUPLING	4"	11432	4"-630-DF-0002-11432	630-35-DJ-0014	PS3L-6-51-0020-001	SP-HSC-013
MECHANICAL COUPLING FEMALE	4"	11432	4"-630-WU-0001-11432	630-24-DJ-0011	PS3L-6-51-0070-001	SP-HSC-014
MECHANICAL COUPLING FEMALE	4"	11432	4"-630-WU-0002-11432	630-24-DJ-0013	PS3L-6-51-0070-001	SP-HSC-014
MECHANICAL COUPLING FEMALE	4"	11432	4"-630-DF-0001-11432	630-35-DJ-0011	PS3L-6-51-0020-001	SP-HSC-014
MECHANICAL COUPLING FEMALE	4"	11432	4"-630-DF-0002-11432	630-35-DJ-0013	PS3L-6-51-0020-001	SP-HSC-014
MECHANICAL COUPLING MALE	3"	11441	3"-630-OD-0087-11441	630-39-DJ-0015	PS3L-6-51-0143-001	SP-HSC-015
MECHANICAL COUPLING MALE	3"	11441	3"-630-OD-0088-11441	630-39-DJ-0016	PS3L-6-51-0143-001	SP-HSC-015
MECHANICAL COUPLING MALE	3"	11441	3"-630-OD-0089-11441	630-39-DJ-0017	PS3L-6-51-0143-001	SP-HSC-015
FLEXIBLE HOSE	1 1/2"	11432	1 1/2"-633-CG-0053-11432	633-40-SP-0012	PS3M-6-51-0030-001	SP-FLX-001
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-630-CI-0078-13461	630-42-SP-0040	PS3L-6-51-0168-001	SP-FLX-002
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-630-CI-0072-13461	630-42-SP-0034	PS3L-6-51-0018-001	SP-FLX-002
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-630-CI-0091-13461	630-42-SP-0046	PS3L-6-51-0019-001	SP-FLX-002
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-630-CI-0037-13461	630-42-SP-0048	PS3L-6-51-0017-001	SP-FLX-002
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-630-CI-0035-13461	630-42-SP-0044	PS3L-6-51-0016-001	SP-FLX-002
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-630-CI-0010-13461	630-42-SP-0018	PS3L-6-51-0005-001	SP-FLX-002
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-630-CI-0020-13461	630-42-SP-0024	PS3L-6-51-0009-001	SP-FLX-002
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-630-CI-0007-13461	630-42-SP-0016	PS3L-6-51-0004-001	SP-FLX-002
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-630-CI-0022-13461	630-42-SP-0026	PS3L-6-51-0010-001	SP-FLX-002
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-630-CG-0003-13461	630-42-SP-0046	PS3L-6-51-0015-001	SP-FLX-002
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-630-CI-0016-13461	630-42-SP-0020	PS3L-6-51-0007-001	SP-FLX-002
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-630-CI-0018-13461	630-42-SP-0022	PS3L-6-51-0008-001	SP-FLX-002
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-630-CI-0024-13461	630-42-SP-0028	PS3L-6-51-0011-001	SP-FLX-002
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-630-CG-0001-13461	630-42-SP-0032	PS3L-6-51-0014-001	SP-FLX-002
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-630-CI-0026-13461	630-42-SP-0030	PS3L-6-51-0012-001	SP-FLX-002
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-630-CI-0003-13461	630-42-SP-0014	PS3L-6-51-0002-001	SP-FLX-002
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-630-CI-0001-13461	630-42-SP-0012	PS3L-6-51-0001-001	SP-FLX-002
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-633-CI-0101-13461	633-40-SP-0013	PS3M-6-51-0030-001	SP-FLX-002
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-633-CI-0100-13461	633-40-SP-0014	PS3M-6-51-0030-001	SP-FLX-002
TEMPORARY STRAINER	12"	91503	12"-633-GP-0133-91503-3HE	633-11-STR-0013	PS3M-6-50-0032-001	SP-STT-001
TEMPORARY STRAINER	12"	91503	12"-633-GP-2133-91503-3HE	633-11-STR-0014	PS3M-6-50-0038-001	SP-STT-001
TEMPORARY STRAINER	12"	91503	12"-633-GP-3133-91503-3HE	633-11-STR-0015	PS3M-6-50-0044-001	SP-STT-001
TEMPORARY STRAINER	12"	151503	12"-633-GP-2002-151503-3HE	633-11-STR-0011	PS3M-6-50-0012-001	SP-STT-002
TEMPORARY STRAINER	12"	151503	12"-633-GP-0002-151503-3HE	633-11-STR-0012	PS3M-6-50-0002-001	SP-STT-002
TEMPORARY STRAINER	14"	13461	14"-632-GP-0061-13461-3HE	632-11-STR-0020	PS3K-6-50-0035-001	SP-STT-003
TEMPORARY STRAINER	16"	33461	16"-632-GP-0131-33461-3HE	632-11-STR-0023	PS3K-6-50-0045-001	SP-STT-004
TEMPORARY STRAINER	16"	33461	16"-632-GP-3131-33461-3HE	632-11-STR-0024	PS3K-6-50-0073-001	SP-STT-004
TEMPORARY STRAINER	16"	33461	16"-632-GP-2131-33461-3HE	632-11-STR-0026	PS3K-6-50-0059-001	SP-STT-004
TEMPORARY STRAINER	20"	13461	20"-632-GP-0050-13461-3HE	632-11-STR-0021	PS3K-6-50-0031-001	SP-STT-005
TEMPORARY STRAINER	20"	33461	20"-632-GP-0116-33461-3HE	632-11-STR-0022	PS3K-6-50-0042-001	SP-STT-006
TEMPORARY STRAINER	20"	33461	20"-632-GP-3116-33461-3HE	632-11-STR-0028	PS3K-6-50-0070-001	SP-STT-006
TEMPORARY STRAINER	20"	33461	20"-632-GP-2116-33461-3HE	632-11-STR-0031	PS3K-6-50-0056-001	SP-STT-006
Y TYPE STRAINER	3"	11432	3"-633-WT-0239-11432	633-32-STR-0017	PS3M-6-51-0059-001	SP-STR-001
Y TYPE STRAINER	3"	11432	3"-632-WT-0220-11432	632-32-STR-0021	PS3K-6-51-0057-001	SP-STR-001
Y TYPE STRAINER	3"	11432	3"-632-WT-0218-11432	632-32-STR-0022	PS3K-6-51-0057-001	SP-STR-001
Y TYPE STRAINER	3"	11432	3"-633-WT-0236-11432	633-32-STR-0022	PS3M-6-51-0059-001	SP-STR-001
Y TYPE STRAINER	3"	11432	3"-630-WT-0008-11432	630-32-STR-0032	PS3L-6-51-0068-001	SP-STR-001
Y TYPE STRAINER	3"	11432	3"-630-WT-0003-11432	630-32-STR-0033	PS3L-6-51-0068-001	SP-STR-001
Y TYPE STRAINER	3"	11432	3"-630-DF-0020-11432	630-35-STR-0011	PS3L-6-51-0022-001	SP-STR-001
Y TYPE STRAINER	3"	11432	3"-630-DF-0015-11432	630-35-STR-0012	PS3L-6-51-0022-001	SP-STR-001
Y TYPE STRAINER	3"	11441	3"-632-OD-0048-11441	632-39-STR-0011	PS3K-6-51-0074-001	SP-STR-002
Y TYPE STRAINER	3"	11441	3"-632-OD-0050-11441	632-39-STR-0012	PS3K-6-51-0074-001	SP-STR-002
Y TYPE STRAINER	3"	11441	3"-633-OD-0020-11441	633-39-STR-0015	PS3M-6-51-0021-001	SP-STR-002

Description	Size	Spec	Process Owner	PROCESS Special Item No	Drawing No	Piping SP Datasheet
Y TYPE STRAINER	3"	11441	3"-633-OD-0022-11441	633-39-STR-0016	PS3M-6-51-0021-001	SP-STR-002
Y TYPE STRAINER	3"	11441	3"-630-OD-0067-11441	630-39-STR-0021	PS3L-6-51-0131-001	SP-STR-002
Y TYPE STRAINER	3"	11441	3"-630-OD-0069-11441	630-39-STR-0022	PS3L-6-51-0131-001	SP-STR-002
Y TYPE STRAINER	3"	13844	3"-631-DC-0036-13844	631-70-STR-0011	PS3R-6-51-0023-001	SP-STR-003
Y TYPE STRAINER	3"	13844	3"-632-DC-0329-13844	632-70-STR-0011	PS3K-6-51-0062-001	SP-STR-003
Y TYPE STRAINER	3"	13844	3"-633-DC-0012-13844	633-70-STR-0011	PS3M-6-51-0014-001	SP-STR-003
Y TYPE STRAINER	3"	13844	3"-631-DC-0032-13844	631-70-STR-0012	PS3R-6-51-0023-001	SP-STR-003
Y TYPE STRAINER	3"	13844	3"-632-DC-0308-13844	632-70-STR-0012	PS3K-6-51-0062-001	SP-STR-003
Y TYPE STRAINER	3"	13844	3"-633-DC-0032-13844	633-70-STR-0012	PS3M-6-51-0014-001	SP-STR-003
Y TYPE STRAINER	3"	17012	3"-630-WP-0019-17012	630-24-STR-0015	PS3L-6-51-0076-001	SP-STR-004
Y TYPE STRAINER	3"	17012	3"-630-WP-0005-17012	630-24-STR-0016	PS3L-6-51-0076-001	SP-STR-004
Y TYPE STRAINER	3"	17320	3"-631-DO-0039-17320	631-39-STR-0011	PS3R-6-51-0028-001	SP-STR-005
Y TYPE STRAINER	3"	17320	3"-631-DO-0038-17320	631-39-STR-0012	PS3R-6-51-0028-001	SP-STR-005
Y TYPE STRAINER	3"	17320	3"-633-DO-0122-17320	633-39-STR-0013	PS3M-6-51-0028-001	SP-STR-005
Y TYPE STRAINER	3"	17320	3"-633-DO-0121-17320	633-39-STR-0014	PS3M-6-51-0028-001	SP-STR-005
Y TYPE STRAINER	3"	17320	3"-632-DO-0172-17320	632-39-STR-0015	PS3K-6-51-0076-001	SP-STR-005
Y TYPE STRAINER	3"	17320	3"-632-DO-0171-17320	632-39-STR-0016	PS3K-6-51-0076-001	SP-STR-005
Y TYPE STRAINER	3"	17320	3"-630-DO-0151-17320	630-39-STR-0019	PS3L-6-51-0132-001	SP-STR-005
Y TYPE STRAINER	3"	17320	3"-630-DO-0150-17320	630-39-STR-0020	PS3L-6-51-0132-001	SP-STR-005
Y TYPE STRAINER	4"	13461	4"-632-GC-0038-13461	632-11-STR-0035	PS3K-6-50-0033-001	SP-STR-006
Y TYPE STRAINER	4"	13461	4"-632-GC-0037-13461	632-11-STR-0036	PS3K-6-50-0033-001	SP-STR-006
Y TYPE STRAINER	4"	13461	4"-633-CG-0277-13461	633-40-STR-0011	PS3M-6-51-0031-001	SP-STR-006
Y TYPE STRAINER	4"	16620	6"-631-GC-0010-16620	631-19-STR-0001	PS3R-6-51-0008-001	SP-STR-007
Y TYPE STRAINER	4"	16620	4"-631-GC-0011-16620	631-19-STR-0002	PS3R-6-51-0008-001	SP-STR-007
Y TYPE STRAINER	4"	16620	6"-631-GC-0001-16620-1HE	631-19-STR-0003	PS3R-6-51-0004-001	SP-STR-007
Y TYPE STRAINER	4"	16620	4"-631-GC-0002-16620-1HE	631-19-STR-0004	PS3R-6-51-0004-001	SP-STR-007
Y TYPE STRAINER	4"	17012	4"-630-WF-0085-17012	630-33-STR-0013	PS3L-3-59-0011-001	SP-STR-008
Y TYPE STRAINER	4"	17012	4"-630-WF-0082-17012	630-33-STR-0014	PS3L-3-59-0011-001	SP-STR-008
Y TYPE STRAINER	6"	16620	6"-632-OR-0008-16620	632-83-STR-0018	PS3K-6-50-0027-001	SP-STR-009
Y TYPE STRAINER	6"	16620	6"-632-OR-0007-16620	632-83-STR-0019	PS3K-6-50-0027-001	SP-STR-009
Y TYPE STRAINER	6"	17012	6"-630-WP-0023-17012	630-24-STR-0017	PS3L-6-51-0078-001	SP-STR-010
Y TYPE STRAINER	6"	17012	6"-630-WP-0074-17012	630-24-STR-0018	PS3L-6-51-0078-001	SP-STR-010
Y TYPE STRAINER	8"	11432	8"-630-WT-0038-11432	630-32-STR-0030	PS3L-6-51-0064-001	SP-STR-011
Y TYPE STRAINER	8"	11432	8"-630-WT-0037-11432	630-32-STR-0031	PS3L-6-51-0064-001	SP-STR-011
Y TYPE STRAINER	10"	16620	10"-632-PW-0037-16620	632-83-STR-0016	PS3K-6-50-0019-001	SP-STR-012
Y TYPE STRAINER	10"	16620	10"-632-PW-0041-16620	632-83-STR-0017	PS3K-6-50-0019-001	SP-STR-012
Y TYPE STRAINER	18"	11432	18"-633-WT-0223-11432	633-32-STR-0019	PS3M-6-51-0060-001	SP-STR-013
Y TYPE STRAINER	18"	11432	18"-633-WT-0218-11432	633-32-STR-0020	PS3M-6-51-0054-001	SP-STR-013
Y TYPE STRAINER	18"	11432	18"-633-WT-0220-11432	633-32-STR-0021	PS3M-6-51-0054-001	SP-STR-013
Y TYPE STRAINER	18"	11432	18"-632-WT-0209-11432	632-32-STR-0023	PS3K-6-51-0059-001	SP-STR-013
Y TYPE STRAINER	18"	11432	18"-632-WT-0205-11432	632-32-STR-0029	PS3K-6-51-0047-001	SP-STR-013
Y TYPE STRAINER	18"	11432	18"-632-WT-0206-11432	632-32-STR-0030	PS3K-6-51-0047-001	SP-STR-013
NON SLAM AXIAL FLOW CHECK VALVE	10"	151503	16"-633-GP-0195-151503	633-11-NRV-0069	PS3M-6-50-0033-001	SP-NRV-001
NON SLAM AXIAL FLOW CHECK VALVE	10"	151503	10"-633-GP-3137-151503-3H	633-11-NRV-0047	PS3M-6-50-0044-001	SP-NRV-001
NON SLAM AXIAL FLOW CHECK VALVE	10"	151503	10"-633-GP-0137-151503-3H	633-11-NRV-0038	PS3M-6-50-0032-001	SP-NRV-001
NON SLAM AXIAL FLOW CHECK VALVE	10"	151503	10"-633-GP-2137-151503-3H	633-11-NRV-0041	PS3M-6-50-0038-001	SP-NRV-001
NON SLAM AXIAL FLOW CHECK VALVE	10"	151503	10"-633-GP-2195-151503-3PG	633-11-NRV-0063	PS3M-6-50-0039-001	SP-NRV-001
NON SLAM AXIAL FLOW CHECK VALVE	10"	151503	10"-633-GP-3195-151503-3PG	633-11-NRV-0066	PS3M-6-50-0045-001	SP-NRV-001
NON SLAM AXIAL FLOW CHECK VALVE	10"	251503	10"-633-GP-0021-251503	N/A	PS3M-6-50-0003-001	SP-NRV-002
NON SLAM AXIAL FLOW CHECK VALVE	3"	13461	3"-632-GC-0042-13461	N/A	PS3K-6-50-0033-001	SP-NRV-003
NON SLAM AXIAL FLOW CHECK VALVE	3"	93461	3"-633-CG-0005-93461	N/A	PS3M-6-50-0053-001	SP-NRV-004
NON SLAM AXIAL FLOW CHECK VALVE	20"	36620	20"-632-GP-0110-36620	N/A	PS3K-6-50-0041	SP-NRV-005
NON SLAM AXIAL FLOW CHECK VALVE	8"	251503	8"-633-GP-2060-251503-3PG	633-11-NRV-0028	PS3M-6-50-0012-001	SP-NVR-014
NON SLAM AXIAL FLOW CHECK VALVE	8"	251503	8"-633-GP-0060-251503-3PG	633-11-NRV-0016	PS3M-6-50-0002-001	SP-NVR-014
NON SLAM AXIAL FLOW CHECK VALVE	8"	251503	10"-633-GP-2021-251503-3H	633-11-NRV-0031	PS3M-6-50-0013-001	SP-NVR-014
NON SLAM AXIAL FLOW CHECK VALVE	8"	251503	10"-633-GP-0021-251503-3H	633-11-NRV-0017	PS3M-6-50-0003-001	SP-NVR-014

Description	Size	Spec	Process Owner	PROCESS Special Item No	Drawing No	Piping SP Datasheet
AUTOMATIC RECIRCULATION VALVE	10"	17320	10"-640-WR-0113-17320	30-ARV-0011	PS2L-6-51-0175-001	SP-ARV-004
AUTOMATIC RECIRCULATION VALVE	10"	17320	10"-640-WR-0116-17320	30-ARV-0012	PS2L-6-51-0176-001	SP-ARV-004
AUTOMATIC RECIRCULATION VALVE	18"	17320	18"-640-WR-0002-17320	20-ARV-0011	PS2L-6-51-0060-001	SP-ARV-008
AUTOMATIC RECIRCULATION VALVE	18"	17320	18"-640-WR-0001-17320	20-ARV-0012	PS2L-6-51-0060-001	SP-ARV-008
AUTOMATIC RECIRCULATION VALVE	24"	17320	24"-642-WR-0025-17320	21-ARV-0015	PS2K-6-51-0052-001	SP-ARV-009
AUTOMATIC RECIRCULATION VALVE	24"	17320	24"-642-WR-0112-17320	21-ARV-0020	PS2K-6-51-0052-001	SP-ARV-009
AUTOMATIC RECIRCULATION VALVE	24"	17320	24"-642-WR-0020-17320	21-ARV-0019	PS2K-6-51-0040-001	SP-ARV-009
AUTOMATIC RECIRCULATION VALVE	24"	17320	24"-642-WR-0019-17320	21-ARV-0018	PS2K-6-51-0040-001	SP-ARV-009
AUTOMATIC RECIRCULATION VALVE	2"	16620	2"-642-OR-0503-16620	83-ARV-0019	PS2K-6-50-0024-002	SP-ARV-010
AUTOMATIC RECIRCULATION VALVE	2"	16620	2"-642-OR-0033-16620	83-ARV-0018	PS2K-6-50-0024-002	SP-ARV-010
AUTOMATIC RECIRCULATION VALVE	8"	16620	8"-642-PW-0069-16620	ARV-XXX	PS2K-6-50-0024-001	SP-ARV-011
AUTOMATIC RECIRCULATION VALVE	8"	16620	8"-642-PW-0300-16620	ARV-XXX	PS2K-6-50-0024-001	SP-ARV-011
AUTOMATIC RECIRCULATION VALVE	24"	17012	24"-640-WF-0010-17012	33-ARV-0024	PS2L-3-59-0004-001	SP-ARV-012
AUTOMATIC RECIRCULATION VALVE	24"	17012	24"-640-WF-0008-17012	33-ARV-0023	PS2L-3-59-0003-001	SP-ARV-012
AUTOMATIC RECIRCULATION VALVE	24"	17012	24"-640-WF-0003-17012	33-ARV-0022	PS2L-3-59-0002-001	SP-ARV-012
AUTOMATIC RECIRCULATION VALVE	24"	17012	24"-640-WF-0002-17012	33-ARV-0021	PS2L-3-59-0001-001	SP-ARV-012
AUTOMATIC RECIRCULATION VALVE	6"	31503	6"-642-OC-0040-31503	84-ARV-0011	PS2K-6-50-0018-001	SP-ARV-013
AUTOMATIC RECIRCULATION VALVE	6"	31503	6"-642-OC-0029-31503	84-ARV-0012	PS2K-6-50-0018-001	SP-ARV-013
AUTOMATIC RECIRCULATION VALVE	6"	31503	6"-642-OC-0034-31503	84-ARV-0013	PS2K-6-50-0018-001	SP-ARV-013
AUTOMATIC RECIRCULATION VALVE	8"	36620	8"-642-PW-0074-36620	83-ARV-0015	PS2K-6-50-0026-001	SP-ARV-014
AUTOMATIC RECIRCULATION VALVE	8"	36620	8"-642-PW-0080-36620	83-ARV-0017	PS2K-6-50-0026-001	SP-ARV-014
BARRED TEE	6"	91ZZZ	6"-641-GC-0003-91ZZZ	17-BT-0011	PS2R-6-50-0031-001	SP-BTE-001
BARRED TEE	6"	91ZZZ	6"-GP-MM-K08A-0112-91ZZZ	72-SP-0006	4355-MMK08A-6-50-0005-001	SP-BTE-001
BARRED TEE	6"	91ZZZ	6"-629-GC-X001-91ZZZ	06-SP-0002	4355-PS1F-6-50-0002-001	SP-BTE-001
BARRED TEE	8"	91ZZZ	8"-641-GP-0025-91ZZZ	12-BT-0011	PS2R-6-50-0020-001	SP-BTE-002
BARRED TEE	8"	91ZZZ	8"-641-GP-0018-91ZZZ	12-BT-0012	PS2R-6-50-0022-001	SP-BTE-002
BARRED TEE	8"	91ZZZ	8"-641-GP-0037-91ZZZ	06-BT-0011	PS2R-6-50-0023-001	SP-BTE-002
BARRED TEE	8"	91ZZZ	8"-GP-MM-I07C-X002-91ZZZ	72-SP-0016	4355-MMI07C-6-50-0002-001	SP-BTE-002
BARRED TEE	8"	91ZZZ	8"-629-GP-X002-91ZZZ	06-SP-0001	4355-PS1F-6-50-0001-001	SP-BTE-002
BARRED TEE	8"	151ZZZ	8"-OC-MM-L06A-0177-151ZZZ	72-SP-0002	4355-MML06A-6-50-0003-001	SP-BTE-003
BARRED TEE	8"	151ZZZ	8"-OC-MM-J04B-0106-151ZZZ	72-SP-0007	4355-MMJ04B-6-50-0003-001	SP-BTE-003
BARRED TEE	8"	151ZZZ	8"-OC-MM-J09B-0137-151ZZZ	72-SP-0009	4355-MMJ09B-6-50-0003-001	SP-BTE-003
BARRED TEE	8"	151ZZZ	8"-OC-MM-J09B-0141-151ZZZ	72-SP-0010	4355-MMJ09B-6-50-0004-001	SP-BTE-003
BARRED TEE	8"	151ZZZ	8"-OC-MM-J09B-0145-151ZZZ	72-SP-0011	4355-MMJ09B-6-50-0005-001	SP-BTE-003
BARRED TEE	8"	151ZZZ	8"-OC-MM-F05A-0020-151ZZZ	72-SP-0012	4355-MMF05A-6-50-0004-001	SP-BTE-003
BARRED TEE	8"	151ZZZ	8"-OC-MM-I05A-0076-151ZZZ	72-SP-0020	4355-MMI05A-6-50-0007-001	SP-BTE-003
BARRED TEE	8"	151ZZZ	8"-OC-MM-G08B-0054-151ZZZ	72-SP-0022	4355-MMG08B-6-50-0004-001	SP-BTE-003
BARRED TEE	10"	91ZZZ	10"-641-OC-0103-91ZZZ	06-BT-0012	PS2R-6-50-0010-001	SP-BTE-004
BARRED TEE	10"	151ZZZ	10"-OC-MM-L06A-0181-151ZZZ	72-SP-0003	4355-MML06A-6-50-0004-001	SP-BTE-005
BARRED TEE	10"	151ZZZ	10"-OC-MM-J09B-0134-151ZZZ	72-SP-0008	4355-MMJ09B-6-50-0002-001	SP-BTE-005
BARRED TEE	10"	151ZZZ	10"-OC-MM-J07B-0124-151ZZZ	72-SP-0015	4355-MMJ07B-6-50-0004-001	SP-BTE-005
BARRED TEE	10"	151ZZZ	10"-GP-MM-M07A-X003-151ZZZ	72-SP-0017	4355-MMM07A-6-50-0002-001	SP-BTE-005
BARRED TEE	12"	151ZZZ	12"-OC-MM-L06A-0173-151ZZZ	72-SP-0001	4355-MML06A-6-50-0002-001	SP-BTE-006
BARRED TEE	12"	151ZZZ	12"-OC-MM-I05A-0073-151ZZZ	72-SP-0019	4355-MMI05A-6-50-0006-001	SP-BTE-006
BARRED TEE	12"	151ZZZ	12"-OC-MM-I06B-0083-151ZZZ	72-SP-0023	4355-MMI06B-6-50-0002-001	SP-BTE-006
BARRED TEE	14"	151ZZZ	14"-OC-MM-J07B-0118-151ZZZ	72-SP-0014	4355-MMJ07B-6-50-0002-001	SP-BTE-007
BARRED TEE	16"	151ZZZ	16"-OC-MM-G07A-X016-151ZZZ	72-SP-0021	4355-MMG07A-6-50-0002-002	SP-BTE-008
BARRED TEE	16"	151ZZZH	16"-641-OC-0151-151ZZZH	84-BT-0014	PS2R-6-50-0017-001	SP-BTE-009
BARRED TEE	16"	151ZZZH	16"-641-OC-0111-151ZZZH	84-BT-0013	PS2R-6-50-0014-001	SP-BTE-009
BARRED TEE	8"	151ZZZH	8"-641-OC-0017-151ZZZH	84-BT-0017	PS2R-6-50-0001-001	SP-BTE-012
BARRED TEE	8"	151ZZZH	8"-641-OC-0018-151ZZZH	84-BT-0011	PS2R-6-50-0002-001	SP-BTE-012
BARRED TEE	12"	151ZZZH	12"-641-OC-0075-151ZZZH	84-BT-0012	PS2R-6-50-0013-001	SP-BTE-013
BARRED TEE	12"	151ZZZH	12"-641-OC-0014-151ZZZH	84-BT-0015	PS2R-6-50-0011-001	SP-BTE-013
BARRED TEE	12"	151ZZZH	12"-641-OC-0106-151ZZZH	84-BT-0016	PS2R-6-50-0012-001	SP-BTE-013
BARRED TEE	14"	151ZZZH	14"-641-OC-0080-151ZZZH	84-BT-0018	PS2R-6-50-0016-001	SP-BTE-014
BARRED TEE	6"	151ZZZ	6"-OC-MM-L06A-0185-151ZZZ	72-SP-0004	4355-MML06A-6-50-0005-001	SP-BTE-015
BARRED TEE	6"	151ZZZ	6"-OC-MM-H08A-0059-151ZZZ	72-SP-0013	4355-MMH08A-6-50-0002-001	SP-BTE-015
BARRED TEE	6"	151ZZZ	6"-GP-MM-M07A-X004-151ZZZ	72-SP-0018	4355-MMM07A-6-50-0003-001	SP-BTE-015
BARRED TEE	8" x 6"	151ZZZH	8"-OC-MM-K08A-0164-151093KS	72-SP-0005	4355-MMK08A-6-50-0004-001	SP-BTE-016
CHEMICAL INJECTION	1/2"	13461	1/2"-640-CI-0008-13461	42-IQ-0021	PS2L-6-51-0063-001	SP-CIQ-001
CHEMICAL INJECTION	1/2"	16620	1/2"-642-CI-0084-16620	42-IQ-0059	PS2K-6-50-0017-001	SP-CIQ-001
CHEMICAL INJECTION	1/2"	16620	1/2"-642-CI-0039-16620	42-IQ-0041	PS2K-6-50-0015-001	SP-CIQ-001
CHEMICAL INJECTION	1/2"	16620	1/2"-642-CI-0020-16620	42-IQ-0034	PS2K-6-50-0012-001	SP-CIQ-001
CHEMICAL INJECTION	1/2"	16620	1/2"-642-CI-0257-16620	42-IQ-0047	PS2K-6-50-0024-002	SP-CIQ-001
CHEMICAL INJECTION	1/2"	13461	1/2"-642-CI-0223-13461	42-IQ-0005	PS2K-6-51-0057-001	SP-CIQ-001
CHEMICAL INJECTION	1/2"	13461	1/2"-640-CI-0071-13461	42-IQ-0020	PS2L-6-51-0068-001	SP-CIQ-001
CHEMICAL INJECTION	1/2"	16620	1/2"-642-CI-0028-16620	42-IQ-0055	PS2K-6-50-0014-001	SP-CIQ-001
CHEMICAL INJECTION	1/2"	16620	1/2"-642-CI-0041-16620	42-IQ-0046	PS2K-6-50-0019-001	SP-CIQ-001
CHEMICAL INJECTION	1/2"	16620	1/2"-642-CI-0040-16620	42-IQ-0042	PS2K-6-50-0016-001	SP-CIQ-001
CHEMICAL INJECTION	1/2"	13461	1/2"-640-CI-0027-13461	42-IQ-0022	PS2L-6-51-0063-001	SP-CIQ-001
CHEMICAL INJECTION	1/2"	13461	1/2"-642-CI-0166-13461	42-IQ-0016	PS2K-6-51-0046-001	SP-CIQ-001
CHEMICAL INJECTION	1/2"	13461	1/2"-642-CI-0167-13461	42-IQ-0017	PS2K-6-51-0046-001	SP-CIQ-001
CHEMICAL INJECTION	1/2"	13461	1/2"-642-CI-0195-13461	42-IQ-0018	PS2K-6-51-0046-001	SP-CIQ-001
CHEMICAL INJECTION	1/2"	16620	1/2"-642-CI-0255-16620	42-IQ-0050	PS2K-6-50-0027-001	SP-CIQ-001
CHEMICAL INJECTION	1/2"	16620	1/2"-642-CI-0318-16620	42-IQ-0038	PS2K-6-50-0013-001	SP-CIQ-001
CHEMICAL INJECTION	1/2"	16620	1/2"-642-CI-0319-16620	42-IQ-0043	PS2K-6-50-0017-001	SP-CIQ-001
CHEMICAL INJECTION	1/2"	16620	1/2"-642-CI-0024-16620	42-IQ-0037	PS2K-6-50-0013-001	SP-CIQ-001
CHEMICAL INJECTION	1/2"	16620	1/2"-642-CI-0317-16620	42-IQ-0035	PS2K-6-50-0012-001	SP-CIQ-001
CHEMICAL INJECTION	1/2"	16620	1/2"-642-CI-0052-16620	42-IQ-0039	PS2K-6-50-0013-001	SP-CIQ-001
CHEMICAL INJECTION	1/2"	16620	1/2"-642-CI-0322-16620	42-IQ-0040	PS2K-6-50-0014-001	SP-CIQ-001
CHEMICAL INJECTION	1/2"	16620	1/2"-642-CI-0050-16620	42-IQ-0036	PS2K-6-50-0012-001	SP-CIQ-001

Description	Size	Spec	Process Owner	PROCESS Special Item No	Drawing No	Piping SP Datasheet
CHEMICAL INJECTION	3/4"	13461	3/4"-640-CI-0069-13461	42-IQ-0023	PS2L-6-51-0063-001	SP-CIQ-002
CHEMICAL INJECTION	1/2"	36620	1/2"-642-CI-0029-36620	42-IQ-0044	PS2K-6-50-0017-001	SP-CIQ-004
CHEMICAL INJECTION	1/2"	36620	1/2"-641-CI-0033-36620	42-IQ-0082	PS2R-6-50-0010-001	SP-CIQ-004
CHEMICAL INJECTION	1/2"	36620	1/2"-642-CI-0291-36620	42-IQ-0045	PS2K-6-50-0017-001	SP-CIQ-004
CHEMICAL INJECTION	1/2"	36620	1/2"-642-CI-0058-36620	42-IQ-0048	PS2K-6-50-0026-001	SP-CIQ-004
CHEMICAL INJECTION	1/2"	96620	1/2"-642-CG-0068-96620	42-IQ-0051	PS2K-6-50-0086-001	SP-CIQ-006
CHEMICAL INJECTION	1/2"	156620	1/2"-642-CI-0004-156620	42-IQ-0056	PS2K-6-50-0010-001	SP-CIQ-006
CHEMICAL INJECTION	1/2"	156620	1/2"-641-CG-0021-156620	42-IQ-0006	PS2R-6-51-0046-001	SP-CIQ-006
CHEMICAL INJECTION	1/2"	156620	1/2"-641-CI-0063-156620	42-IQ-0070	PS2R-6-50-0019-001	SP-CIQ-006
CHEMICAL INJECTION	1/2"	156620	1/2"-641-CI-0064-156620	42-IQ-0071	PS2R-6-50-0019-001	SP-CIQ-006
CHEMICAL INJECTION	1/2"	156620	1/2"-641-CI-0065-156620	42-IQ-0072	PS2R-6-50-0019-001	SP-CIQ-006
CHEMICAL INJECTION	1/2"	156620	1/2"-641-CI-0114-156620	42-IQ-0011	PS2R-6-50-0004-001	SP-CIQ-006
CHEMICAL INJECTION	1/2"	96620	1/2"-641-CI-0091-96620	42-IQ-0076	PS2R-6-50-0023-001	SP-CIQ-006
CHEMICAL INJECTION	1/2"	96620	1/2"-642-CG-0077-96620	42-IQ-0062	PS2K-6-50-0092-001	SP-CIQ-006
CHEMICAL INJECTION	1/2"	156620	1/2"-641-CI-0116-156620	42-IQ-0012	PS2R-6-50-0004-001	SP-CIQ-006
CHEMICAL INJECTION	1/2"	156620	1/2"-641-CI-0008-156620	42-IQ-0015	PS2R-6-50-0004-001	SP-CIQ-006
CHEMICAL INJECTION	1/2"	156620	1/2"-641-CI-0005-156620	42-IQ-0016	PS2R-6-50-0004-001	SP-CIQ-006
CHEMICAL INJECTION	1/2"	156620	1/2"-641-CI-0013-156620	42-IQ-0067	PS2R-6-50-0015-001	SP-CIQ-006
CHEMICAL INJECTION	1/2"	156620	1/2"-641-CI-0207-156620	42-IQ-0068	PS2R-6-50-0015-001	SP-CIQ-006
CHEMICAL INJECTION	1/2"	156620	1/2"-641-CI-0209-156620	42-IQ-0069	PS2R-6-50-0015-001	SP-CIQ-006
CHEMICAL INJECTION	1/2"	156620	1/2"-641-CI-0011-156620	42-IQ-0063	PS2R-6-50-0015-001	SP-CIQ-006
CHEMICAL INJECTION	1/2"	156620	1/2"-641-CI-0067-156620	42-IQ-0017	PS2R-6-50-0004-001	SP-CIQ-006
CHEMICAL INJECTION	1/2"	156620	1/2"-642-CI-0008-156620	42-IQ-0028	PS2K-6-50-0011-001	SP-CIQ-006
CHEMICAL INJECTION	1/2"	156620	1/2"-641-CI-0012-156620	42-IQ-0064	PS2R-6-50-0015-001	SP-CIQ-006
CHEMICAL INJECTION	1/2"	156620	1/2"-641-CI-0068-156620	42-IQ-0013	PS2R-6-50-0004-001	SP-CIQ-006
CHEMICAL INJECTION	1/2"	96620	1/2"-642-CG-0015-96620	42-IQ-0060	PS2K-6-50-0090-001	SP-CIQ-006
CHEMICAL INJECTION	1/2"	156620	1/2"-642-CG-0076-156620	42-IQ-0053	PS2K-6-50-0087-001	SP-CIQ-006
CHEMICAL INJECTION	1/2"	96620	1/2"-642-CG-0009-96620	42-IQ-0033	PS2K-6-50-0011-001	SP-CIQ-006
CHEMICAL INJECTION	1/2"	96620	1/2"-642-CG-0006-96620	42-IQ-0032	PS2K-6-50-0011-001	SP-CIQ-006
CHEMICAL INJECTION	1/2"	156620	1/2"-641-CI-0208-156620	42-IQ-0078	PS2R-6-50-0015-001	SP-CIQ-006
CHEMICAL INJECTION	1/2"	156620	1/2"-641-CI-0210-156620	42-IQ-0019	PS2R-6-50-0015-001	SP-CIQ-006
CHEMICAL INJECTION	1/2"	96620	1/2"-642-CG-0003-96620	42-IQ-0026	PS2K-6-50-0010-001	SP-CIQ-006
CHEMICAL INJECTION	1/2"	96620	1/2"-642-CG-0001-96620	42-IQ-0025	PS2K-6-50-0010-001	SP-CIQ-006
CHEMICAL INJECTION	1/2"	96620	1/2"-642-CG-0066-96620	42-IQ-0030	PS2K-6-50-0011-001	SP-CIQ-006
CHEMICAL INJECTION	1/2"	96620	1/2"-642-CG-0065-96620	42-IQ-0057	PS2K-6-50-0010-001	SP-CIQ-006
CHEMICAL INJECTION	1/2"	96620	1/2"-642-CI-0064-96620	42-IQ-0083	PS2K-6-50-0012-001	SP-CIQ-006
CHEMICAL INJECTION	1/2"	156620	1/2"-642-CI-0013-156620	42-IQ-0079	PS2K-6-50-0010-001	SP-CIQ-006
CHEMICAL INJECTION	3/4"	156620	3/4"-642-CI-0330-156620	42-IQ-0020	PS2K-6-50-0005-001	SP-CIQ-009
CHEMICAL INJECTION	3/4"	156620	3/4"-642-CI-0331-156620	42-IQ-0021	PS2K-6-50-0005-001	SP-CIQ-009
CHEMICAL INJECTION	3/4"	156620	3/4"-641-CI-0204-156620	42-IQ-0018	PS2R-6-50-0004-001	SP-CIQ-009
CHEMICAL INJECTION	3/4"	156620	3/4"-641-CI-0205-156620	42-IQ-0014	PS2R-6-50-0004-001	SP-CIQ-009
CHEMICAL INJECTION	3/4"	156620	3/4"-641-CI-0202-156620	42-IQ-0073	PS2R-6-50-0019-001	SP-CIQ-009
CHEMICAL INJECTION	3/4"	156620	3/4"-641-CI-0201-156620	42-IQ-0074	PS2R-6-50-0019-001	SP-CIQ-009
CHEMICAL INJECTION	3/4"	156620	3/4"-641-CI-0200-156620	42-IQ-0075	PS2R-6-50-0019-001	SP-CIQ-009
CHEMICAL INJECTION	3/4"	156620	3/4"-641-CI-0203-156620	42-IQ-0066	PS2R-6-50-0015-001	SP-CIQ-009
CHEMICAL INJECTION	3/4"	156620	3/4"-641-CI-0206-156620	42-IQ-0065	PS2R-6-50-0015-001	SP-CIQ-009
CHEMICAL INJECTION	3/4"	16620	3/4"-642-CI-0228-16620	42-IQ-0049	PS2K-6-50-0026-001	SP-CIQ-010
CHEMICAL INJECTION	1"	16620	1"-642-CI-0038-16620	42-IQ-0047	PS2K-6-50-0024-001	SP-CIQ-011
CHEMICAL INJECTION	3/4"	33461	3/4"-642-CI-0222-33461	42-IQ-0019	PS2K-6-51-0046-001	SP-CIQ-012
CHEMICAL INJECTION	1"	36620	1"-641-CI-0035-36620	42-IQ-0081	PS2R-6-50-0010-001	SP-CIQ-013
CHEMICAL INJECTION	1"	66620	1"-641-CG-0001-66620	42-IQ-0077	PS2R-6-50-0031-001	SP-CIQ-014
CHEMICAL INJECTION	2"	151093KS	12"-OC-MM-L06A-0172-151093KS	72-IQ-0001	4355-MML06A-6-50-0002-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	12"-OC-MM-L06A-0172-151093KS	72-IQ-0002	4355-MML06A-6-50-0002-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	8"-OC-MM-L06A-0176-151093KS	72-IQ-0003	4355-MML06A-6-50-0003-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	8"-OC-MM-L06A-0176-151093KS	72-IQ-0004	4355-MML06A-6-50-0003-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	12"-OC-MM-I06B-0081-151093KS	72-IQ-0004	4355-MMI06B-6-50-0002-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	8"-OC-MM-L06A-0176-151093KS	72-IQ-0005	4355-MML06A-6-50-0003-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	6"-OC-MM-327-0152-151093KS	72-IQ-0007	4355-MMK08A-6-50-0002-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	6"-OC-MM-30C-0150-151093KS	72-IQ-0008	4355-MMK08A-6-50-0004-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	6"-OC-MM-30C-0150-151093KS	72-IQ-0009	4355-MMK08A-6-50-0004-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	6"-OC-MM-30C-0150-151093KS	72-IQ-0010	4355-MMK08A-6-50-0004-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	6"-OC-MM-325-0095-151093KS	72-IQ-0011	4355-MMJ04B-6-50-0001-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	6"-OC-MM-41-0130-151093KS	72-IQ-0011	4355-MMJ09B-6-50-0001-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	8"-OC-MM-J04B-0105-151093KS	72-IQ-0012	4355-MMJ04B-6-50-0003-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	8"-OC-MM-J04B-0105-151093KS	72-IQ-0013	4355-MMJ04B-6-50-0003-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	10"-OC-MM-J09B-0133-151093KS	72-IQ-0015	4355-MMJ09B-6-50-0002-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	10"-OC-MM-J09B-0133-151093KS	72-IQ-0016	4355-MMJ09B-6-50-0002-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	8"-OC-MM-J09B-X010-151093KS	72-IQ-0017	4355-MMJ09B-6-50-0005-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	8"-OC-MM-J09B-X010-151093KS	72-IQ-0018	4355-MMJ09B-6-50-0005-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	8"-OC-MM-F05A-0017-151093KS	72-IQ-0019	4355-MMF05A-6-50-0004-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	8"-OC-MM-F05A-0017-151093KS	72-IQ-0020	4355-MMF05A-6-50-0004-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	6"-OC-MM-27-0058-151093KS	72-IQ-0021	4355-MMH08A-6-50-0002-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	6"-OC-MM-27-0058-151093KS	72-IQ-0022	4355-MMH08A-6-50-0002-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	6"-OC-MM-27-0058-151093KS	72-IQ-0023	4355-MMH08A-6-50-0002-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	14"-OC-MM-J07B-0117-151093KS	72-IQ-0025	4355-MMJ07B-6-50-0002-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	14"-OC-MM-J07B-0117-151093KS	72-IQ-0026	4355-MMJ07B-6-50-0002-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	6"-OC-MM-38-X006-151093KS	72-IQ-0033	4355-MMM07A-6-50-0001-003	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	6"-OC-MM-38-X006-151093KS	72-IQ-0034	4355-MMM07A-6-50-0001-003	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	6"-OC-MM-38-X005-151093KS	72-IQ-0035	4355-MMM07A-6-50-0001-003	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	6"-OC-MM-M07A-X002-151093KS	72-IQ-0036	4355-MMM07A-6-50-0002-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	6"-OC-MM-M07A-X002-151093KS	72-IQ-0037	4355-MMM07A-6-50-0002-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	6"-OC-MM-M07A-X003-151093KS	72-IQ-0038	4355-MMM07A-6-50-0003-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	6"-OC-MM-M07A-X003-151093KS	72-IQ-0039	4355-MMM07A-6-50-0003-001	SP-CIQ-015

Description	Size	Spec	Process Owner	PROCESS Special Item No	Drawing No	Piping SP Datasheet
CHEMICAL INJECTION	2"	151093KS	6"-OC-MM-M07A-X003-151093KS	72-IQ-0040	4355-MMM07A-6-50-0003-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	6"-OC-MM-316-0069-151093KS	72-IQ-0048	4355-MMI05A-6-50-0003-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	6"-OC-MM-313-0071-151093KS	72-IQ-0050	4355-MMI05A-6-50-0004-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	6"-OC-MM-315-0072-151093KS	72-IQ-0052	4355-MMI05A-6-50-0005-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	12"-OC-MM-I05A-0064-151093KS	72-IQ-0053	4355-MMI05A-6-50-0006-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	12"-OC-MM-I05A-0064-151093KS	72-IQ-0054	4355-MMI05A-6-50-0006-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	6"-OC-MM-302-X012-151093KS	72-IQ-0056	4355-MMG07A-6-50-0001-010	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	6"-OC-MM-303-X013-151093KS	72-IQ-0058	4355-MMG07A-6-50-0001-011	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	6"-OC-MM-304-X014-151093KS	72-IQ-0060	4355-MMG07A-6-50-0001-012	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	16"-OC-MM-G07A-X008-151093KS	72-IQ-0061	4355-MMG07A-6-50-0002-002	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	6"-OC-MM-53-X001-151093KS	72-IQ-0072	4355-MMG07A-6-50-0001-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	6"-OC-MM-54S-X002-151093KS	72-IQ-0073	4355-MMG07A-6-50-0001-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	6"-OC-MM-54L-X003-151093KS	72-IQ-0074	4355-MMG07A-6-50-0001-002	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	6"-OC-MM-109-X006-151093KS	72-IQ-0075	4355-MMG07A-6-50-0001-004	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	4"-OC-MM-G07A-X010-151093KS	72-IQ-0076	4355-MMG07A-6-50-0001-007	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	6"-OC-MM-307-0050-151093KS	72-IQ-0079	4355-MMG08B-6-50-0003-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151093KS	6"-OC-MM-325-0096-151093KS	72-IQ-0110	4355-MMJ04B-6-50-0001-001	SP-CIQ-015
CHEMICAL INJECTION	2"	151503	3"-GP-MM-327-0108-151503	72-IQ-0006	4355-MMK08A-6-50-0002-001	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-41-X003-151503	72-IQ-0014	4355-MMJ09B-6-50-0001-003	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	4"-GP-MM-13-0099-151503	72-IQ-0024	4355-MMJ07B-6-50-0001-001	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-M07A-X001-151503	72-IQ-0030	4355-MMM07A-6-50-0001-001	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GV-MM-J09B-0187-156620	72-IQ-0041	4355-MMJ09B-6-50-0001-003	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-80-X007-151503	72-IQ-0042	4355-MMJ09B-6-50-0001-003	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GV-MM-J09B-0187-156620	72-IQ-0043	4355-MMJ04B-6-50-0001-002	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GV-MM-J04B-0156-156620	72-IQ-0044	4355-MMJ04B-6-50-0001-002	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	3"-GP-MM-30-X002-151503	72-IQ-0045	4355-MMK08A-6-50-0001-001	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-61-X093-151503	72-IQ-0046	4355-MMI05A-6-50-0001-012	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-I05A-0066-151503	72-IQ-0047	4355-MMI05A-6-50-0003-001	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-I05A-0078-151503	72-IQ-0049	4355-MMI05A-6-50-0004-001	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-I05A-0083-151503	72-IQ-0051	4355-MMI05A-6-50-0005-001	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-302-X008-151503	72-IQ-0055	4355-MMG07A-6-50-0001-010	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-303-X011-151503	72-IQ-0057	4355-MMG07A-6-50-0001-011	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-304-X015-151503	72-IQ-0059	4355-MMG07A-6-50-0001-012	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-53-X019-151503	72-IQ-0063	4355-MMG07A-6-50-0001-001	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	4"-GP-MM-54-X001-151503	72-IQ-0065	4355-MMG07A-6-50-0001-002	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-62-X021-151503	72-IQ-0066	4355-MMG07A-6-50-0001-003	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-65-X022-151503	72-IQ-0067	4355-MMG07A-6-50-0001-003	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-56-X023-151503	72-IQ-0068	4355-MMG07A-6-50-0001-004	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-109-X024-151503	72-IQ-0069	4355-MMG07A-6-50-0001-004	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-99-X026-151503	72-IQ-0071	4355-MMG07A-6-50-0001-008	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-G08B-X001-151503	72-IQ-0077	4355-MMG08B-6-50-0001-003	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-G08B-0054-151503	72-IQ-0078	4355-MMG08B-6-50-0003-001	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-26-X002-151503	72-IQ-0082	4355-MML06A-6-50-0001-001	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-33-X001-151503	72-IQ-0083	4355-MMJ07B-6-50-0001-001	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	3"-GP-MM-I07C-X002-151503	72-IQ-0084	4355-MMI07C-6-50-0001-001	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	3"-GP-MM-I07C-X004-151503	72-IQ-0085	4355-MMI07C-6-50-0001-002	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	3"-GP-MM-I07C-X005-151503	72-IQ-0086	4355-MMI07C-6-50-0001-004	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-I07C-X006-151503	72-IQ-0087	4355-MMI07C-6-50-0001-005	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-I07C-X003-151503	72-IQ-0088	4355-MMI07C-6-50-0001-006	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-I07C-X004-151503	72-IQ-0089	4355-MMI07C-6-50-0001-007	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	3"-GP-MM-I07C-X005-151503	72-IQ-0091	4355-MMI07C-6-50-0001-009	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-I07C-X008-151503	72-IQ-0092	4355-MMI07C-6-50-0001-010	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-I07C-X009-151503	72-IQ-0093	4355-MMI07C-6-50-0001-011	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-I07C-X006-151503	72-IQ-0094	4355-MMI07C-6-50-0001-015	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-I07C-X007-151503	72-IQ-0095	4355-MMI07C-6-50-0001-016	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-I07C-X010-151503	72-IQ-0096	4355-MMI07C-6-50-0001-017	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-63-X086-151503	72-IQ-0097	4355-MMI05A-6-50-0001-002	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-67-X087-151503	72-IQ-0098	4355-MMI05A-6-50-0001-003	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-85-X088-151503	72-IQ-0099	4355-MMI05A-6-50-0001-004	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-89-X089-151503	72-IQ-0100	4355-MMI05A-6-50-0001-007	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-314-X090-151503	72-IQ-0101	4355-MMI05A-6-50-0001-009	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-409-X091-151503	72-IQ-0102	4355-MMI05A-6-50-0001-010	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	2"-GP-MM-61-X092-151503	72-IQ-0103	4355-MMI05A-6-50-0001-011	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	6"-OC-MM-21-0080-151093KS	72-IQ-0104	4355-MMI06B-6-50-0001-001	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	3"-GP-MM-21-X001-151503	72-IQ-0105	4355-MMI06B-6-50-0001-001	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	3"-GP-MM-23-X002-151503	72-IQ-0106	4355-MMI06B-6-50-0001-002	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	3"-GP-MM-22-X003-151503	72-IQ-0107	4355-MMI06B-6-50-0001-003	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	12"-OC-MM-I06B-0081-1515093KS	72-IQ-0108	4355-MMI06B-6-50-0002-001	SP-CIQ-016
CHEMICAL INJECTION	2"	151503	4"-GP-MM-14-0100-151503	72-IQ-0109	4355-MMJ07B-6-50-0001-002	SP-CIQ-016
CHEMICAL INJECTION	2"	91503	2"-GP-MM-M07A-X002-91503	72-IQ-0031	4355-MMM07A-6-50-0001-002	SP-CIQ-017
CHEMICAL INJECTION	2"	91503	2"-GP-MM-M07A-X003-91503	72-IQ-0032	4355-MMM07A-6-50-0001-003	SP-CIQ-017
CHEMICAL INJECTION	2"	91503	2"-GP-MM-55-X020-91503	72-IQ-0064	4355-MMG07A-6-50-0001-002	SP-CIQ-017
CHEMICAL INJECTION	2"	91503	2"-GP-MM-J06B-X001-91503	72-IQ-0080	4355-MMJ06B-6-50-0002-001	SP-CIQ-017
CHEMICAL INJECTION	2"	96620	2"-642-CI-0251-96620	42-IQ-0052	PS2K-6-50-0086-002	SP-CIQ-018
CHEMICAL INJECTION	2"	96620	2"-642-CI-0086-96620	42-IQ-0061	PS2K-6-50-0091-001	SP-CIQ-018
CORROSION COUPON	6"	11432	6"-640-WT-0040-11432	32-XCP-0020	PS2L-6-51-0064-001	SP-XCC-001
CORROSION COUPON	6"	11432	6"-640-WT-0040-11432	32-XCC-0020	PS2L-6-51-0064-001	SP-XCC-001
CORROSION COUPON	8"	91503	8"-641-GP-0019-91503	12-XCP-0012	PS2R-6-50-0020-001	SP-XCC-004
CORROSION COUPON	8"	91503	8"-641-GP-0019-91503	12-XCC-0012	PS2R-6-50-0020-001	SP-XCC-004
CORROSION COUPON	8"	91503	8"-641-GP-0015-91503	12-XCP-0013	PS2R-6-50-0022-001	SP-XCC-004
CORROSION COUPON	8"	91503	8"-641-GP-0015-91503	12-XCC-0013	PS2R-6-50-0022-001	SP-XCC-004
CORROSION COUPON	8"	91503	8"-641-GP-0033-91503	06-XCP-0030	PS2R-6-50-0023-001	SP-XCC-004

Description	Size	Spec	Process Owner	PROCESS Special Item No	Drawing No	Piping SP Datasheet
CORROSION COUPON	8"	91503	8"-641-GP-0033-91503	06-XCC-0030	PS2R-6-50-0023-001	SP-XCC-004
CORROSION COUPON	8"	151093KS	8"-641-OC-0030-151093KS	84-XCP-0025	PS2R-6-50-0002-001	SP-XCC-005
CORROSION COUPON	8"	151093KS	8"-641-OC-0030-151093KS	84-XCC-0025	PS2R-6-50-0002-001	SP-XCC-005
CORROSION COUPON	8"	151093KS	8"-641-OC-0012-151093KS	84-XCP-0031	PS2R-6-50-0001-001	SP-XCC-005
CORROSION COUPON	8"	151093KS	8"-641-OC-0012-151093KS	84-XCC-0031	PS2R-6-50-0001-001	SP-XCC-005
CORROSION COUPON	10"	151093KS	10"-641-OC-0128-151093KS	84-XCP-0018	PS2BR13-6-50-0001-001	SP-XCC-009
CORROSION COUPON	10"	151093KS	10"-641-OC-0128-151093KS	84-XCC-0018	PS2BR13-6-50-0001-001	SP-XCC-009
CORROSION COUPON	10"	151093KS	10"-641-OC-0129-151093KS	84-XCP-0019	PS2BR13-6-50-0001-001	SP-XCC-009
CORROSION COUPON	10"	151093KS	10"-641-OC-0129-151093KS	84-XCC-0019	PS2BR13-6-50-0001-001	SP-XCC-009
CORROSION COUPON	12"	31503	12"-642-OC-0020-31503	84-XCC-0023	PS2K-6-50-0017-001	SP-XCC-011
CORROSION COUPON	12"	31503	12"-642-OC-0020-31503	84-XCP-0023	PS2K-6-50-0017-001	SP-XCC-011
CORROSION COUPON	12"	151093KS	12"-641-OC-0068-151093KS	84-XCC-0028	PS2R-6-50-0013-001	SP-XCC-012
CORROSION COUPON	12"	151093KS	12"-641-OC-0069-151093KS	84-XCP-0027	PS2R-6-50-0012-001	SP-XCC-012
CORROSION COUPON	12"	151093KS	12"-641-OC-0069-151093KS	84-XCC-0027	PS2R-6-50-0012-001	SP-XCC-012
CORROSION COUPON	12"	151093KS	12"-641-OC-0134-151093KS	84-XCP-0015	PS2BR12-6-50-0001-001	SP-XCC-012
CORROSION COUPON	12"	151093KS	12"-641-OC-0134-151093KS	84-XCC-0015	PS2BR12-6-50-0001-001	SP-XCC-012
CORROSION COUPON	12"	151093KS	12"-641-OC-0068-151093KS	84-XCP-0028	PS2R-6-50-0013-001	SP-XCC-012
CORROSION COUPON	14"	151093KS	14"-641-OC-0067-151093KS	84-XCP-0032	PS2R-6-50-0016-001	SP-XCC-014
CORROSION COUPON	14"	151093KS	14"-641-OC-0067-151093KS	84-XCC-0032	PS2R-6-50-0016-001	SP-XCC-014
CORROSION COUPON	14"	151093KS	14"-641-OC-0002-151093KS	84-XCP-0011	PS2BR12-6-50-0001-001	SP-XCC-014
CORROSION COUPON	14"	151093KS	14"-641-OC-0002-151093KS	84-XCC-0011	PS2BR12-6-50-0001-001	SP-XCC-014
CORROSION COUPON	14"	151093KS	14"-641-OC-0004-151093KS	84-XCP-0012	PS2BR12-6-50-0001-001	SP-XCC-014
CORROSION COUPON	14"	151093KS	14"-641-OC-0004-151093KS	84-XCC-0012	PS2BR12-6-50-0001-001	SP-XCC-014
CORROSION COUPON	16"	151093KS	16"-641-OC-0050-151093KS	84-XCP-0033	PS2R-6-50-0017-001	SP-XCC-015
CORROSION COUPON	16"	151093KS	16"-641-OC-0050-151093KS	84-XCC-0033	PS2R-6-50-0017-001	SP-XCC-015
CORROSION COUPON	24"	151093KS	24"-641-OC-0143-151093KS	84-XCC-0016	PS2BR12-6-50-0002-001	SP-XCC-020
CORROSION COUPON	24"	151093KS	24"-641-OC-0143-151093KS	84-XCP-0016	PS2BR12-6-50-0002-001	SP-XCC-020
CORROSION COUPON	24"	151093KS	24"-641-OC-0144-151093KS	84-XCP-0017	PS2BR12-6-50-0002-001	SP-XCC-020
CORROSION COUPON	24"	151093KS	24"-641-OC-0144-151093KS	84-XCC-0017	PS2BR12-6-50-0002-001	SP-XCC-020
CORROSION COUPON	24"	151093KS	24"-641-OC-0132-151093KS	84-XCP-0013	PS2BR12-6-50-0001-001	SP-XCC-020
CORROSION COUPON	24"	151093KS	24"-641-OC-0132-151093KS	84-XCC-0013	PS2BR12-6-50-0001-001	SP-XCC-020
CORROSION COUPON	24"	151093KS	24"-641-OC-0133-151093KS	84-XCP-0014	PS2BR12-6-50-0001-001	SP-XCC-020
CORROSION COUPON	24"	151093KS	24"-641-OC-0133-151093KS	84-XCC-0014	PS2BR12-6-50-0001-001	SP-XCC-020
CORROSION COUPON	36"	11093KS	36"-642-OC-0089-11093KS	84-XCP-0022	PS2K-6-50-0013-001	SP-XCC-022
CORROSION COUPON	36"	11093KS	36"-642-OC-0089-11093KS	84-XCC-0022	PS2K-6-50-0013-001	SP-XCC-022
CORROSION COUPON	36"	11093KS	36"-642-OC-0088-11093KS	84-XCP-0020	PS2K-6-50-0012-001	SP-XCC-022
CORROSION COUPON	36"	11093KS	36"-642-OC-0088-11093KS	84-XCC-0020	PS2K-6-50-0012-001	SP-XCC-022
CORROSION COUPON	30"	11432	30"-642-WT-0210-11432	32-XCC-0016	PS2K-6-51-0059-001	SP-XCC-023
CORROSION COUPON	30"	11432	30"-642-WT-0210-11432	32-XCP-0015	PS2K-6-51-0059-001	SP-XCC-023
CORROSION COUPON	6"	11503	12"-642-OC-0013-11503	84-XCP-0031	PS2K-6-50-0013-001	SP-XCC-024
CORROSION COUPON	6"	11503	12"-642-OC-0013-11503	84-XCC-0031	PS2K-6-50-0013-001	SP-XCC-024
CORROSION COUPON	6"	11503	12"-642-OC-0012-11503	84-XCP-0021	PS2K-6-50-0012-001	SP-XCC-024
CORROSION COUPON	6"	11503	12"-642-OC-0012-11503	84-XCC-0021	PS2K-6-50-0012-001	SP-XCC-024
CORROSION COUPON	12"	11503	12"-642-GP-0092-11503	11-XCP-0013	PS2K-6-50-0014-001	SP-XCC-025
CORROSION COUPON	12"	11503	12"-642-GP-0092-11503	11-XCC-0013	PS2K-6-50-0014-001	SP-XCC-025
CORROSION COUPON	14"	11503	14"-642-GP-0107-11503	11-XCC-0014	PS2K-6-50-0017-001	SP-XCC-026
CORROSION COUPON	14"	11503	14"-642-GP-0107-11503	11-XCP-0014	PS2K-6-50-0017-001	SP-XCC-026
CORROSION COUPON	30"	11503	30"-642-GP-0085-11503	11-XCP-0012	PS2K-6-50-0013-001	SP-XCC-027
CORROSION COUPON	30"	11503	30"-642-GP-0085-11503	11-XCC-0012	PS2K-6-50-0013-001	SP-XCC-027
CORROSION COUPON	42"	11503	30"-642-GP-0080-11503	11-XCC-0011-CC	PS2K-6-50-0012-001	SP-XCC-028
CORROSION COUPON	42"	11503	30"-642-GP-0080-11503	11-XCP-0011-CP	PS2K-6-50-0012-001	SP-XCC-028
CORROSION COUPON	18"	151093KS	12"-641-OC-0015-151093KS	84-XCP-0026	PS2R-6-50-0011-001	SP-XCC-029
CORROSION COUPON	18"	151093KS	12"-641-OC-0015-151093KS	84-XCC-0026	PS2R-6-50-0011-001	SP-XCC-029
CORROSION COUPON	20"	151093KS	16"-641-OC-0048-151093KS	84-XCP-0029	PS2R-6-50-0014-001	SP-XCC-030
CORROSION COUPON	20"	151093KS	16"-641-OC-0048-151093KS	84-XCC-0029	PS2R-6-50-0014-001	SP-XCC-030
CORROSION COUPON	6"	61503	6"-641-GC-0080-61503	06-XCP-0012	PS2R-6-50-0031-001	SP-XCC-031
CORROSION COUPON	6"	61503	6"-641-GC-0080-61503	06-XCC-0012	PS2R-6-50-0031-001	SP-XCC-031
CORROSION COUPON	10"	31503	10"-641-OC-0135-31503	06-XCP-0011	PS2R-6-50-0010-001	SP-XCC-031
CORROSION COUPON	10"	31503	10"-641-OC-0135-31503	06-XCC-0011	PS2R-6-50-0010-001	SP-XCC-031
CORROSION COUPON	10"	31503	6"-642-OC-0111-31503	84-XCP-0024	PS2K-6-50-0018-001	SP-XCC-031
CORROSION COUPON	10"	31503	6"-642-OC-0111-31503	84-XCC-0024	PS2K-6-50-0018-001	SP-XCC-031
FLAME ARRESTER	1 1/2"	13461	1 1/2"-640-GV-0040-13461	42-FA-0046	PS2L-6-51-0179-001	SP-FMA-002
FLAME ARRESTER	1 1/2"	13461	1 1/2"-640-GV-0039-13461	42-FA-0047	PS2L-6-51-0180-001	SP-FMA-002
FLAME ARRESTER	1 1/2"	13461	1 1/2"-640-GV-0033-13461	42-FA-0022	PS2L-6-51-0018-001	SP-FMA-002
FLAME ARRESTER	1 1/2"	13461	1 1/2"-640-GV-0009-13461	42-FA-0017	PS2L-6-51-0009-001	SP-FMA-002
FLAME ARRESTER	1 1/2"	13461	1 1/2"-640-GV-0005-13461	42-FA-0014	PS2L-6-51-0005-001	SP-FMA-002
FLAME ARRESTER	1 1/2"	13461	1 1/2"-640-GV-0010-13461	42-FA-0018	PS2L-6-51-0010-001	SP-FMA-002
FLAME ARRESTER	1 1/2"	13461	1 1/2"-640-GV-0008-13461	42-FA-0016	PS2L-6-51-0008-001	SP-FMA-002
FLAME ARRESTER	1 1/2"	13461	1 1/2"-640-GV-0011-13461	42-FA-0019	PS2L-6-51-0011-001	SP-FMA-002
FLAME ARRESTER	1 1/2"	13461	1 1/2"-640-GV-0014-13461	42-FA-0021	PS2L-6-51-0014-001	SP-FMA-002
FLAME ARRESTER	1 1/2"	13461	1 1/2"-640-GV-0007-13461	42-FA-0015	PS2L-6-51-0007-001	SP-FMA-002
FLAME ARRESTER	1 1/2"	13461	1 1/2"-640-GV-0004-13461	42-FA-0013	PS2L-6-51-0004-001	SP-FMA-002
FLAME ARRESTER	1 1/2"	13461	1 1/2"-640-GV-0012-13461	42-FA-0020	PS2L-6-51-0012-001	SP-FMA-002
FLAME ARRESTER	1 1/2"	13461	1 1/2"-640-GV-0035-13461	42-FA-0012	PS2L-6-51-0168-001	SP-FMA-002
FLAME ARRESTER	1 1/2"	13461	1 1/2"-640-GV-0001-13461	42-FA-0011	PS2L-6-51-0001-001	SP-FMA-002
FLAME ARRESTER	2"	13461	2"-640-GV-0038-13461	42-FA-0035	PS2L-6-51-0019-001	SP-FMA-003
FLAME ARRESTER	2"	13461	2"-640-GV-0002-13461	42-FA-0045	PS2L-6-51-0002-001	SP-FMA-003
FLAME ARRESTER	3"	16620	3"-GV-MM-L06A-0224-16620	72-FA-0001	4355-MML06A-6-51-0002-001	SP-FMA-004
FLAME ARRESTER	3"	16620	3"-GV-MM-J04B-0166-16620	72-FA-0003	4355-MMJ04B-6-51-0002-001	SP-FMA-004
FLAME ARRESTER	3"	16620	3"-GV-MM-J09B-0197-16620	72-FA-0004	4355-MMJ09B-6-51-0002-001	SP-FMA-004
FLAME ARRESTER	3"	16620	3"-GV-MM-F05A-0070-16620	72-FA-0005	4355-MMF05A-6-51-0002-001	SP-FMA-004
FLAME ARRESTER	3"	16620	3"-GV-MM-H08A-0110-16620	72-FA-0006	4355-MMH08A-6-51-0002-001	SP-FMA-004

Description	Size	Spec	Process Owner	PROCESS Special Item No	Drawing No	Piping SP Datasheet
FLAME ARRESTER	3"	16620	3"-GV-MM-J07B-0184-16620	72-FA-0007	4355-MMJ07B-6-51-0002-001	SP-FMA-004
FLAME ARRESTER	3"	16620	3"-GV-MM-I07C-X036-16620	72-FA-0008	4355-MMIO7C-6-51-0001-001	SP-FMA-004
FLAME ARRESTER	3"	16620	3"-GV-MM-M07A-X021-16620	72-FA-0009	4355-MM07A-6-51-0002-001	SP-FMA-004
FLAME ARRESTER	3"	16620	3"-GV-MM-I05A-0132-16620	72-FA-0010	4355-MMIO5A-6-51-0002-001	SP-FMA-004
FLAME ARRESTER	3"	16620	3"-GV-MM-G07A-X051-16620	72-FA-0011	4355-MMG07A-6-51-0002-001	SP-FMA-004
FLAME ARRESTER	3"	16620	3"-GV-MM-G08B-0101-16620	72-FA-0012	4355-MMG08B-6-51-0002-001	SP-FMA-004
FLAME ARRESTER	3"	16620	3"-GV-MM-J06B-0174-16620	72-FA-0013	4355-MMJ06B-6-51-0001-001	SP-FMA-004
FLAME ARRESTER	3"	16620	3"-GV-MM-I07B-0242-16620	72-FA-0014	4355-MMIO7B-6-51-0002-001	SP-FMA-004
FLAME ARRESTER	3"	16620	3"-GV-MM-I06B-0143-16620	72-FA-0015	4355-MMIO6B-6-51-0002-001	SP-FMA-004
FLAME ARRESTER	8"	11432	8"-640-VA-0028-11432	35-FA-0012	PS2L-6-51-0026-001	SP-FMA-005
FLAME ARRESTER	8"	11432	8"-640-VA-0027-11432	35-FA-0011	PS2L-6-51-0021-001	SP-FMA-005
HOSE CONNECTION	1"	11432	1"-641-GN-0040-11432	06-DJ-0011	PS2R-6-50-0010-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-L06A-0043-11432	72-DJ-0001	4355-MML06A-6-50-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-L06A-0044-11432	72-DJ-0002	4355-MML06A-6-50-0003-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-L06A-0045-11432	72-DJ-0003	4355-MML06A-6-50-0004-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-L06A-0046-11432	72-DJ-0004	4355-MML06A-6-50-0005-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-L06A-X001-11432	72-DJ-0005	4355-MML06A-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-I06B-0019-11432	72-DJ-0006	4355-MMIO6B-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-L06A-X002-11432	72-DJ-0007	4355-MML06A-6-50-0001-002	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-L06A-X003-11432	72-DJ-0008	4355-MML06A-6-50-0001-002	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-L06A-X004-11432	72-DJ-0009	4355-MML06A-6-50-0001-003	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-L06A-X005-11432	72-DJ-0010	4355-MML06A-6-50-0001-003	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-K08A-0037-11432	72-DJ-0011	4355-MMK08A-6-50-0003-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-K08A-0038-11432	72-DJ-0013	4355-MMK08A-6-50-0003-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-K08A-0040-11432	72-DJ-0014	4355-MMK08A-6-50-0004-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-K08A-0041-11432	72-DJ-0015	4355-MMK08A-6-50-0005-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-K08A-0042-11432	72-DJ-0016	4355-MMK08A-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-K08A-X003-11432	72-DJ-0017	4355-MMK08A-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-J04B-0023-11432	72-DJ-0019	4355-MMJ04B-6-50-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-J04B-0022-11432	72-DJ-0020	4355-MMJ04B-6-50-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-J04B-0024-11432	72-DJ-0021	4355-MMJ04B-6-50-0003-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-J04B-0026-11432	72-DJ-0024	4355-MMJ04B-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-J04B-0036-11432	72-DJ-0025	4355-MMJ04B-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	1"-GI-MM-J09B-X002-11432	72-DJ-0026	4355-MMJ09B-6-50-0001-004	SP-HSC-001
HOSE CONNECTION	1"	11432	1"-GI-MM-J09B-X003-11432	72-DJ-0027	4355-MMJ09B-6-50-0001-004	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-J09B-0032-11432	72-DJ-0029	4355-MMJ09B-6-50-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-J09B-0033-11432	72-DJ-0030	4355-MMJ09B-6-50-0003-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-J09B-0034-11432	72-DJ-0031	4355-MMJ09B-6-50-0004-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-J09B-0035-11432	72-DJ-0032	4355-MMJ09B-6-50-0005-001	SP-HSC-001
HOSE CONNECTION	1"	11432	1"-GI-MM-J09B-X006-11432	72-DJ-0034	4355-MMJ09B-6-50-0006-001	SP-HSC-001
HOSE CONNECTION	1"	11432	1"-GI-MM-J09B-X007-11432	72-DJ-0035	4355-MMJ09B-6-50-0006-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-J09B-0036-11432	72-DJ-0024	4355-MMJ09B-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-J09B-X001-11432	72-DJ-0025	4355-MMJ09B-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-F05A-0001-11432	72-DJ-0039	4355-MMF05A-6-50-0004-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-F05A-X001-11432	72-DJ-0040	4355-MMF05A-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-F05A-0002-11432	72-DJ-0041	4355-MMF05A-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-H08A-0011-11432	72-DJ-0043	4355-MMH08A-6-50-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-H08A-X001-11432	72-DJ-0044	4355-MMH08A-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-H08A-0012-11432	72-DJ-0045	4355-MMH08A-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-J07B-0120-11432	72-DJ-0047	4355-MMJ07B-6-50-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-J07B-0030-11432	72-DJ-0049	4355-MMJ07B-6-50-0004-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-J07B-0031-11432	72-DJ-0050	4355-MMJ07B-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-J07B-0032-11432	72-DJ-0051	4355-MMJ07B-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-I07C-X001-11432	72-DJ-0053	4355-MMIO7C-6-50-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-I07C-X003-11432	72-DJ-0054	4355-MMIO7C-6-51-0001-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-I07C-X002-11432	72-DJ-0055	4355-MMIO7C-6-51-0001-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-M07A-X001-11432	72-DJ-0057	4355-MM07A-6-50-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-M07A-X002-11432	72-DJ-0058	4355-MM07A-6-50-0003-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-M07A-X003-11432	72-DJ-0059	4355-MM07A-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-M07A-X004-11432	72-DJ-0060	4355-MM07A-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-L06A-X006-11432	72-DJ-0062	4355-MML06A-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-I05A-0013-11432	72-DJ-0062	4355-MMIO5A-6-50-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-I05A-0014-11432	72-DJ-0063	4355-MMIO5A-6-50-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-I05A-0015-11432	72-DJ-0065	4355-MMIO5A-6-50-0006-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-I05A-0016-11432	72-DJ-0066	4355-MMIO5A-6-50-0007-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-I05A-0017-11432	72-DJ-0067	4355-MMIO5A-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-I05A-X001-11432	72-DJ-0068	4355-MMIO5A-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-G07A-X005-11432	72-DJ-0070	4355-MMG07A-6-50-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-G07A-X002-11432	72-DJ-0071	4355-MMG07A-6-50-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-G07A-X003-11432	72-DJ-0072	4355-MMG07A-6-50-0002-002	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-G07A-X006-11432	72-DJ-0073	4355-MMG07A-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-G07A-X007-11432	72-DJ-0074	4355-MMG07A-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-G08B-0009-11432	72-DJ-0076	4355-MMG08B-6-50-0004-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-G08B-0007-11432	72-DJ-0077	4355-MMG08B-6-50-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-G08B-0008-11432	72-DJ-0078	4355-MMG08B-6-50-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-G08B-0015-11432	72-DJ-0079	4355-MMG08B-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-G08B-0010-11432	72-DJ-0080	4355-MMG08B-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-J06B-X002-11432	72-DJ-0082	4355-MMJ06B-6-51-0001-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-J06B-0027-11432	72-DJ-0083	4355-MMJ06B-6-51-0001-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-I07B-0051-11432	72-DJ-0085	4355-MMIO7B-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11432	1"-GI-MM-G08B-X001-11432	72-DJ-0089	4355-MMG08B-6-50-0005-001	SP-HSC-001
HOSE CONNECTION	1"	11432	2"-GI-MM-I06B-0018-11432	72-DJ-0090	4355-MMIO6B-6-50-0002-001	SP-HSC-001

Description	Size	Spec	Process Owner	PROCESS Special Item No	Drawing No	Piping SP Datasheet
HOSE CONNECTION	1"	11432	2"-GI-MM-I06B-0020-11432	72-DJ-0091	4355-MMI06B-6-51-0002-001	SP-HSC-001
HOSE CONNECTION	1"	11503	1"-641-GN-0021-11503	38-DJ-0026	PS2R-6-50-0023-001	SP-HSC-002
HOSE CONNECTION	1"	11503	1"-641-GN-0017-11503	06-DJ-0029	PS2R-6-50-0031-001	SP-HSC-002
HOSE CONNECTION	1"	11503	1"-641-GN-0010-11503	38-DJ-0015	PS2R-6-50-0011-001	SP-HSC-002
HOSE CONNECTION	1"	11503	1"-641-GN-0028-11503	38-DJ-0013	PS2R-6-50-0002-001	SP-HSC-002
HOSE CONNECTION	1"	11503	1"-641-GN-0058-11503	06-DJ-0016	PS2R-6-50-0031-001	SP-HSC-002
HOSE CONNECTION	2"	11432	2"-642-GN-0045-11432	42-DJ-001	PS2K-6-51-0100-001	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-641-GN-0092-11432	42-DJ-0011	PS2R-6-51-01010-001	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-OD-MM-M07A-X009-17320	72-DJ-0061	4355-MMM07A-6-51-0002-001	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-OD-MM-J06B-X001-17320	72-DJ-0084	4355-MMJ06B-6-51-0001-001	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-OD-MM-I07B-X001-17320	72-DJ-0086	4355-MMI07B-6-51-0002-001	SP-HSC-004
HOSE CONNECTION	2"	11432	2"-OD-MM-I06B-X001-11441	72-DJ-0092	4355-MMI06B-6-51-0002-001	SP-HSC-004
HOSE CONNECTION	2"	11441	2"-OD-MM-J04B-X001-11441	72-DJ-0023	4355-MMJ04B-6-51-0002-001	SP-HSC-005
HOSE CONNECTION	2"	17320	2"-640-DO-0222-17320	39-DJ-0021	PS2L-6-51-0102-001	SP-HSC-006
HOSE CONNECTION	2"	17320	2"-640-DO-0223-17320	39-DJ-0022	PS2L-6-51-0102-001	SP-HSC-006
HOSE CONNECTION	2"	17320	2"-640-DO-0224-17320	39-DJ-0023	PS2L-6-51-0102-001	SP-HSC-006
HOSE CONNECTION	2"	17320	2"-640-DO-0228-17320	39-DJ-0024	PS2L-6-51-0102-001	SP-HSC-006
HOSE CONNECTION	2"	17320	2"-OD-MM-L06A-X001-17320	72-DJ-0006	4355-MML06A-6-51-0002-001	SP-HSC-006
HOSE CONNECTION	2"	17320	2"-OD-MM-K08A-X001-17320	72-DJ-0018	4355-MMK08A-6-51-0002-001	SP-HSC-006
HOSE CONNECTION	2"	17320	2"-OD-MM-J09B-X001-17320	72-DJ-0023	4355-MMJ09B-6-51-0002-001	SP-HSC-006
HOSE CONNECTION	2"	17320	2"-OD-MM-F05A-X001-17320	72-DJ-0042	4355-MMF05A-6-51-0002-001	SP-HSC-006
HOSE CONNECTION	2"	17320	2"-OD-MM-H08A-X001-17320	72-DJ-0046	4355-MMH08A-6-51-0002-001	SP-HSC-006
HOSE CONNECTION	2"	17320	2"-OD-MM-J07B-X001-17320	72-DJ-0052	4355-MMJ07B-6-51-0002-001	SP-HSC-006
HOSE CONNECTION	2"	17320	2"-OD-MM-I07C-X002-17320	72-DJ-0056	4355-MMI07C-6-51-0001-001	SP-HSC-006
HOSE CONNECTION	2"	17320	2"-OD-MM-I05A-X003-17320	72-DJ-0069	4355-MMI05A-6-51-0002-001	SP-HSC-006
HOSE CONNECTION	2"	17320	2"-OD-MM-G07A-X008-17320	72-DJ-0075	4355-MMG07A-6-51-0002-001	SP-HSC-006
HOSE CONNECTION	2"	17320	2"-OD-MM-G08B-X001-17320	72-DJ-0081	4355-MMG08B-6-51-0002-001	SP-HSC-006
HOSE CONNECTION	2"	151503	2"-641-DC-0054-151503	38-DJ-0025	PS2R-6-50-0017-001	SP-HSC-008
HOSE CONNECTION	2"	151503	2"-641-DC-0064-151503	38-DJ-0019	PS2R-6-50-0013-001	SP-HSC-008
HOSE CONNECTION	2"	151503	2"-641-DC-0063-151503	38-DJ-0017	PS2R-6-50-0012-001	SP-HSC-008
HOSE CONNECTION	2"	151503	2"-641-DC-0065-151503	38-DJ-0021	PS2R-6-50-0014-001	SP-HSC-008
HOSE CONNECTION	2"	151503	2"-641-DC-0066-151503	38-DJ-0024	PS2R-6-50-0016-001	SP-HSC-008
HOSE CONNECTION	2"	151503	2"-641-DC-0040-151503	38-DJ-0011	PS2R-6-50-0001-001	SP-HSC-008
HOSE CONNECTION	3"	17320	3"-640-WR-0061-17320	20-DJ-0012	PS2L-6-51-0062-001	SP-HSC-010
HOSE CONNECTION	3"	17320	3"-640-WR-0062-17320	20-DJ-0014	PS2L-6-51-0062-001	SP-HSC-010
HOSE CONNECTION	1"	151503	1"-641-GN-0003-151503	38-DJ-0012	PS2R-6-50-0001-001	SP-HSC-016
HOSE CONNECTION	1"	151503	1"-641-GN-0026-151503	38-DJ-0014	PS2R-6-50-0002-001	SP-HSC-016
HOSE CONNECTION	1"	151503	1"-641-GN-0016-151503	38-DJ-0023	PS2R-6-50-0016-001	SP-HSC-016
HOSE CONNECTION	1"	151503	1"-641-GN-0054-151503	DJ-38-0026	PS2R-6-50-0017-001	SP-HSC-016
HOSE CONNECTION	1"	151503	1"-641-GN-0025-151503	38-DJ-0020	PS2R-6-50-0013-001	SP-HSC-016
HOSE CONNECTION	1"	151503	1"-641-GN-0043-151503	38-DJ-0018	PS2R-6-50-0012-001	SP-HSC-016
HOSE CONNECTION	1"	151503	1"-641-GN-0047-151503	38-DJ-0022	PS2R-6-50-0014-001	SP-HSC-016
HOSE CONNECTION	1"	151503	1"-641-GN-0020-151503	38-DJ-0027	PS2R-6-50-0015-001	SP-HSC-016
HOSE CONNECTION	1"	151503	1"-641-GN-0001-151503	38-DJ-0025	PS2R-6-50-0004-001	SP-HSC-016
HOSE CONNECTION	1"	151503	1"-642-GN-0031-151503	38-DJ-0026	PS2K-6-50-0005-001	SP-HSC-016
HOSE CONNECTION	1"	151503	1"-642-GN-0033-151503	38-DJ-0027	PS2K-6-50-0005-001	SP-HSC-016
HOSE CONNECTION	1"	151503	1"-641-GN-0200-151503	38-DJ-0031	PS2R-6-50-0015-001	SP-HSC-016
HOSE CONNECTION	1"	151503	1"-641-GN-0005-151503	38-DJ-0016	PS2R-6-50-0011-001	SP-HSC-016
HOSE CONNECTION	1"	61503	1"-641-GN-0018-61503	38-DJ-0029	PS2R-6-50-0031-001	SP-HSC-017
HOSE CONNECTION	1"	91503	1"-641-GN-0056-91503	38-DJ-0030	PS2R-6-50-0020-001	SP-HSC-018
HOSE CONNECTION	1"	91503	1"-641-GN-0007-91503	38-DJ-0028	PS2R-6-50-0022-001	SP-HSC-018
HOSE CONNECTION	1"	91503	1"-641-GP-0002-91503	38-DJ-0032	PS2R-6-50-0021-001	SP-HSC-018
MECHANICAL COUPLING	4"	11432	4"-640-WU-0001-11432	24-DJ-0012	PS2L-6-51-0070-001	SP-HSC-013
MECHANICAL COUPLING	4"	11432	4"-640-WU-0002-11432	24-DJ-0014	PS2L-6-51-0070-001	SP-HSC-013
MECHANICAL COUPLING	4"	11432	4"-640-DF-0001-11432	35-DJ-0012	PS2L-6-51-0020-001	SP-HSC-013
MECHANICAL COUPLING	4"	11432	4"-640-DF-0002-11432	35-DJ-0014	PS2L-6-51-0020-001	SP-HSC-013
MECHANICAL COUPLING	3"	17320	3"-640-OD-0088-17320	39-DJ-0019	PS2L-6-51-0143-001	SP-HSC-019
MECHANICAL COUPLING	3"	17320	3"-640-OD-0087-17320	39-DJ-0018	PS2L-6-51-0143-001	SP-HSC-019
MECHANICAL COUPLING FEMALE	4"	11432	4"-640-WU-0001-11432	24-DJ-0011	PS2L-6-51-0070-001	SP-HSC-014
MECHANICAL COUPLING FEMALE	4"	11432	4"-640-WU-0002-11432	24-DJ-0013	PS2L-6-51-0070-001	SP-HSC-014
MECHANICAL COUPLING FEMALE	4"	11432	4"-640-DF-0001-11432	35-DJ-0011	PS2L-6-51-0020-001	SP-HSC-014
MECHANICAL COUPLING FEMALE	4"	11432	4"-640-DF-0002-11432	35-DJ-0013	PS2L-6-51-0020-001	SP-HSC-014
MECHANICAL COUPLING MALE	3"	17320	3"-640-OD-0087-17320	39-DJ-0015	PS2L-6-51-0143-001	SP-HSC-020
MECHANICAL COUPLING MALE	3"	17320	3"-640-OD-0088-17320	39-DJ-0016	PS2L-6-51-0143-001	SP-HSC-020
MECHANICAL COUPLING MALE	3"	17320	3"-640-OD-0089-17320	39-DJ-0017	PS2L-6-51-0143-001	SP-HSC-020
FLEXIBLE HOSE	1 1/2"	11432	1 1/2"-642-CG-0094-11432	42-SP-0048	PS2K-6-51-0001-001	SP-FLX-001
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-640-CI-0100-13461	42-SP-0051	PS2L-6-51-0179-001	SP-FLX-002
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-640-CI-0078-13461	42-SP-0040	PS2L-6-51-0168-001	SP-FLX-002
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-640-CI-0103-13461	42-SP-0053	PS2L-6-51-0180-001	SP-FLX-002
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-640-CI-0091-13461	42-SP-0046	PS2L-6-51-0019-001	SP-FLX-002
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-640-CI-0072-13461	42-SP-0034	PS2L-6-51-0018-001	SP-FLX-002
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-640-CI-0010-13461	42-SP-0018	PS2L-6-51-0005-001	SP-FLX-002
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-640-CI-0020-13461	42-SP-0024	PS2L-6-51-0009-001	SP-FLX-002
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-640-CI-0007-13461	42-SP-0016	PS2L-6-51-0004-001	SP-FLX-002
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-640-CI-0022-13461	42-SP-0026	PS2L-6-51-0010-001	SP-FLX-002
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-640-CI-0016-13461	42-SP-0020	PS2L-6-51-0007-001	SP-FLX-002
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-640-CI-0018-13461	42-SP-0022	PS2L-6-51-0008-001	SP-FLX-002
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-640-CI-0024-13461	42-SP-0028	PS2L-6-51-0011-001	SP-FLX-002
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-640-CG-0001-13461	42-SP-0032	PS2L-6-51-0014-001	SP-FLX-002
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-640-CI-0026-13461	42-SP-0030	PS2L-6-51-0012-001	SP-FLX-002
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-640-CI-0003-13461	42-SP-0014	PS2L-6-51-0002-001	SP-FLX-002
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-640-CI-0001-13461	42-SP-0012	PS2L-6-51-0001-001	SP-FLX-002

Description	Size	Spec	Process Owner	PROCESS Special Item No	Drawing No	Piping SP Datasheet
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-642-CI-0269-13461	42-SP-0050	PS2K-6-51-0001-001	SP-FLX-002
FLEXIBLE HOSE	1 1/2"	13461	1 1/2"-642-CI-0268-13461	42-SP-0049	PS2K-6-51-0001-001	SP-FLX-002
FLEXIBLE HOSE	3"	17320	3"-640-OD-0089-17320	39-DJ-0020	PS2L-6-51-0143-001	SP-FLX-003
TEMPORARY STRAINER	14"	13461	14"-642-GP-0050-13461-3HE	11-STR-0016	PS2K-6-50-0031-001	SP-STT-003
TEMPORARY STRAINER	30"	13461	30"-642-GP-2116-13461-3HE	11-STR-0014	PS2K-6-50-0057-001	SP-STT-007
TEMPORARY STRAINER	30"	13461	30"-642-GP-0116-13461-3HE	11-STR-0013	PS2K-6-50-0042-001	SP-STT-007
TEMPORARY STRAINER	24"	36620	24"-642-GP-2131-36620-3HE	11-STR-0016	PS2K-6-50-0060-001	SP-STT-008
TEMPORARY STRAINER	24"	36620	24"-642-GP-0131-36620-3HE	11-STR-0012	PS2K-6-50-0045-001	SP-STT-008
TEMPORARY STRAINER	16"	66620	16"-642-GP-0409-66620-3HE	11-STR-0015	PS2K-6-50-0049-001	SP-STT-009
TEMPORARY STRAINER	16"	66620	16"-642-GP-2409-66620-3HE	11-STR-0017	PS2K-6-50-0064-001	SP-STT-009
TEMPORARY STRAINER	12"	96620	12"-642-GP-2034-96620-3HE	11-STR-0015	PS2K-6-50-0067-001	SP-STT-010
TEMPORARY STRAINER	12"	96620	12"-642-GP-0034-96620-3HE	11-STR-0014	PS2K-6-50-0052-001	SP-STT-010
Y TYPE STRAINER	3"	11432	3"-642-WT-0218-11432	32-STR-0022	PS2K-6-51-0057-001	SP-STR-001
Y TYPE STRAINER	3"	11432	3"-640-WT-0008-11432	32-STR-0032	PS2L-6-51-0068-001	SP-STR-001
Y TYPE STRAINER	3"	11432	3"-642-WT-0220-11432	32-STR-0021	PS2K-6-51-0057-001	SP-STR-001
Y TYPE STRAINER	3"	11432	3"-640-WT-0003-11432	32-STR-0033	PS2L-6-51-0068-001	SP-STR-001
Y TYPE STRAINER	3"	11432	3"-640-DF-0020-11432	35-STR-0011	PS2L-6-51-0022-001	SP-STR-001
Y TYPE STRAINER	3"	11432	3"-640-DF-0015-11432	35-STR-0012	PS2L-6-51-0022-001	SP-STR-001
Y TYPE STRAINER	3"	13844	3"-641-DC-0036-13844	70-STR-0011	PS2R-6-51-0023-001	SP-STR-003
Y TYPE STRAINER	3"	13844	3"-641-DC-0032-13844	70-STR-0012	PS2R-6-51-0023-001	SP-STR-003
Y TYPE STRAINER	3"	13844	3"-642-DC-0329-13844	70-STR-0011	PS2K-6-51-0062-001	SP-STR-003
Y TYPE STRAINER	3"	13844	3"-642-DC-0308-13844	70-STR-0012	PS2K-6-51-0062-001	SP-STR-003
Y TYPE STRAINER	3"	17012	3"-640-WP-0019-17012	24-STR-0015	PS2L-6-51-0076-001	SP-STR-004
Y TYPE STRAINER	3"	17012	3"-640-WP-0005-17012	24-STR-0016	PS2L-6-51-0076-001	SP-STR-004
Y TYPE STRAINER	3"	17320	3"-640-DO-0150-17320	39-STR-0020	PS2L-6-51-0132-001	SP-STR-005
Y TYPE STRAINER	3"	17320	3"-641-DO-0038-17320	39-STR-0012	PS2R-6-51-0028-001	SP-STR-005
Y TYPE STRAINER	3"	17320	3"-640-DO-0151-17320	39-STR-0019	PS2L-6-51-0132-001	SP-STR-005
Y TYPE STRAINER	3"	17320	3"-641-DO-0039-17320	39-STR-0011	PS2R-6-51-0028-001	SP-STR-005
Y TYPE STRAINER	3"	17320	3"-642-DO-0172-17320	39-STR-0015	PS2K-6-51-0076-001	SP-STR-005
Y TYPE STRAINER	3"	17320	3"-642-DO-0171-17320	39-STR-0016	PS2K-6-51-0076-001	SP-STR-005
Y TYPE STRAINER	4"	13461	4"-642-CG-0088-13461	40-STR-0011	PS2K-6-51-0002-001	SP-STR-006
Y TYPE STRAINER	4"	16620	4"-641-GC-0011-16620	19-STR-0002	PS2R-6-51-0007-001	SP-STR-007
Y TYPE STRAINER	4"	16620	6"-641-GC-0010-16620	19-STR-0001	PS2R-6-51-0007-001	SP-STR-007
Y TYPE STRAINER	4"	16620	4"-641-GC-0002-16620-1HE	19-STR-0004	PS2R-6-51-0003-001	SP-STR-007
Y TYPE STRAINER	4"	16620	6"-641-GC-0001-16620-1HE	19-STR-0003	PS2R-6-51-0003-001	SP-STR-007
Y TYPE STRAINER	4"	17012	4"-640-WF-0082-17012	33-STR-0014	PS2L-3-59-0010-001	SP-STR-008
Y TYPE STRAINER	4"	17012	4"-640-WF-0085-17012	33-STR-0013	PS2L-3-59-0010-001	SP-STR-008
Y TYPE STRAINER	6"	16620	6"-642-PW-0037-16620	83-STR-0015	PS2K-6-50-0019-001	SP-STR-009
Y TYPE STRAINER	6"	16620	6"-642-PW-0041-16620	83-STR-0016	PS2K-6-50-0019-001	SP-STR-009
Y TYPE STRAINER	6"	16620	6"-642-PW-0151-16620	83-STR-0017	PS2K-6-50-0019-001	SP-STR-009
Y TYPE STRAINER	6"	17012	6"-640-WP-0074-17012	24-STR-0018	PS2L-6-51-0078-001	SP-STR-010
Y TYPE STRAINER	6"	17012	6"-640-WP-0023-17012	24-STR-0017	PS2L-6-51-0078-001	SP-STR-010
Y TYPE STRAINER	8"	11432	8"-640-WT-0038-11432	32-STR-0030	PS2L-6-51-0064-001	SP-STR-011
Y TYPE STRAINER	8"	11432	8"-640-WT-0037-11432	32-STR-0031	PS2L-6-51-0064-001	SP-STR-011
Y TYPE STRAINER	10"	16620	10"-642-PW-0156-16620	83-STR-?	PS2K-6-50-0025-001	SP-STR-012
Y TYPE STRAINER	10"	16620	10"-642-PW-0154-16620	83-STR-?	PS2K-6-50-0025-001	SP-STR-012
Y TYPE STRAINER	18"	11432	18"-642-WT-0205-11432	32-STR-0029	PS2K-6-51-0047-001	SP-STR-013
Y TYPE STRAINER	18"	11432	18"-642-WT-0206-11432	32-STR-0030	PS2K-6-51-0047-001	SP-STR-013
Y TYPE STRAINER	18"	11432	18"-642-WT-0204-11432	32-STR-0023	PS2K-6-51-0059-001	SP-STR-013
Y TYPE STRAINER	2"	16620	2"-642-OR-0500-16620	83-STR-0019	PS2K-6-50-0024-002	SP-STR-014
Y TYPE STRAINER	2"	16620	2"-642-OR-0032-16620	83-STR-0018	PS2K-6-50-0024-002	SP-STR-014
Y TYPE STRAINER	3"	16620	3"-642-GC-0035-16620	11-STR-0012	PS2K-6-50-0033-001	SP-STR-015
Y TYPE STRAINER	3"	16620	3"-642-GC-0038-16620	11-STR-0011	PS2K-6-50-0033-001	SP-STR-015
Y TYPE STRAINER	8"	16620	8"-642-OR-0008-16620	83-STR-0020	PS2K-6-50-0027-001	SP-STR-016
Y TYPE STRAINER	8"	16620	8"-642-OR-0007-16620	83-STR-0021	PS2K-6-50-0027-001	SP-STR-016
Y TYPE STRAINER	12"	16620	12"-642-PW-0023-16620	83-STR-0013	PS2K-6-50-0016-001	SP-STR-017
Y TYPE STRAINER	12"	16620	12"-642-PW-0027-16620	83-STR-0014	PS2K-6-50-0016-001	SP-STR-017
Y TYPE STRAINER	12"	16620	12"-642-PW-0012-16620	83-STR-0011	PS2K-6-50-0015-001	SP-STR-017
Y TYPE STRAINER	12"	16620	12"-642-PW-0016-16620	83-STR-0012	PS2K-6-50-0015-001	SP-STR-017
Y TYPE STRAINER	4"	17320	4"-640-OD-0067-17320	39-STR-0021	PS2L-6-51-0131-001	SP-STR-018
Y TYPE STRAINER	4"	17320	4"-642-OD-0048-17320	39-STR-0011	PS2K-6-51-0074-001	SP-STR-018
Y TYPE STRAINER	4"	17320	4"-642-OD-0050-17320	39-STR-0012	PS2K-6-51-0074-001	SP-STR-018
Y TYPE STRAINER	4"	17320	4"-640-OD-0069-17320	39-STR-0022	PS2L-6-51-0131-001	SP-STR-018
NON-SLAM AXIAL FLOW CHECK VALVE	6"	16620	6"-642-GP-0055-16620-3PG	11-SP-0016	PS2K-6-50-0031-001	SP-NVR-006
NON-SLAM AXIAL FLOW CHECK VALVE	24"	36620	24"-642-GP-2118-36620-3PG	11-SP-0016	PS2K-6-50-0057-001	SP-NVR-007
NON-SLAM AXIAL FLOW CHECK VALVE	24"	36620	24"-642-GP-0118-36620-3PG	11-SP-0011	PS2K-6-50-0042-001	SP-NVR-007
NON-SLAM AXIAL FLOW CHECK VALVE	16"	66620	16"-642-GP-2141-66620-3PG	11-SP-0014	PS2K-6-50-0060-001	SP-NVR-008
NON-SLAM AXIAL FLOW CHECK VALVE	16"	66620	16"-642-GP-0141-66620-3PG	11-SP-0012	PS2K-6-50-0045-001	SP-NVR-008
NON-SLAM AXIAL FLOW CHECK VALVE	2"	91503	2"-642-CG-0084-91503-2H	12-SP-0011	PS2K-6-50-0086-002	SP-NVR-009
NON-SLAM AXIAL FLOW CHECK VALVE	3"	91503	3"-642-CG-0083-91503-3H	12-SP-0012	PS2K-6-50-0091-001	SP-NVR-010
NON-SLAM AXIAL FLOW CHECK VALVE	10"	96620	10"-642-GP-2144-96620	11-SP-0015	PS2K-6-50-0068-001	SP-NVR-011
NON-SLAM AXIAL FLOW CHECK VALVE	10"	96620	10"-642-GP-0144-96620	11-SP-0012	PS2K-6-50-0053-001	SP-NVR-011
NON-SLAM AXIAL FLOW CHECK VALVE	12"	96620	12"-642-GP-2062-96620-3H	11-SP-0014	PS2K-6-50-0067-001	SP-NVR-012
NON-SLAM AXIAL FLOW CHECK VALVE	12"	96620	12"-642-GP-0062-96620-3H	11-SP-0014	PS2K-6-50-0052-001	SP-NVR-012
NON-SLAM AXIAL FLOW CHECK VALVE	14"	96620	14"-642-GP-2415-96620-3H	11-SP-0016	PS2K-6-50-0064-001	SP-NVR-013
NON-SLAM AXIAL FLOW CHECK VALVE	14"	96620	14"-642-GP-0415-96620-3H	11-SP-0015	PS2K-6-50-0049-001	SP-NVR-013

ATTACHMENT 2: AUTOMATIC RECIRCULATION VALVES

1	AUTOMATIC RECIRCULATION CONTROL VALVE	
2	PIPING SP DATASHEET	SP-ARV-001
3	TYPE / DESCRIPTION	AUTOMATIC RECIRCULATION VALVE
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE / FLUID	WATER TEMPERED (COOLING MED.)
9	OPERATING PRESSURE	7.3 Barg
10	OPERATING TEMPERATURE	42 Deg C
11	LINE SIZE	6"
12	NORMAL FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	CLOSURE FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
14	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
15	MECHANICAL DATA OF PROCESS LINE	
16	PIPING CLASS/ PRESSURE RATING	11432 / ASME Class 150
17	PIPING DESIGN PRESSURE (MAX)	19.6 Barg @ 38 Deg C (ASME B16.5 Class 150 material group 1.1)
18	PIPING DESIGN TEMP. (MAX)	150 Deg C
19	CORROSION ALLOWANCE	3 mm
20	DESIGN REQUIREMENTS	
21	DESIGN CODE	ASME B31.3
22	END CONNECTIONS	RF Flanged ends
23	SIZE	6"
24	DESIGN PRESSURE	19.6 Barg
25	DESIGN TEMPERATURE	150 Deg C
26	MATERIALS	
27	BODY/BONNET	ASTM A105/A216-WCB/WCC
28	PISTON/DISC	ASTM A216 WCC
29	PISTON/DISC GUIDE	AISI 316
30	BOLTING	ASTM A 193-B7/A194-2H
31	O-RINGS	Elastomer
32	SPRING	Inconel X750
33	VALVE TRIM	AISI 316 / PTFE
34		
35	PAINTING	QP-SPC-L-002
36	COLOUR	NOTE 1
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	30 Barg
41	SPECIAL REQUIREMENTS	
42		

ATTACHMENT 2: AUTOMATIC RECIRCULATION VALVES

1	AUTOMATIC RECIRCULATION CONTROL VALVE	
2	PIPING SP DATASHEET	SP-ARV-002
3	TYPE / DESCRIPTION	AUTOMATIC RECIRCULATION VALVE
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE / FLUID	PRODUCED WATER
9	OPERATING PRESSURE	23.4 Barg
10	OPERATING TEMPERATURE	54 Deg C
11	LINE SIZE	6"
12	NORMAL FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	CLOSURE FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
14	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
15	MECHANICAL DATA OF PROCESS LINE	
16	PIPING CLASS/ PRESSURE RATING	36620 / ASME Class 300
17	PIPING DESIGN PRESSURE (MAX)	51.7 Barg @ 38 Deg C (ASME B16.5 Class 300 material group 3.8)
18	PIPING DESIGN TEMP. (MAX)	200 Deg C
19	CORROSION ALLOWANCE	0 mm
20	DESIGN REQUIREMENTS	
21	DESIGN CODE	ASME B31.3
22	END CONNECTIONS	RF Flanged ends
23	SIZE	6"
24	DESIGN PRESSURE	51.7 Barg
25	DESIGN TEMPERATURE	200 Deg C
26	MATERIALS	
27	BODY/BONNET	ASTM B564 UNS N08825/A494-CU5MCUC
28	PISTON/DISC	ASTM A494-CU5MCUC
29	PISTON/DISC GUIDE	Alloy 825
30	BOLTING	ASTM A320-L7M/A194-7M
31	O-RINGS	Elastomer
32	SPRING	Inconel X750
33	VALVE TRIM	Alloy 825, filled PTFE
34		
35	PAINTING	QP-SPC-L-002
36	COLOUR	NOTE 1
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	78 Barg
41	SPECIAL REQUIREMENTS	
42		

ATTACHMENT 2: AUTOMATIC RECIRCULATION VALVES

1	AUTOMATIC RECIRCULATION CONTROL VALVE	
2	PIPING SP DATASHEET	SP-ARV-003
3	TYPE / DESCRIPTION	AUTOMATIC RECIRCULATION VALVE
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE / FLUID	OIL CRUDE - SOUR
9	OPERATING PRESSURE	26 Barg
10	OPERATING TEMPERATURE	50 Deg C
11	LINE SIZE	8"
12	NORMAL FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	CLOSURE FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
14	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
15	MECHANICAL DATA OF PROCESS LINE	
16	PIPING CLASS/ PRESSURE RATING	31503 / ASME Class 300
17	PIPING DESIGN PRESSURE (MAX)	51.1 Barg @ 38 Deg C (ASME B16.5 Class 300 material group 1.1)
18	PIPING DESIGN TEMP. (MAX)	175 Deg C
19	CORROSION ALLOWANCE	3 mm
20	DESIGN REQUIREMENTS	
21	DESIGN CODE	ASME B31.3
22	END CONNECTIONS	RF Flanged ends
23	SIZE	8"
24	DESIGN PRESSURE	51.1 Barg
25	DESIGN TEMPERATURE	175 Deg C
26	MATERIALS	
27	BODY/BONNET	ASTM A350-LF2 cl 1/A352-LCC
28	PISTON/DISC	ASTM A352-LCC
29	PISTON/DISC GUIDE	LTCS
30	BOLTING	ASTM A320-L7M/A194-7M
31	O-RINGS	Elastomer
32	SPRING	Inconel X750
33	VALVE TRIM	Alloy 825, filled PTFE
34		
35	PAINTING	QP-SPC-L-002
36	COLOUR	NOTE 1
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	77 Barg
41	SPECIAL REQUIREMENTS	
42		

ATTACHMENT 2: AUTOMATIC RECIRCULATION VALVES

1	AUTOMATIC RECIRCULATION CONTROL VALVE	
2	PIPING SP DATASHEET	SP-ARV-004
3	TYPE / DESCRIPTION	AUTOMATIC RECIRCULATION VALVE
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE / FLUID	WATER RAW (SEA WATER)
9	OPERATING PRESSURE	7.4 Barg
10	OPERATING TEMPERATURE	36 Deg C
11	LINE SIZE	10"
12	NORMAL FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	CLOSURE FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
14	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
15	MECHANICAL DATA OF PROCESS LINE	
16	PIPING CLASS/ PRESSURE RATING	17320 / ASME Class 150
17	PIPING DESIGN PRESSURE (MAX)	20 Barg @ 38 Deg C
18	PIPING DESIGN TEMP. (MAX)	85 Deg C
19	CORROSION ALLOWANCE	0 mm
20	DESIGN REQUIREMENTS	
21	DESIGN CODE	ASME B31.3
22	END CONNECTIONS	RF Flanged ends
23	SIZE	10"
24	DESIGN PRESSURE	20 Barg
25	DESIGN TEMPERATURE	85 Deg C
26	MATERIALS	
27	BODY/BONNET	ASTM B148-UNS C95800
28	PISTON/DISC	ASTM B148-UNS C95800
29	PISTON/DISC GUIDE	Aluminium Bronze
30	BOLTING	ASTM A320-L7M/A194-7M
31	O-RINGS	Elastomer
32	SPRING	Inconel X750
33	VALVE TRIM	Aluminium Bronze / PTFE
34		
35	PAINTING	QP-SPC-L-002
36	COLOUR	NOTE 1
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	30 Barg
41	SPECIAL REQUIREMENTS	
42		

ATTACHMENT 2: AUTOMATIC RECIRCULATION VALVES

1	AUTOMATIC RECIRCULATION CONTROL VALVE	
2	PIPING SP DATASHEET	SP-ARV-005
3	TYPE / DESCRIPTION	AUTOMATIC RECIRCULATION VALVE
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE / FLUID	PRODUCED WATER
9	OPERATING PRESSURE	23.4 Barg
10	OPERATING TEMPERATURE	54 Deg C
11	LINE SIZE	12"
12	NORMAL FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	CLOSURE FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
14	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
15	MECHANICAL DATA OF PROCESS LINE	
16	PIPING CLASS/ PRESSURE RATING	36620 / ASME Class 300
17	PIPING DESIGN PRESSURE (MAX)	51.7 Barg @ 38 Deg C (ASME B16.5 Class 300 material group 3.8)
18	PIPING DESIGN TEMP. (MAX)	200 Deg C
19	CORROSION ALLOWANCE	0 mm
20	DESIGN REQUIREMENTS	
21	DESIGN CODE	ASME B31.3
22	END CONNECTIONS	RF Flanged ends
23	SIZE	12"
24	DESIGN PRESSURE	51.7 Barg
25	DESIGN TEMPERATURE	200 Deg C
26	MATERIALS	
27	BODY/BONNET	ASTM B564 UNSN08825
28	PISTON/DISC	ASTM A494 CU5MCUC
29	PISTON/DISC GUIDE	Alloy 825
30	BOLTING	ASTM A320-L7M/A194-7M
31	O-RINGS	Elastomer
32	SPRING	Inconel X750
33	VALVE TRIM	Alloy 825, filled PTFE
34		
35	PAINTING	QP-SPC-L-002
36	COLOUR	NOTE 1
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	78 Barg
41	SPECIAL REQUIREMENTS	
42		

ATTACHMENT 2: AUTOMATIC RECIRCULATION VALVES

1	AUTOMATIC RECIRCULATION CONTROL VALVE	
2	PIPING SP DATASHEET	SP-ARV-006
3	TYPE / DESCRIPTION	AUTOMATIC RECIRCULATION VALVE
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE / FLUID	WATER FIRE (SEA WATER) (WET)
9	OPERATING PRESSURE	13.2 Barg
10	OPERATING TEMPERATURE	36 Deg C
11	LINE SIZE	18"
12	NORMAL FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	CLOSURE FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
14	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
15	MECHANICAL DATA OF PROCESS LINE	
16	PIPING CLASS/ PRESSURE RATING	17012 / ASME Class 150
17	PIPING DESIGN PRESSURE (MAX)	20 Barg @ 38 Deg C
18	PIPING DESIGN TEMP. (MAX)	85 Deg C
19	CORROSION ALLOWANCE	0 mm
20	DESIGN REQUIREMENTS	
21	DESIGN CODE	ASME B31.3
22	END CONNECTIONS	RF Flanged ends
23	SIZE	18"
24	DESIGN PRESSURE	20 Barg
25	DESIGN TEMPERATURE	85 Deg C
26	MATERIALS	
27	BODY/BONNET	ASTM B148-UNS C95800
28	PISTON/DISC	ASTM B148-UNS C95800
29	PISTON/DISC GUIDE	Aluminium Bronze
30	BOLTING	ASTM A320-L7M/A194-7M
31	O-RINGS	Elastomer
32	SPRING	Inconel X750
33	VALVE TRIM	Aluminium Bronze / PTFE
34		
35	PAINTING	QP-SPC-L-002
36	COLOUR	NOTE 1
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	30 Barg
41	SPECIAL REQUIREMENTS	
42		

ATTACHMENT 2: AUTOMATIC RECIRCULATION VALVES

1	AUTOMATIC RECIRCULATION CONTROL VALVE	
2	PIPING SP DATASHEET	SP-ARV-007
3	TYPE / DESCRIPTION	AUTOMATIC RECIRCULATION VALVE
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE / FLUID	WATER RAW (SEA WATER)
9	OPERATING PRESSURE	12.44 Barg
10	OPERATING TEMPERATURE	36 Deg C
11	LINE SIZE	18"
12	NORMAL FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	CLOSURE FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
14	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
15	MECHANICAL DATA OF PROCESS LINE	
16	PIPING CLASS/ PRESSURE RATING	17012 / ASME Class 150
17	PIPING DESIGN PRESSURE (MAX)	20 Barg @ 38 Deg C
18	PIPING DESIGN TEMP. (MAX)	85 Deg C
19	CORROSION ALLOWANCE	0 mm
20	DESIGN REQUIREMENTS	
21	DESIGN CODE	ASME B31.3
22	END CONNECTIONS	RF Flanged ends
23	SIZE	18"
24	DESIGN PRESSURE	20 Barg
25	DESIGN TEMPERATURE	85 Deg C
26	MATERIALS	
27	BODY/BONNET	ASTM B148-UNS C95800
28	PISTON/DISC	ASTM B148-UNS C95800
29	PISTON/DISC GUIDE	Aluminium Bronze
30	BOLTING	ASTM A320-L7M/A194-7M
31	O-RINGS	Elastomer
32	SPRING	Inconel X750
33	VALVE TRIM	Aluminium Bronze / PTFE
34		
35	PAINTING	QP-SPC-L-002
36	COLOUR	NOTE 1
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	30 Barg
41	SPECIAL REQUIREMENTS	
42		

ATTACHMENT 2: AUTOMATIC RECIRCULATION VALVES

1	AUTOMATIC RECIRCULATION CONTROL VALVE	
2	PIPING SP DATASHEET	SP-ARV-008
3	TYPE / DESCRIPTION	AUTOMATIC RECIRCULATION VALVE
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE / FLUID	WATER RAW (SEA WATER)
9	OPERATING PRESSURE	12.44 Barg
10	OPERATING TEMPERATURE	36 Deg C
11	LINE SIZE	18"
12	NORMAL FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	CLOSURE FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
14	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
15	MECHANICAL DATA OF PROCESS LINE	
16	PIPING CLASS/ PRESSURE RATING	17320 / ASME Class 150
17	PIPING DESIGN PRESSURE (MAX)	20 Barg @ 38 Deg C
18	PIPING DESIGN TEMP. (MAX)	85 Deg C
19	CORROSION ALLOWANCE	0 mm
20	DESIGN REQUIREMENTS	
21	DESIGN CODE	ASME B31.3
22	END CONNECTIONS	RF Flanged ends
23	SIZE	18"
24	DESIGN PRESSURE	20 Barg
25	DESIGN TEMPERATURE	85 Deg C
26	MATERIALS	
27	BODY/BONNET	ASTM B148-UNS C95800
28	PISTON/DISC	ASTM B148-UNS C95800
29	PISTON/DISC GUIDE	Aluminium Bronze
30	BOLTING	ASTM A320-L7M/A194-7M
31	O-RINGS	Elastomer
32	SPRING	Inconel X750
33	VALVE TRIM	Aluminium Bronze / PTFE
34		
35	PAINTING	QP-SPC-L-002
36	COLOUR	NOTE 1
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	30 Barg
41	SPECIAL REQUIREMENTS	
42		

ATTACHMENT 2: AUTOMATIC RECIRCULATION VALVES

1	AUTOMATIC RECIRCULATION CONTROL VALVE	
2	PIPING SP DATASHEET	SP-ARV-009
3	TYPE / DESCRIPTION	AUTOMATIC RECIRCULATION VALVE
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE / FLUID	WATER RAW (SEA WATER)
9	OPERATING PRESSURE	12.44 Barg
10	OPERATING TEMPERATURE	36 Deg C
11	LINE SIZE	24"
12	NORMAL FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	CLOSURE FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
14	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
15	MECHANICAL DATA OF PROCESS LINE	
16	PIPING CLASS/ PRESSURE RATING	17320 / ASME Class 150
17	PIPING DESIGN PRESSURE (MAX)	20 Barg @ 38 Deg C
18	PIPING DESIGN TEMP. (MAX)	85 Deg C
19	CORROSION ALLOWANCE	0 mm
20	DESIGN REQUIREMENTS	
21	DESIGN CODE	ASME B31.3
22	END CONNECTIONS	RF Flanged ends
23	SIZE	24"
24	DESIGN PRESSURE	20 Barg
25	DESIGN TEMPERATURE	85 Deg C
26	MATERIALS	
27	BODY/BONNET	ASTM B148-UNS C95800
28	PISTON/DISC	ASTM B148-UNS C95800
29	PISTON/DISC GUIDE	Aluminium Bronze
30	BOLTING	ASTM A320-L7M/A194-7M
31	O-RINGS	Elastomer
32	SPRING	Inconel X750
33	VALVE TRIM	Aluminium Bronze / PTFE
34		
35	PAINTING	QP-SPC-L-002
36	COLOUR	NOTE 1
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	30 Barg
41	SPECIAL REQUIREMENTS	
42		

ATTACHMENT 2: AUTOMATIC RECIRCULATION VALVES

1	AUTOMATIC RECIRCULATION CONTROL VALVE	
2	PIPING SP DATASHEET	SP-ARV-010
3	TYPE / DESCRIPTION	AUTOMATIC RECIRCULATION VALVE
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE / FLUID	OIL RECOVERY
9	OPERATING PRESSURE	20 Barg
10	OPERATING TEMPERATURE	54 Deg C
11	LINE SIZE	2"
12	NORMAL FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	CLOSURE FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
14	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
15	MECHANICAL DATA OF PROCESS LINE	
16	PIPING CLASS/ PRESSURE RATING	16620 / ASME Class 150
17	PIPING DESIGN PRESSURE (MAX)	20 Barg @ 38 Deg C (ASME B16.5 Class 150 material group 3.8)
18	PIPING DESIGN TEMP. (MAX)	200 Deg C
19	CORROSION ALLOWANCE	0 mm
20	DESIGN REQUIREMENTS	
21	DESIGN CODE	ASME B31.3
22	END CONNECTIONS	RF Flanged ends
23	SIZE	2"
24	DESIGN PRESSURE	20 Barg
25	DESIGN TEMPERATURE	200 Deg C
26	MATERIALS	
27	BODY/BONNET	ASTM B564 UNS N08825/A494-CU5MCUC
28	PISTON/DISC	ASTM A494-CU5MCUC
29	PISTON/DISC GUIDE	Alloy 825
30	BOLTING	ASTM A320-L7M/A194-7M
31	O-RINGS	Elastomer
32	SPRING	Inconel X750
33	VALVE TRIM	Alloy 825, filled PTFE
34		
35	PAINTING	QP-SPC-L-002
36	COLOUR	NOTE 1
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	30 Barg
41	SPECIAL REQUIREMENTS	
42		

ATTACHMENT 2: AUTOMATIC RECIRCULATION VALVES

1	AUTOMATIC RECIRCULATION CONTROL VALVE	
2	PIPING SP DATASHEET	SP-ARV-011
3	TYPE / DESCRIPTION	AUTOMATIC RECIRCULATION VALVE
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE / FLUID	OIL RECOVERY
9	OPERATING PRESSURE	20 Barg
10	OPERATING TEMPERATURE	54 Deg C
11	LINE SIZE	8"
12	NORMAL FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	CLOSURE FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
14	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
15	MECHANICAL DATA OF PROCESS LINE	
16	PIPING CLASS/ PRESSURE RATING	16620 / ASME Class 150
17	PIPING DESIGN PRESSURE (MAX)	20 Barg @ 38 Deg C (ASME B16.5 Class 150 material group 3.8)
18	PIPING DESIGN TEMP. (MAX)	200 Deg C
19	CORROSION ALLOWANCE	0 mm
20	DESIGN REQUIREMENTS	
21	DESIGN CODE	ASME B31.3
22	END CONNECTIONS	RF Flanged ends
23	SIZE	8"
24	DESIGN PRESSURE	20 Barg
25	DESIGN TEMPERATURE	200 Deg C
26	MATERIALS	
27	BODY/BONNET	ASTM B564 UNS N08825/A494-CU5MCUC
28	PISTON/DISC	ASTM A494-CU5MCUC
29	PISTON/DISC GUIDE	Alloy 825
30	BOLTING	ASTM A320-L7M/A194-7M
31	O-RINGS	Elastomer
32	SPRING	Inconel X750
33	VALVE TRIM	Alloy 825, filled PTFE
34		
35	PAINTING	QP-SPC-L-002
36	COLOUR	NOTE 1
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	30 Barg
41	SPECIAL REQUIREMENTS	
42		

ATTACHMENT 2: AUTOMATIC RECIRCULATION VALVES

1	AUTOMATIC RECIRCULATION CONTROL VALVE	
2	PIPING SP DATASHEET	SP-ARV-012
3	TYPE / DESCRIPTION	AUTOMATIC RECIRCULATION VALVE
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE / FLUID	WATER FIRE (SEA WATER) (WET)
9	OPERATING PRESSURE	13.2 Barg
10	OPERATING TEMPERATURE	36 Deg C
11	LINE SIZE	24"
12	NORMAL FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	CLOSURE FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
14	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
15	MECHANICAL DATA OF PROCESS LINE	
16	PIPING CLASS/ PRESSURE RATING	17012 / ASME Class 150
17	PIPING DESIGN PRESSURE (MAX)	20 Barg @ 38 Deg C
18	PIPING DESIGN TEMP. (MAX)	85 Deg C
19	CORROSION ALLOWANCE	0 mm
20	DESIGN REQUIREMENTS	
21	DESIGN CODE	ASME B31.3
22	END CONNECTIONS	RF Flanged ends
23	SIZE	24"
24	DESIGN PRESSURE	20 Barg
25	DESIGN TEMPERATURE	85 Deg C
26	MATERIALS	
27	BODY/BONNET	ASTM B148-UNS C95800
28	PISTON/DISC	ASTM B148-UNS C95800
29	PISTON/DISC GUIDE	Aluminium Bronze
30	BOLTING	ASTM A320-L7M/A194-7M
31	O-RINGS	Elastomer
32	SPRING	Inconel X750
33	VALVE TRIM	Aluminium Bronze / PTFE
34		
35	PAINTING	QP-SPC-L-002
36	COLOUR	NOTE 1
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	30 Barg
41	SPECIAL REQUIREMENTS	
42		

ATTACHMENT 2: AUTOMATIC RECIRCULATION VALVES

1	AUTOMATIC RECIRCULATION CONTROL VALVE	
2	PIPING SP DATASHEET	SP-ARV-013
3	TYPE / DESCRIPTION	AUTOMATIC RECIRCULATION VALVE
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE / FLUID	OIL CRUDE - SOUR
9	OPERATING PRESSURE	26 Barg
10	OPERATING TEMPERATURE	50 Deg C
11	LINE SIZE	6"
12	NORMAL FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	CLOSURE FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
14	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
15	MECHANICAL DATA OF PROCESS LINE	
16	PIPING CLASS/ PRESSURE RATING	31503 / ASME Class 300
17	PIPING DESIGN PRESSURE (MAX)	51.1 Barg @ 38 Deg C (ASME B16.5 Class 300 material group 1.1)
18	PIPING DESIGN TEMP. (MAX)	175 Deg C
19	CORROSION ALLOWANCE	3 mm
20	DESIGN REQUIREMENTS	
21	DESIGN CODE	ASME B31.3
22	END CONNECTIONS	RF Flanged ends
23	SIZE	6"
24	DESIGN PRESSURE	51.1 Barg
25	DESIGN TEMPERATURE	175 Deg C
26	MATERIALS	
27	BODY/BONNET	ASTM A350-LF2 cl 1/A352-LCC
28	PISTON/DISC	ASTM A352-LCC
29	PISTON/DISC GUIDE	LTCS
30	BOLTING	ASTM A320-L7M/A194-7M
31	O-RINGS	Elastomer
32	SPRING	Inconel X750
33	VALVE TRIM	Alloy 825, filled PTFE
34		
35	PAINTING	QP-SPC-L-002
36	COLOUR	NOTE 1
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	77 Barg
41	SPECIAL REQUIREMENTS	
42		

ATTACHMENT 2: AUTOMATIC RECIRCULATION VALVES

1	AUTOMATIC RECIRCULATION CONTROL VALVE	
2	PIPING SP DATASHEET	SP-ARV-014
3	TYPE / DESCRIPTION	AUTOMATIC RECIRCULATION VALVE
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE / FLUID	PRODUCED WATER
9	OPERATING PRESSURE	23.4 Barg
10	OPERATING TEMPERATURE	54 Deg C
11	LINE SIZE	8"
12	NORMAL FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	CLOSURE FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
14	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
15	MECHANICAL DATA OF PROCESS LINE	
16	PIPING CLASS/ PRESSURE RATING	36620 / ASME Class 300
17	PIPING DESIGN PRESSURE (MAX)	51.7 Barg @ 38 Deg C (ASME B16.5 Class 300 material group 3.8)
18	PIPING DESIGN TEMP. (MAX)	200 Deg C
19	CORROSION ALLOWANCE	0 mm
20	DESIGN REQUIREMENTS	
21	DESIGN CODE	ASME B31.3
22	END CONNECTIONS	RF Flanged ends
23	SIZE	8"
24	DESIGN PRESSURE	51.7 Barg
25	DESIGN TEMPERATURE	200 Deg C
26	MATERIALS	
27	BODY/BONNET	ASTM B564 UNS N08825/A494-CU5MCUC
28	PISTON/DISC	ASTM A494-CU5MCUC
29	PISTON/DISC GUIDE	Alloy 825
30	BOLTING	ASTM A320-L7M/A194-7M
31	O-RINGS	Elastomer
32	SPRING	Inconel X750
33	VALVE TRIM	Alloy 825, filled PTFE
34		
35	PAINTING	QP-SPC-L-002
36	COLOUR	NOTE 1
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	78 Barg
41	SPECIAL REQUIREMENTS	
42		

ATTACHMENT 3: BARRED TEES

1	BARRED TEE	
2	PIPING SP DATASHEET	SP-BTE-001
3	SP TAG No.	REFER ATTACHMENT 1: SP INDEX
4	LINE NO.	REFER ATTACHMENT 1: SP INDEX
5	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	PROCESS GAS-SOUR
8	DESIGN PRESSURE	153 barg
9	DESIGN TEMPERATURE	110 Deg C
10	LINE SIZE	6"
11	MAXIMUM PARTICLE SIZE	NOTE 1
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	91ZZZ / Class 900
14	PIPING DESIGN PRESSURE (MAX)	140 Barg
15	PIPING DESIGN TEMP. (MAX)	110 Deg C
16	CORROSION ALLOWANCE	3mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	DNV-ST-F101
19	DESIGN DESCRIPTION	Barred tee for pigging, equal branch size, four guide bars, one reinforcing bar, bevel end header - bevel end branch, piping class 91ZZZ
20	SIZE / THICKNESS	6" controlled ID of 142.9mm / 12.7mm thickness
21	MATERIALS	
22	TEE	Seamless BW High Yield Carbon Steel API 5L Gr X65 PSL NACE MR0175/ISO15156
23	BARS	High Yield Carbon Steel ASTM A694 Gr F65 NACE MR0175/ISO15156
24	PUP/TRANSITION PIECE	High Yield Carbon Steel API 5L Gr X65 PSL 2 NACE MR0175/ISO15156
25	DIMENSIONS	
26	TEE	ASME B16.9
27	HEADER	6" controlled ID of 142.9mm / 12.7mm thickness
28	BRANCH END (ON TEE)	NPS 6"
29	TEST RING, HEADER	NOTE 1
30	TEST RING, BRANCH	NOTE 1
31	BARS	4
32		
33	PAINTING	QP-SPC-L-002
34	COLOUR	NOTE 1
35		
36	TESTING	
37	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
38	NDE	NOTE 1
39	HYDROTEST PRESSURE	230 Barg
40	SPECIAL REQUIREMENTS	Welding procedures shall be submitted for Company review and approval. This also includes the weld procedures for the welds between the bars and tee.
41		
42		

ATTACHMENT 3: BARRED TEES

1	BARRED TEE	
2	PIPING SP DATASHEET	SP-BTE-002
3	SP TAG No.	REFER ATTACHMENT 1: SP INDEX
4	LINE NO.	REFER ATTACHMENT 1: SP INDEX
5	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	PROCESS GAS-SOUR
8	DESIGN PRESSURE	140 barg
9	DESIGN TEMPERATURE	110 Deg C
10	LINE SIZE	8"
11	MAXIMUM PARTICLE SIZE	NOTE 1
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	91ZZZ / Class 900
14	PIPING DESIGN PRESSURE (MAX)	153 Barg
15	PIPING DESIGN TEMP. (MAX)	110 Deg C
16	CORROSION ALLOWANCE	3mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	DNV-ST-F101
19	DESIGN DESCRIPTION	Barred tee for pigging, equal branch size, four guide bars, one reinforcing bar, bevel end header - bevel end branch, piping class 91ZZZ
20	SIZE / THICKNESS	8" controlled ID of 193.7mm / 12.7mm thickness
21	MATERIALS	
22	TEE	Seamless BW High Yield Carbon Steel API 5L Gr X65 PSL NACE MR0175/ISO15156
23	BARS	High Yield Carbon Steel ASTM A694 Gr F65 NACE MR0175/ISO15156
24	PUP/TRANSITION PIECE	High Yield Carbon Steel API 5L Gr X65 PSL 2 NACE MR0175/ISO15156
25	DIMENSIONS	
26	TEE	ASME B16.9
27	HEADER	8" controlled ID of 193.7mm / 12.7mm thickness
28	BRANCH END (ON TEE)	NPS 8"
29	TEST RING, HEADER	NOTE 1
30	TEST RING, BRANCH	NOTE 1
31	BARS	4
32		
33	PAINTING	QP-SPC-L-002
34	COLOUR	NOTE 1
35		
36	TESTING	
37	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
38	NDE	NOTE 1
39	HYDROTEST PRESSURE	230 Barg
40	SPECIAL REQUIREMENTS	Welding procedures shall be submitted for Company review and approval. This also includes the weld procedures for the welds between the bars and tee.
41		
42		

ATTACHMENT 3: BARRED TEES

1	BARRED TEE	
2	PIPING SP DATASHEET	SP-BTE-003
3	SP TAG No.	REFER ATTACHMENT 1: SP INDEX
4	LINE NO.	REFER ATTACHMENT 1: SP INDEX
5	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	OIL CRUDE - SOUR
8	DESIGN PRESSURE	228 barg
9	DESIGN TEMPERATURE	120 Deg C
10	LINE SIZE	8"
11	MAXIMUM PARTICLE SIZE	NOTE 1
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	151ZZZ / Class 1500
14	PIPING DESIGN PRESSURE (MAX)	228 Barg
15	PIPING DESIGN TEMP. (MAX)	120 Deg C
16	CORROSION ALLOWANCE	3mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	DNV-ST-F101
19	DESIGN DESCRIPTION	Barred tee for pigging, equal branch size, four guide bars, one reinforcing bar, bevel end header - bevel end branch, piping class 151ZZZ
20	SIZE / THICKNESS	8" controlled ID of 188.92mm / 15.1mm thickness
21	MATERIALS	
22	TEE	Seamless BW High Yield Carbon Steel API 5L Gr X65 PSL NACE MR0175/ISO15156
23	BARS	High Yield Carbon Steel ASTM A694 Gr F65 NACE MR0175/ISO15156
24	PUP/TRANSITION PIECE	High Yield Carbon Steel API 5L Gr X65 PSL 2 NACE MR0175/ISO15156
25	DIMENSIONS	
26	TEE	ASME B16.9
27	HEADER	8" controlled ID of 188.92mm / 15.1mm thickness
28	BRANCH END (ON TEE)	NPS 8"
29	TEST RING, HEADER	NOTE 1
30	TEST RING, BRANCH	NOTE 1
31	BARS	4
32		
33	PAINTING	QP-SPC-L-002
34	COLOUR	NOTE 1
35		
36	TESTING	
37	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
38	NDE	NOTE 1
39	HYDROTEST PRESSURE	342 Barg
40	SPECIAL REQUIREMENTS	Welding procedures shall be submitted for Company review and approval. This also includes the weld procedures for the welds between the bars and tee.
41		
42		

ATTACHMENT 3: BARRED TEES

1	BARRED TEE	
2	PIPING SP DATASHEET	SP-BTE-004
3	SP TAG No.	REFER ATTACHMENT 1: SP INDEX
4	LINE NO.	REFER ATTACHMENT 1: SP INDEX
5	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	PROCESS GAS-SOUR
8	DESIGN PRESSURE	153 barg
9	DESIGN TEMPERATURE	110 Deg C
10	LINE SIZE	10"
11	MAXIMUM PARTICLE SIZE	NOTE 1
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	91ZZZ / Class 900
14	PIPING DESIGN PRESSURE (MAX)	140 Barg
15	PIPING DESIGN TEMP. (MAX)	110 Deg C
16	CORROSION ALLOWANCE	3mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	DNV-ST-F101
19	DESIGN DESCRIPTION	Barred tee for pigging, equal branch size, four guide bars, one reinforcing bar, bevel end header - bevel end branch, piping class 91ZZZ
20	SIZE / THICKNESS	10" controlled ID of 247.6mm / 12.7mm thickness
21	MATERIALS	
22	TEE	Seamless BW High Yield Carbon Steel API 5L Gr X65 PSL NACE MR0175/ISO15156
23	BARS	High Yield Carbon Steel ASTM A694 Gr F65 NACE MR0175/ISO15156
24	PUP/TRANSITION PIECE	High Yield Carbon Steel API 5L Gr X65 PSL 2 NACE MR0175/ISO15156
25	DIMENSIONS	
26	TEE	ASME B16.9
27	HEADER	10" controlled ID of 247.6mm / 12.7mm thickness
28	BRANCH END (ON TEE)	NPS 10"
29	TEST RING, HEADER	NOTE 1
30	TEST RING, BRANCH	NOTE 1
31	BARS	4
32		
33	PAINTING	QP-SPC-L-002
34	COLOUR	NOTE 1
35		
36	TESTING	
37	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
38	NDE	NOTE 1
39	HYDROTEST PRESSURE	230 Barg
40	SPECIAL REQUIREMENTS	Welding procedures shall be submitted for Company review and approval. This also includes the weld procedures for the welds between the bars and tee.
41		
42		

ATTACHMENT 3: BARRED TEES

1	BARRED TEE	
2	PIPING SP DATASHEET	SP-BTE-005
3	SP TAG No.	REFER ATTACHMENT 1: SP INDEX
4	LINE NO.	REFER ATTACHMENT 1: SP INDEX
5	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	OIL CRUDE - SOUR
8	DESIGN PRESSURE	228 barg
9	DESIGN TEMPERATURE	120 Deg C
10	LINE SIZE	10"
11	MAXIMUM PARTICLE SIZE	NOTE 1
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	151ZZZ / Class 1500
14	PIPING DESIGN PRESSURE (MAX)	228 Barg
15	PIPING DESIGN TEMP. (MAX)	120 Deg C
16	CORROSION ALLOWANCE	3mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	DNV-ST-F101
19	DESIGN DESCRIPTION	Barred tee for pigging, equal branch size, four guide bars, one reinforcing bar, bevel end header - bevel end branch, piping class 151ZZZ
20	SIZE / THICKNESS	10" controlled ID of 236.48mm / 18.3mm thickness
21	MATERIALS	
22	TEE	Seamless BW High Yield Carbon Steel API 5L Gr X65 PSL NACE MR0175/ISO15156
23	BARS	High Yield Carbon Steel ASTM A694 Gr F65 NACE MR0175/ISO15156
24	PUP/TRANSITION PIECE	High Yield Carbon Steel API 5L Gr X65 PSL 2 NACE MR0175/ISO15156
25	DIMENSIONS	
26	TEE	ASME B16.9
27	HEADER	10" controlled ID of 236.48mm / 18.3mm thickness
28	BRANCH END (ON TEE)	NPS 10"
29	TEST RING, HEADER	NOTE 1
30	TEST RING, BRANCH	NOTE 1
31	BARS	4
32		
33	PAINTING	QP-SPC-L-002
34	COLOUR	NOTE 1
35		
36	TESTING	
37	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
38	NDE	NOTE 1
39	HYDROTEST PRESSURE	342 Barg
40	SPECIAL REQUIREMENTS	Welding procedures shall be submitted for Company review and approval. This also includes the weld procedures for the welds between the bars and tee.
41		
42		

ATTACHMENT 3: BARRED TEES

1	BARRED TEE	
2	PIPING SP DATASHEET	SP-BTE-006
3	SP TAG No.	REFER ATTACHMENT 1: SP INDEX
4	LINE NO.	REFER ATTACHMENT 1: SP INDEX
5	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	OIL CRUDE - SOUR
8	DESIGN PRESSURE	228 barg
9	DESIGN TEMPERATURE	120 Deg C
10	LINE SIZE	12"
11	MAXIMUM PARTICLE SIZE	NOTE 1
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	151ZZZ / Class 1500
14	PIPING DESIGN PRESSURE (MAX)	228 Barg
15	PIPING DESIGN TEMP. (MAX)	120 Deg C
16	CORROSION ALLOWANCE	3mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	DNV-ST-F101
19	DESIGN DESCRIPTION	Barred tee for pigging, equal branch size, four guide bars, one reinforcing bar, bevel end header - bevel end branch, piping class 151ZZZ
20	SIZE / THICKNESS	12" controlled ID of 282.56mm / 20.62mm thickness
21	MATERIALS	
22	TEE	Seamless BW High Yield Carbon Steel API 5L Gr X65 PSL NACE MR0175/ISO15156
23	BARS	High Yield Carbon Steel ASTM A694 Gr F65 NACE MR0175/ISO15156
24	PUP/TRANSITION PIECE	High Yield Carbon Steel API 5L Gr X65 PSL 2 NACE MR0175/ISO15156
25	DIMENSIONS	
26	TEE	ASME B16.9
27	HEADER	12" controlled ID of 282.56mm / 20.62mm thickness
28	BRANCH END (ON TEE)	NPS 12"
29	TEST RING, HEADER	NOTE 1
30	TEST RING, BRANCH	NOTE 1
31	BARS	4
32		
33	PAINTING	QP-SPC-L-002
34	COLOUR	NOTE 1
35		
36	TESTING	
37	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
38	NDE	NOTE 1
39	HYDROTEST PRESSURE	342 Barg
40	SPECIAL REQUIREMENTS	Welding procedures shall be submitted for Company review and approval. This also includes the weld procedures for the welds between the bars and tee.
41		
42		

ATTACHMENT 3: BARRED TEES

1	BARRED TEE	
2	PIPING SP DATASHEET	SP-BTE-007
3	SP TAG No.	REFER ATTACHMENT 1: SP INDEX
4	LINE NO.	REFER ATTACHMENT 1: SP INDEX
5	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	OIL CRUDE - SOUR
8	DESIGN PRESSURE	228 barg
9	DESIGN TEMPERATURE	120 Deg C
10	LINE SIZE	14"
11	MAXIMUM PARTICLE SIZE	NOTE 1
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	151ZZZ / Class 1500
14	PIPING DESIGN PRESSURE (MAX)	228 Barg
15	PIPING DESIGN TEMP. (MAX)	120 Deg C
16	CORROSION ALLOWANCE	3mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	DNV-ST-F101
19	DESIGN DESCRIPTION	Barred tee for pigging, equal branch size, four guide bars, one reinforcing bar, bevel end header - bevel end branch, piping class 151ZZZ
20	SIZE / THICKNESS	14" controlled ID of 314.36mm / 20.62 mm thickness
21	MATERIALS	
22	TEE	Seamless BW High Yield Carbon Steel API 5L Gr X65 PSL NACE MR0175/ISO15156
23	BARS	High Yield Carbon Steel ASTM A694 Gr F65 NACE MR0175/ISO15156
24	PUP/TRANSITION PIECE	High Yield Carbon Steel API 5L Gr X65 PSL 2 NACE MR0175/ISO15156
25	DIMENSIONS	
26	TEE	ASME B16.9
27	HEADER	14" controlled ID of 314.36mm / 20.62 mm thickness
28	BRANCH END (ON TEE)	NPS 14"
29	TEST RING, HEADER	NOTE 1
30	TEST RING, BRANCH	NOTE 1
31	BARS	4
32		
33	PAINTING	QP-SPC-L-002
34	COLOUR	NOTE 1
35		
36	TESTING	
37	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
38	NDE	NOTE 1
39	HYDROTEST PRESSURE	342 Barg
40	SPECIAL REQUIREMENTS	Welding procedures shall be submitted for Company review and approval. This also includes the weld procedures for the welds between the bars and tee.
41		
42		

ATTACHMENT 3: BARRED TEES

1	BARRED TEE	
2	PIPING SP DATASHEET	SP-BTE-008
3	SP TAG No.	REFER ATTACHMENT 1: SP INDEX
4	LINE NO.	REFER ATTACHMENT 1: SP INDEX
5	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	OIL CRUDE - SOUR
8	DESIGN PRESSURE	228 barg
9	DESIGN TEMPERATURE	120 Deg C
10	LINE SIZE	16"
11	MAXIMUM PARTICLE SIZE	NOTE 1
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	151ZZZ / Class 1500
14	PIPING DESIGN PRESSURE (MAX)	228 Barg
15	PIPING DESIGN TEMP. (MAX)	120 Deg C
16	CORROSION ALLOWANCE	3mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	DNV-ST-F101
19	DESIGN DESCRIPTION	Barred tee for pigging, equal branch size, four guide bars, one reinforcing bar, bevel end header - bevel end branch, piping class 151ZZZ
20	SIZE / THICKNESS	16" controlled ID of 361.94mm / 22.23mm thickness
21	MATERIALS	
22	TEE	Seamless BW High Yield Carbon Steel API 5L Gr X65 PSL NACE MR0175/ISO15156
23	BARS	High Yield Carbon Steel ASTM A694 Gr F65 NACE MR0175/ISO15156
24	PUP/TRANSITION PIECE	High Yield Carbon Steel API 5L Gr X65 PSL 2 NACE MR0175/ISO15156
25	DIMENSIONS	
26	TEE	ASME B16.9
27	HEADER	16" controlled ID of 361.94mm / 22.23mm thickness
28	BRANCH END (ON TEE)	NPS 16"
29	TEST RING, HEADER	NOTE 1
30	TEST RING, BRANCH	NOTE 1
31	BARS	4
32		
33	PAINTING	QP-SPC-L-002
34	COLOUR	NOTE 1
35		
36	TESTING	
37	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
38	NDE	NOTE 1
39	HYDROTEST PRESSURE	342 Barg
40	SPECIAL REQUIREMENTS	Welding procedures shall be submitted for Company review and approval. This also includes the weld procedures for the welds between the bars and tee.
41		
42		

ATTACHMENT 3: BARRED TEES

1	BARRED TEE	
2	PIPING SP DATASHEET	SP-BTE-009
3	SP TAG No.	REFER ATTACHMENT 1: SP INDEX
4	LINE NO.	REFER ATTACHMENT 1: SP INDEX
5	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	PROCESS LIQUID - SOUR
8	DESIGN PRESSURE	228 barg
9	DESIGN TEMPERATURE	110 Deg C
10	LINE SIZE	16"
11	MAXIMUM PARTICLE SIZE	NOTE 1
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	151ZZZH / Class 1500
14	PIPING DESIGN PRESSURE (MAX)	228 Barg
15	PIPING DESIGN TEMP. (MAX)	110 Deg C
16	CORROSION ALLOWANCE	6mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	DNV-ST-F101
19	DESIGN DESCRIPTION	Barred tee for pigging, equal branch size, four guide bars, one reinforcing bar, bevel end header - bevel end branch, piping class 151ZZZH
20	SIZE / THICKNESS	16" controlled ID of 361.94mm / 22.23mm thickness
21	MATERIALS	
22	TEE	Seamless BW High Yield Carbon Steel API 5L Gr X65 PSL NACE MR0175/ISO15156
23	BARS	High Yield Carbon Steel ASTM A694 Gr F65 NACE MR0175/ISO15156
24	PUP/TRANSITION PIECE	High Yield Carbon Steel API 5L Gr X65 PSL 2 NACE MR0175/ISO15156
25	DIMENSIONS	
26	TEE	ASME B16.9
27	HEADER	16" controlled ID of 361.94mm / 22.23mm thickness
28	BRANCH END (ON TEE)	NPS 16"
29	TEST RING, HEADER	NOTE 1
30	TEST RING, BRANCH	NOTE 1
31	BARS	4
32		
33	PAINTING	QP-SPC-L-002
34	COLOUR	NOTE 1
35		
36	TESTING	
37	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
38	NDE	NOTE 1
39	HYDROTEST PRESSURE	342 Barg
40	SPECIAL REQUIREMENTS	Welding procedures shall be submitted for Company review and approval. This also includes the weld procedures for the welds between the bars and tee.
41		
42		

ATTACHMENT 3: BARRED TEES

1	BARRED TEE	
2	PIPING SP DATASHEET	SP-BTE-010
3	SP TAG No.	REFER ATTACHMENT 1: SP INDEX
4	LINE NO.	REFER ATTACHMENT 1: SP INDEX
5	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	OIL CRUDE - SOUR
8	DESIGN PRESSURE	153 barg
9	DESIGN TEMPERATURE	110 Deg C
10	LINE SIZE	6"
11	MAXIMUM PARTICLE SIZE	NOTE 1
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	91ZZZ / Class 900
14	PIPING DESIGN PRESSURE (MAX)	153 Barg
15	PIPING DESIGN TEMP. (MAX)	110 Deg C
16	CORROSION ALLOWANCE	3mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	DNV-ST-F101
19	DESIGN DESCRIPTION	Barred tee for pigging, equal branch size, four guide bars, one reinforcing bar, bevel end header - bevel end branch, piping class 91ZZZ
20	SIZE / THICKNESS	6" controlled ID of 139.8mm / 14.27mm thickness
21	MATERIALS	
22	TEE	Seamless BW High Yield Carbon Steel API 5L Gr X65 PSL NACE MR0175/ISO15156
23	BARS	High Yield Carbon Steel ASTM A694 Gr F65 NACE MR0175/ISO15156
24	PUP/TRANSITION PIECE	High Yield Carbon Steel API 5L Gr X65 PSL 2 NACE MR0175/ISO15156
25	DIMENSIONS	
26	TEE	ASME B16.9
27	HEADER	6" controlled ID of 139.8mm / 14.27mm thickness
28	BRANCH END (ON TEE)	NPS 6"
29	TEST RING, HEADER	NOTE 1
30	TEST RING, BRANCH	NOTE 1
31	BARS	4
32		
33	PAINTING	QP-SPC-L-002
34	COLOUR	NOTE 1
35		
36	TESTING	
37	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
38	NDE	NOTE 1
39	HYDROTEST PRESSURE	230 Barg
40	SPECIAL REQUIREMENTS	Welding procedures shall be submitted for Company review and approval. This also includes the weld procedures for the welds between the bars and tee.
41		
42		

ATTACHMENT 3: BARRED TEES

1	BARRED TEE	
2	PIPING SP DATASHEET	SP-BTE-011
3	SP TAG No.	REFER ATTACHMENT 1: SP INDEX
4	LINE NO.	REFER ATTACHMENT 1: SP INDEX
5	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	OIL CRUDE - SOUR
8	DESIGN PRESSURE	228 barg
9	DESIGN TEMPERATURE	110 Deg C
10	LINE SIZE	14" x 12"
11	MAXIMUM PARTICLE SIZE	NOTE 1
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	151ZZZ / Class 1500
14	PIPING DESIGN PRESSURE (MAX)	228 Barg
15	PIPING DESIGN TEMP. (MAX)	120 Deg C
16	CORROSION ALLOWANCE	3mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	DNV-ST-F101
19	DESIGN DESCRIPTION	Barred tee for pigging, reducing branch size, four guide bars, one reinforcing bar, bevel end header - bevel end branch, piping class 151ZZZ
20	SIZE / THICKNESS	14" controlled ID of 314.36mm / 20.62 mm thickness
21	MATERIALS	
22	TEE	Seamless BW High Yield Carbon Steel API 5L Gr X65 PSL NACE MR0175/ISO15156
23	BARS	High Yield Carbon Steel ASTM A694 Gr F65 NACE MR0175/ISO15156
24	PUP/TRANSITION PIECE	High Yield Carbon Steel API 5L Gr X65 PSL 2 NACE MR0175/ISO15156
25	DIMENSIONS	
26	TEE	ASME B16.9
27	HEADER	14" controlled ID of 314.36mm / 20.62 mm thickness
28	BRANCH END (ON TEE)	NPS 12"
29	TEST RING, HEADER	NOTE 1
30	TEST RING, BRANCH	NOTE 1
31	BARS	4
32		
33	PAINTING	QP-SPC-L-002
34	COLOUR	NOTE 1
35		
36	TESTING	
37	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
38	NDE	NOTE 1
39	HYDROTEST PRESSURE	342 Barg
40	SPECIAL REQUIREMENTS	Welding procedures shall be submitted for Company review and approval. This also includes the weld procedures for the welds between the bars and tee.
41		
42		

ATTACHMENT 3: BARRED TEES

1	BARRED TEE	
2	PIPING SP DATASHEET	SP-BTE-012
3	SP TAG No.	REFER ATTACHMENT 1: SP INDEX
4	LINE NO.	REFER ATTACHMENT 1: SP INDEX
5	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	OIL CRUDE - SOUR
8	DESIGN PRESSURE	228 barg
9	DESIGN TEMPERATURE	110 Deg C
10	LINE SIZE	8"
11	MAXIMUM PARTICLE SIZE	NOTE 1
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	151ZZZH / Class 1500
14	PIPING DESIGN PRESSURE (MAX)	228 Barg
15	PIPING DESIGN TEMP. (MAX)	110 Deg C
16	CORROSION ALLOWANCE	6mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	DNV-ST-F101
19	DESIGN DESCRIPTION	Barred tee for pigging, equal branch size, four guide bars, one reinforcing bar, bevel end header - bevel end branch, piping class 151ZZZH
20	SIZE / THICKNESS	8" controlled ID of 188.9mm / 15.1mm thickness
21	MATERIALS	
22	TEE	Seamless BW High Yield Carbon Steel API 5L Gr X65 PSL NACE MR0175/ISO15156
23	BARS	High Yield Carbon Steel ASTM A694 Gr F65 NACE MR0175/ISO15156
24	PUP/TRANSITION PIECE	High Yield Carbon Steel API 5L Gr X65 PSL 2 NACE MR0175/ISO15156
25	DIMENSIONS	
26	TEE	ASME B16.9
27	HEADER	8" controlled ID of 188.9mm / 15.1mm thickness
28	BRANCH END (ON TEE)	NPS 8"
29	TEST RING, HEADER	NOTE 1
30	TEST RING, BRANCH	NOTE 1
31	BARS	4
32		
33	PAINTING	QP-SPC-L-002
34	COLOUR	NOTE 1
35		
36	TESTING	
37	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
38	NDE	NOTE 1
39	HYDROTEST PRESSURE	342 Barg
40	SPECIAL REQUIREMENTS	Welding procedures shall be submitted for Company review and approval. This also includes the weld procedures for the welds between the bars and tee.
41		
42		

ATTACHMENT 3: BARRED TEES

1	BARRED TEE	
2	PIPING SP DATASHEET	SP-BTE-013
3	SP TAG No.	REFER ATTACHMENT 1: SP INDEX
4	LINE NO.	REFER ATTACHMENT 1: SP INDEX
5	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	OIL CRUDE - SOUR
8	DESIGN PRESSURE	228 barg
9	DESIGN TEMPERATURE	110 Deg C
10	LINE SIZE	12"
11	MAXIMUM PARTICLE SIZE	NOTE 1
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	151ZZZH / Class 1500
14	PIPING DESIGN PRESSURE (MAX)	228 Barg
15	PIPING DESIGN TEMP. (MAX)	110 Deg C
16	CORROSION ALLOWANCE	6mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	DNV-ST-F101
19	DESIGN DESCRIPTION	Barred tee for pigging, equal branch size, four guide bars, one reinforcing bar, bevel end header - bevel end branch, piping class 151ZZZH
20	SIZE / THICKNESS	12" controlled ID of 282.6mm / 20.6mm thickness
21	MATERIALS	
22	TEE	Seamless BW High Yield Carbon Steel API 5L Gr X65 PSL NACE MR0175/ISO15156
23	BARS	High Yield Carbon Steel ASTM A694 Gr F65 NACE MR0175/ISO15156
24	PUP/TRANSITION PIECE	High Yield Carbon Steel API 5L Gr X65 PSL 2 NACE MR0175/ISO15156
25	DIMENSIONS	
26	TEE	ASME B16.9
27	HEADER	12" controlled ID of 282.6mm / 20.6mm thickness
28	BRANCH END (ON TEE)	NPS 12"
29	TEST RING, HEADER	NOTE 1
30	TEST RING, BRANCH	NOTE 1
31	BARS	4
32		
33	PAINTING	QP-SPC-L-002
34	COLOUR	NOTE 1
35		
36	TESTING	
37	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
38	NDE	NOTE 1
39	HYDROTEST PRESSURE	342 Barg
40	SPECIAL REQUIREMENTS	Welding procedures shall be submitted for Company review and approval. This also includes the weld procedures for the welds between the bars and tee.
41		
42		

ATTACHMENT 3: BARRED TEES

1	BARRED TEE	
2	PIPING SP DATASHEET	SP-BTE-014
3	SP TAG No.	REFER ATTACHMENT 1: SP INDEX
4	LINE NO.	REFER ATTACHMENT 1: SP INDEX
5	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	OIL CRUDE - SOUR
8	DESIGN PRESSURE	228 barg
9	DESIGN TEMPERATURE	110 Deg C
10	LINE SIZE	14"
11	MAXIMUM PARTICLE SIZE	NOTE 1
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	151ZZZH / Class 1500
14	PIPING DESIGN PRESSURE (MAX)	228 Barg
15	PIPING DESIGN TEMP. (MAX)	110 Deg C
16	CORROSION ALLOWANCE	6mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	DNV-ST-F101
19	DESIGN DESCRIPTION	Barred tee for pigging, equal branch size, four guide bars, one reinforcing bar, bevel end header - bevel end branch, piping class 151ZZZH
20	SIZE / THICKNESS	14" controlled ID of 314.4mm / 20.62mm thickness
21	MATERIALS	
22	TEE	Seamless BW High Yield Carbon Steel API 5L Gr X65 PSL NACE MR0175/ISO15156
23	BARS	High Yield Carbon Steel ASTM A694 Gr F65 NACE MR0175/ISO15156
24	PUP/TRANSITION PIECE	High Yield Carbon Steel API 5L Gr X65 PSL 2 NACE MR0175/ISO15156
25	DIMENSIONS	
26	TEE	ASME B16.9
27	HEADER	14" controlled ID of 314.4mm / 20.62mm thickness
28	BRANCH END (ON TEE)	NPS 14"
29	TEST RING, HEADER	NOTE 1
30	TEST RING, BRANCH	NOTE 1
31	BARS	4
32		
33	PAINTING	QP-SPC-L-002
34	COLOUR	NOTE 1
35		
36	TESTING	
37	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
38	NDE	NOTE 1
39	HYDROTEST PRESSURE	342 Barg
40	SPECIAL REQUIREMENTS	Welding procedures shall be submitted for Company review and approval. This also includes the weld procedures for the welds between the bars and tee.
41		
42		

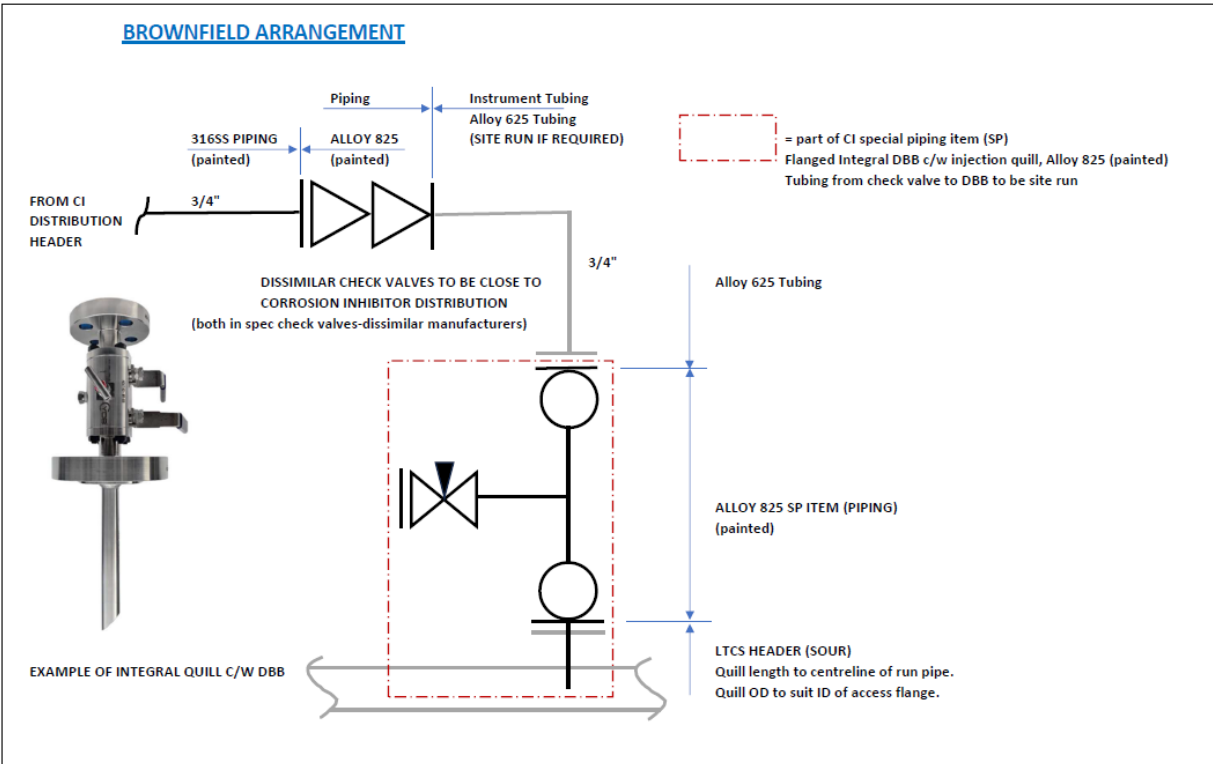
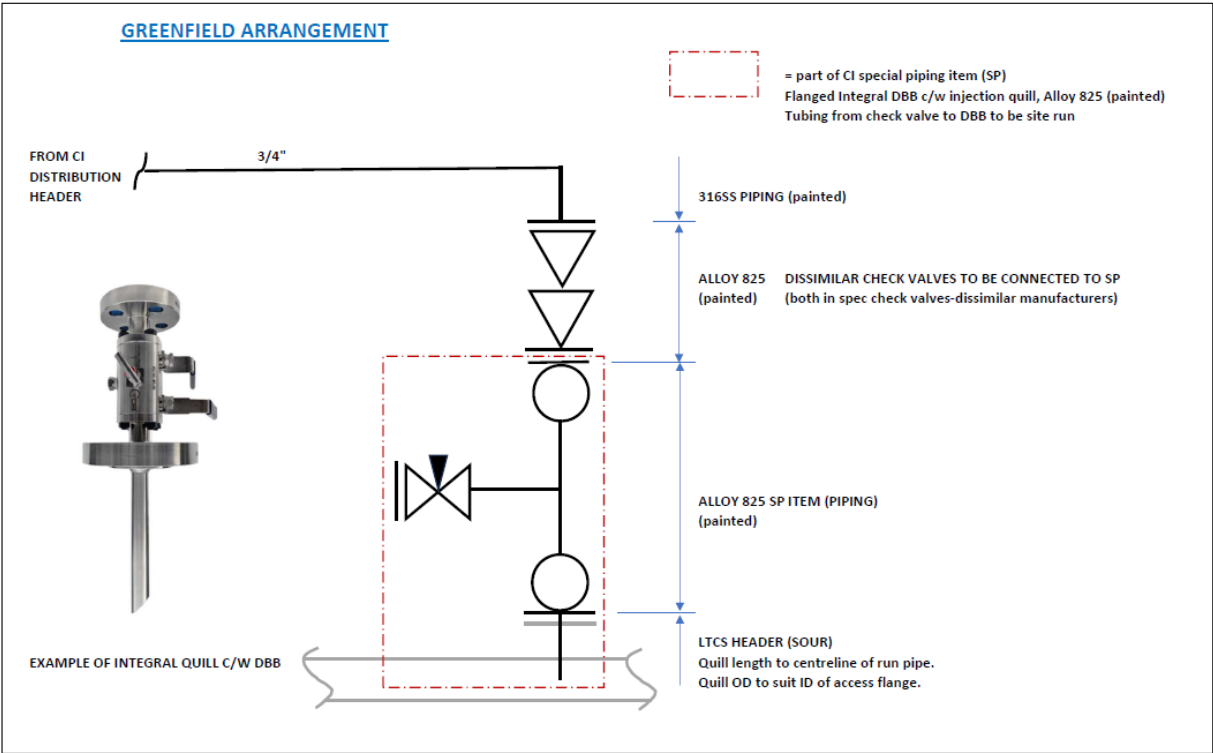
ATTACHMENT 3: BARRED TEES

1	BARRED TEE	
2	PIPING SP DATASHEET	SP-BTE-015
3	SP TAG No.	REFER ATTACHMENT 1: SP INDEX
4	LINE NO.	REFER ATTACHMENT 1: SP INDEX
5	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	OIL CRUDE - SOUR / PROCESS GAS-SOUR
8	DESIGN PRESSURE	228 barg
9	DESIGN TEMPERATURE	120 Deg C
10	LINE SIZE	6"
11	MAXIMUM PARTICLE SIZE	NOTE 1
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	151ZZZ / Class 1500
14	PIPING DESIGN PRESSURE (MAX)	228 Barg
15	PIPING DESIGN TEMP. (MAX)	120 Deg C
16	CORROSION ALLOWANCE	3mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	DNV-ST-F101
19	DESIGN DESCRIPTION	Barred tee for pigging, equal branch size, four guide bars, one reinforcing bar, bevel end header - bevel end branch, piping class 151ZZZ
20	SIZE / THICKNESS	6" controlled ID of 139.8mm / 14.27mm thickness
21	MATERIALS	
22	TEE	Seamless BW High Yield Carbon Steel API 5L Gr X65 PSL NACE MR0175/ISO15156
23	BARS	High Yield Carbon Steel ASTM A694 Gr F65 NACE MR0175/ISO15156
24	PUP/TRANSITION PIECE	High Yield Carbon Steel API 5L Gr X65 PSL 2 NACE MR0175/ISO15156
25	DIMENSIONS	
26	TEE	ASME B16.9
27	HEADER	6" controlled ID of 139.8mm / 14.27mm thickness
28	BRANCH END (ON TEE)	NPS 6"
29	TEST RING, HEADER	NOTE 1
30	TEST RING, BRANCH	NOTE 1
31	BARS	4
32		
33	PAINTING	QP-SPC-L-002
34	COLOUR	NOTE 1
35		
36	TESTING	
37	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
38	NDE	NOTE 1
39	HYDROTEST PRESSURE	342 Barg
40	SPECIAL REQUIREMENTS	Welding procedures shall be submitted for Company review and approval. This also includes the weld procedures for the welds between the bars and tee.
41		
42		

ATTACHMENT 3: BARRED TEES

1	BARRED TEE	
2	PIPING SP DATASHEET	SP-BTE-016
3	SP TAG No.	REFER ATTACHMENT 1: SP INDEX
4	LINE NO.	REFER ATTACHMENT 1: SP INDEX
5	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	OIL CRUDE - SOUR
8	DESIGN PRESSURE	228 barg
9	DESIGN TEMPERATURE	110 Deg C
10	LINE SIZE	8" x 6"
11	MAXIMUM PARTICLE SIZE	NOTE 1
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	151ZZZH / Class 1500
14	PIPING DESIGN PRESSURE (MAX)	228 Barg
15	PIPING DESIGN TEMP. (MAX)	110 Deg C
16	CORROSION ALLOWANCE	6mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	DNV-ST-F101
19	DESIGN DESCRIPTION	Barred tee for pigging, equal branch size, four guide bars, one reinforcing bar, bevel end header - bevel end branch, piping class 151ZZZH
20	SIZE / THICKNESS	8" controlled ID of 188.9mm / 15.1mm thickness
21	MATERIALS	
22	TEE	Seamless BW High Yield Carbon Steel API 5L Gr X65 PSL NACE MR0175/ISO15156
23	BARS	High Yield Carbon Steel ASTM A694 Gr F65 NACE MR0175/ISO15156
24	PUP/TRANSITION PIECE	High Yield Carbon Steel API 5L Gr X65 PSL 2 NACE MR0175/ISO15156
25	DIMENSIONS	
26	TEE	ASME B16.9
27	HEADER	8" controlled ID of 188.9mm / 15.1mm thickness
28	BRANCH END (ON TEE)	NPS 6"
29	TEST RING, HEADER	NOTE 1
30	TEST RING, BRANCH	NOTE 1
31	BARS	4
32		
33	PAINTING	QP-SPC-L-002
34	COLOUR	NOTE 1
35		
36	TESTING	
37	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
38	NDE	NOTE 1
39	HYDROTEST PRESSURE	342 Barg
40	SPECIAL REQUIREMENTS	Welding procedures shall be submitted for Company review and approval. This also includes the weld procedures for the welds between the bars and tee.
41		
42		

ATTACHMENT 4: CHEMICAL INJECTION QUILLS



ATTACHMENT 4: CHEMICAL INJECTION QUILLS

1	CHEMICAL INJECTION – FLANGED INTEGRAL DBB C/W QUILL	
2	TAG No.	SP-CIQ-001
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	PROCESS DATA	
6	SERVICE FLUID	CHEMICAL INJECTION
7	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
8	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	FLOW RATE OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
10	FLUID DENSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
11	VISCOSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
12	INJECTION FLUID FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	MECHANICAL DATA	
14	RUN PIPE DESIGN PRESSURE	19.6 Barg
15	RUN PIPE DESIGN TEMPERATURE	200 Deg C
16	RUN PIPE SIZE	NOTE 1
18	RUN PIPE CLASS / PIPE SCHEDULE	16620, 13461, 15341 (BF)
19	CORROSION ALLOWANCE	0mm
21	PARTS AND MATERIALS	
22	CONN. FROM DISTRIBUTION	
23	FLANGE	½" ASME B16.5 Class 150
24	FACE	RF
25	MATERIAL	ASTM B564 UNS N08825
26	CONN. TO RUN PIPE	
27	FLANGE	2" ASME B16.5 Class 150
28	FACE	RF
29	MATERIAL	ASTM B564 UNS N08825
30	DOUBLE BLOCK & BLEED VALVE	
31	TYPE	½" INTEGRAL DBB C/W ½" NEEDLE TYPE BLEED, FULL BORE, ONE PIECE BODY
32	BODY MATERIAL	ASTM A494 CU5MCUC
33	TRIM	BALL VALVE = RESILIENT SEAT, ANTI STATIC, ANTI BLOWOUT STEM NEEDLE VALVE = ROTATING NEEDLE, PACKED GLAND
34	SEAL	LIP SEALS / MANUFACTURERS STANDARD
35	SEATS	ALLOY 825 + PTFE
36	OPERATION	BALL VALVES = LEVER, NEEDLE = HANDLE
37	QUILL DETAILS	
38	DESIGN	1" Sch.160 PIPE SPACER LUGS TO ID OF FLANGED CONNECTION ON RUN PIPE TO STEADY QUILL IN OPERATION
39	MATERIAL	ASTM B423 UNS N08825
40	LENGTH	QUILL LENGTH TO SUIT RUN PIPE – END OF QUILL TO BE AT CENTRELINE OF RUN PIPE.
41	DIAMETER	QUILL OUTSIDE DIAMETER TO SUIT INTERNAL DIAMETER OF 2" FLANGED CONNECTION ON RUN PIPE.
42	DISPERSION END	QUILL CUT AT 45° WITH SLOT BEHIND.
43	TESTING	
44	MATERIAL CERTIFICATE	BS-EN-10204 3.1
45	HYDROTEST PRESSURE	NOT APPLICABLE
46	PAINTING	QP-SPC-L-002
47	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156

ATTACHMENT 4: CHEMICAL INJECTION QUILLS

1	CHEMICAL INJECTION – FLANGED INTEGRAL DBB C/W QUILL	
2	TAG No.	SP-CIQ-002
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	PROCESS DATA	
6	SERVICE FLUID	CHEMICAL INJECTION
7	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
8	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	FLOW RATE OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
10	FLUID DENSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
11	VISCOSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
12	INJECTION FLUID FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	MECHANICAL DATA	
14	RUN PIPE DESIGN PRESSURE	19.6 Barg
15	RUN PIPE DESIGN TEMPERATURE	160 Deg C
16	RUN PIPE SIZE	NOTE 1
18	RUN PIPE CLASS / PIPE SCHEDULE	13461, 15341 (BF)
19	CORROSION ALLOWANCE	0mm
21	PARTS AND MATERIALS	
22	CONN. FROM DISTRIBUTION	
23	FLANGE	¾" ASME B16.5 Class 150
24	FACE	RF
25	MATERIAL	ASTM B564 UNS N08825
26	CONN. TO RUN PIPE	
27	FLANGE	2" ASME B16.5 Class 150
28	FACE	RF
29	MATERIAL	ASTM B564 UNS N08825
30	DOUBLE BLOCK & BLEED VALVE	
31	TYPE	½" INTEGRAL DBB C/W ½" NEEDLE TYPE BLEED, FULL BORE, ONE PIECE BODY
32	BODY MATERIAL	ASTM A494 CU5MCUC
33	TRIM	BALL VALVE = RESILIENT SEAT, ANTI STATIC, ANTI BLOWOUT STEM NEEDLE VALVE = ROTATING NEEDLE, PACKED GLAND
34	SEAL	LIP SEALS / MANUFACTURERS STANDARD
35	SEATS	ALLOY 825 + PTFE
36	OPERATION	BALL VALVES = LEVER, NEEDLE = HANDLE
37	QUILL DETAILS	
38	DESIGN	1" Sch.160 PIPE SPACER LUGS TO ID OF FLANGED CONNECTION ON RUN PIPE TO STEADY QUILL IN OPERATION
39	MATERIAL	ASTM B423 UNS N08825
40	LENGTH	QUILL LENGTH TO SUIT RUN PIPE – END OF QUILL TO BE AT CENTRELINE OF RUN PIPE.
41	DIAMETER	QUILL OUTSIDE DIAMETER TO SUIT INTERNAL DIAMETER OF 2" FLANGED CONNECTION ON RUN PIPE.
42	DISPERSION END	QUILL CUT AT 45° WITH SLOT BEHIND.
43	TESTING	
44	MATERIAL CERTIFICATE	BS-EN-10204 3.1
45	HYDROTEST PRESSURE	NOT APPLICABLE
46	PAINTING	QP-SPC-L-002
47	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156

ATTACHMENT 4: CHEMICAL INJECTION QUILLS

1	CHEMICAL INJECTION – FLANGED INTEGRAL DBB C/W QUILL	
2	TAG No.	SP-CIQ-003
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	PROCESS DATA	
6	SERVICE FLUID	CHEMICAL INJECTION
7	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
8	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	FLOW RATE OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
10	FLUID DENSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
11	VISCOSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
12	INJECTION FLUID FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	MECHANICAL DATA	
14	RUN PIPE DESIGN PRESSURE	19.6 Barg
15	RUN PIPE DESIGN TEMPERATURE	200 Deg C
16	RUN PIPE SIZE	NOTE 1
18	RUN PIPE CLASS / PIPE SCHEDULE	16620
19	CORROSION ALLOWANCE	0mm
21	PARTS AND MATERIALS	
22	CONN. FROM DISTRIBUTION	
23	FLANGE	1½" ASME B16.5 Class 150
24	FACE	RF
25	MATERIAL	ASTM B564 UNS N08825
26	CONN. TO RUN PIPE	
27	FLANGE	2" ASME B16.5 Class 150
28	FACE	RF
29	MATERIAL	ASTM B564 UNS N08825
30	DOUBLE BLOCK & BLEED VALVE	
31	TYPE	½" INTEGRAL DBB C/W ½" NEEDLE TYPE BLEED, FULL BORE, ONE PIECE BODY
32	BODY MATERIAL	ASTM A494 CU5MCUC
33	TRIM	BALL VALVE = RESILIENT SEAT, ANTI STATIC, ANTI BLOWOUT STEM NEEDLE VALVE = ROTATING NEEDLE, PACKED GLAND
34	SEAL	LIP SEALS / MANUFACTURERS STANDARD
35	SEATS	ALLOY 825 + PTFE
36	OPERATION	BALL VALVES = LEVER, NEEDLE = HANDLE
37	QUILL DETAILS	
38	DESIGN	1" Sch.160 PIPE SPACER LUGS TO ID OF FLANGED CONNECTION ON RUN PIPE TO STEADY QUILL IN OPERATION
39	MATERIAL	ASTM B423 UNS N08825
40	LENGTH	QUILL LENGTH TO SUIT RUN PIPE – END OF QUILL TO BE AT CENTRELINE OF RUN PIPE.
41	DIAMETER	QUILL OUTSIDE DIAMETER TO SUIT INTERNAL DIAMETER OF 2" FLANGED CONNECTION ON RUN PIPE.
42	DISPERSION END	QUILL CUT AT 45° WITH SLOT BEHIND.
43	TESTING	
44	MATERIAL CERTIFICATE	BS-EN-10204 3.1
45	HYDROTEST PRESSURE	NOT APPLICABLE
46	PAINTING	QP-SPC-L-002
47	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156

ATTACHMENT 4: CHEMICAL INJECTION QUILLS

1	CHEMICAL INJECTION – FLANGED INTEGRAL DBB C/W QUILL	
2	TAG No.	SP-CIQ-004
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	PROCESS DATA	
6	SERVICE FLUID	CHEMICAL INJECTION
7	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
8	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	FLOW RATE OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
10	FLUID DENSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
11	VISCOSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
12	INJECTION FLUID FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	MECHANICAL DATA	
14	RUN PIPE DESIGN PRESSURE	51.7 Barg
15	RUN PIPE DESIGN TEMPERATURE	200 Deg C
16	RUN PIPE SIZE	NOTE 1
18	RUN PIPE CLASS / PIPE SCHEDULE	36620
19	CORROSION ALLOWANCE	0mm
21	PARTS AND MATERIALS	
22	CONN. FROM DISTRIBUTION	
23	FLANGE	½" ASME B16.5 Class 300
24	FACE	RF
25	MATERIAL	ASTM B564 UNS N08825
26	CONN. TO RUN PIPE	
27	FLANGE	2" ASME B16.5 Class 300
28	FACE	RF
29	MATERIAL	ASTM B564 UNS N08825
30	DOUBLE BLOCK & BLEED VALVE	
31	TYPE	½" INTEGRAL DBB C/W ½" NEEDLE TYPE BLEED, FULL BORE, ONE PIECE BODY
32	BODY MATERIAL	ASTM A494 CU5MCUC
33	TRIM	BALL VALVE = RESILIENT SEAT, ANTI STATIC, ANTI BLOWOUT STEM NEEDLE VALVE = ROTATING NEEDLE, PACKED GLAND
34	SEAL	LIP SEALS / MANUFACTURERS STANDARD
35	SEATS	ALLOY 825 + PTFE
36	OPERATION	BALL VALVES = LEVER, NEEDLE = HANDLE
37	QUILL DETAILS	
38	DESIGN	1" Sch.160 PIPE SPACER LUGS TO ID OF FLANGED CONNECTION ON RUN PIPE TO STEADY QUILL IN OPERATION
39	MATERIAL	ASTM B423 UNS N08825
40	LENGTH	QUILL LENGTH TO SUIT RUN PIPE – END OF QUILL TO BE AT CENTRELINE OF RUN PIPE.
41	DIAMETER	QUILL OUTSIDE DIAMETER TO SUIT INTERNAL DIAMETER OF 2" FLANGED CONNECTION ON RUN PIPE.
42	DISPERSION END	QUILL CUT AT 45° WITH SLOT BEHIND.
43	TESTING	
44	MATERIAL CERTIFICATE	BS-EN-10204 3.1
45	HYDROTEST PRESSURE	NOT APPLICABLE
46	PAINTING	QP-SPC-L-002
47	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156

ATTACHMENT 4: CHEMICAL INJECTION QUILLS

1	CHEMICAL INJECTION – FLANGED INTEGRAL DBB C/W QUILL	
2	TAG No.	SP-CIQ-005
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	PROCESS DATA	
6	SERVICE FLUID	CHEMICAL INJECTION
7	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
8	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	FLOW RATE OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
10	FLUID DENSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
11	VISCOSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
12	INJECTION FLUID FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	MECHANICAL DATA	
14	RUN PIPE DESIGN PRESSURE	103.4 Barg
15	RUN PIPE DESIGN TEMPERATURE	200 Deg C
16	RUN PIPE SIZE	NOTE 1
18	RUN PIPE CLASS / PIPE SCHEDULE	66620
19	CORROSION ALLOWANCE	0mm
21	PARTS AND MATERIALS	
22	CONN. FROM DISTRIBUTION	
23	FLANGE	½" ASME B16.5 Class 600
24	FACE	RF
25	MATERIAL	ASTM B564 UNS N08825
26	CONN. TO RUN PIPE	
27	FLANGE	2" ASME B16.5 Class 600
28	FACE	RF
29	MATERIAL	ASTM B564 UNS N08825
30	DOUBLE BLOCK & BLEED VALVE	
31	TYPE	½" INTEGRAL DBB C/W ½" NEEDLE TYPE BLEED, FULL BORE, ONE PIECE BODY
32	BODY MATERIAL	ASTM A494 CU5MCUC
33	TRIM	BALL VALVE = RESILIENT SEAT, ANTI STATIC, ANTI BLOWOUT STEM NEEDLE VALVE = ROTATING NEEDLE, PACKED GLAND
34	SEAL	LIP SEALS / MANUFACTURERS STANDARD
35	SEATS	ALLOY 825 + PTFE
36	OPERATION	BALL VALVES = LEVER, NEEDLE = HANDLE
37	QUILL DETAILS	
38	DESIGN	1" Sch.160 PIPE SPACER LUGS TO ID OF FLANGED CONNECTION ON RUN PIPE TO STEADY QUILL IN OPERATION
39	MATERIAL	ASTM B423 UNS N08825
40	LENGTH	QUILL LENGTH TO SUIT RUN PIPE – END OF QUILL TO BE AT CENTRELINE OF RUN PIPE.
41	DIAMETER	QUILL OUTSIDE DIAMETER TO SUIT INTERNAL DIAMETER OF 2" FLANGED CONNECTION ON RUN PIPE.
42	DISPERSION END	QUILL CUT AT 45° WITH SLOT BEHIND.
43	TESTING	
44	MATERIAL CERTIFICATE	BS-EN-10204 3.1
45	HYDROTEST PRESSURE	NOT APPLICABLE
46	PAINTING	QP-SPC-L-002
47	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156

ATTACHMENT 4: CHEMICAL INJECTION QUILLS

1	CHEMICAL INJECTION – FLANGED INTEGRAL DBB C/W QUILL	
2	TAG No.	SP-CIQ-006
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	PROCESS DATA	
6	SERVICE FLUID	CHEMICAL INJECTION
7	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
8	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	FLOW RATE OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
10	FLUID DENSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
11	VISCOSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
12	INJECTION FLUID FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	MECHANICAL DATA	
14	RUN PIPE DESIGN PRESSURE	258.6 Barg
15	RUN PIPE DESIGN TEMPERATURE	200 Deg C
16	RUN PIPE SIZE	NOTE 1
18	RUN PIPE CLASS / PIPE SCHEDULE	91503, 96620, 151503, 151093KS, 96620, 156620
19	CORROSION ALLOWANCE	0mm
21	PARTS AND MATERIALS	
22	CONN. FROM DISTRIBUTION	
23	FLANGE	½" ASME B16.5 Class 1500
24	FACE	RF
25	MATERIAL	ASTM B564 UNS N08825
26	CONN. TO RUN PIPE	
27	FLANGE	2" ASME B16.5 Class 1500
28	FACE	RF
29	MATERIAL	ASTM B564 UNS N08825
30	DOUBLE BLOCK & BLEED VALVE	
31	TYPE	½" INTEGRAL DBB C/W ½" NEEDLE TYPE BLEED, FULL BORE, ONE PIECE BODY
32	BODY MATERIAL	ASTM A494 CU5MCUC
33	TRIM	BALL VALVE = RESILIENT SEAT, ANTI STATIC, ANTI BLOWOUT STEM NEEDLE VALVE = ROTATING NEEDLE, PACKED GLAND
34	SEAL	LIP SEALS / MANUFACTURERS STANDARD
35	SEATS	ALLOY 825 + PTFE
36	OPERATION	BALL VALVES = LEVER, NEEDLE = HANDLE
37	QUILL DETAILS	
38	DESIGN	1" Sch.160 PIPE SPACER LUGS TO ID OF FLANGED CONNECTION ON RUN PIPE TO STEADY QUILL IN OPERATION
39	MATERIAL	ASTM B423 UNS N08825
40	LENGTH	QUILL LENGTH TO SUIT RUN PIPE – END OF QUILL TO BE AT CENTRELINE OF RUN PIPE.
41	DIAMETER	QUILL OUTSIDE DIAMETER TO SUIT INTERNAL DIAMETER OF 2" FLANGED CONNECTION ON RUN PIPE.
42	DISPERSION END	QUILL CUT AT 45° WITH SLOT BEHIND.
43	TESTING	
44	MATERIAL CERTIFICATE	BS-EN-10204 3.1
45	HYDROTEST PRESSURE	NOT APPLICABLE
46	PAINTING	QP-SPC-L-002
47	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156

ATTACHMENT 4: CHEMICAL INJECTION QUILLS

1	CHEMICAL INJECTION – FLANGED INTEGRAL DBB C/W QUILL	
2	TAG No.	SP-CIQ-007
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	PROCESS DATA	
6	SERVICE FLUID	CHEMICAL INJECTION
7	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
8	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	FLOW RATE OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
10	FLUID DENSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
11	VISCOSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
12	INJECTION FLUID FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	MECHANICAL DATA	
14	RUN PIPE DESIGN PRESSURE	258.6 Barg
15	RUN PIPE DESIGN TEMPERATURE	200 Deg C
16	RUN PIPE SIZE	NOTE 1
18	RUN PIPE CLASS / PIPE SCHEDULE	151503, 151093KS, 153461
19	CORROSION ALLOWANCE	0mm
21	PARTS AND MATERIALS	
22	CONN. FROM DISTRIBUTION	
23	FLANGE	¾" ASME B16.5 Class 1500
24	FACE	RF
25	MATERIAL	ASTM B564 UNS N08825
26	CONN. TO RUN PIPE	
27	FLANGE	2" ASME B16.5 Class 1500
28	FACE	RF
29	MATERIAL	ASTM B564 UNS N08825
30	DOUBLE BLOCK & BLEED VALVE	
31	TYPE	½" INTEGRAL DBB C/W ½" NEEDLE TYPE BLEED, FULL BORE, ONE PIECE BODY
32	BODY MATERIAL	ASTM A494 CU5MCUC
33	TRIM	BALL VALVE = RESILIENT SEAT, ANTI STATIC, ANTI BLOWOUT STEM NEEDLE VALVE = ROTATING NEEDLE, PACKED GLAND
34	SEAL	LIP SEALS / MANUFACTURERS STANDARD
35	SEATS	ALLOY 825 + PTFE
36	OPERATION	BALL VALVES = LEVER, NEEDLE = HANDLE
37	QUILL DETAILS	
38	DESIGN	1" Sch.160 PIPE SPACER LUGS TO ID OF FLANGED CONNECTION ON RUN PIPE TO STEADY QUILL IN OPERATION
39	MATERIAL	ASTM B423 UNS N08825
40	LENGTH	QUILL LENGTH TO SUIT RUN PIPE – END OF QUILL TO BE AT CENTRELINE OF RUN PIPE.
41	DIAMETER	QUILL OUTSIDE DIAMETER TO SUIT INTERNAL DIAMETER OF 2" FLANGED CONNECTION ON RUN PIPE.
42	DISPERSION END	QUILL CUT AT 45° WITH SLOT BEHIND.
43	TESTING	
44	MATERIAL CERTIFICATE	BS-EN-10204 3.1
45	HYDROTEST PRESSURE	NOT APPLICABLE
46	PAINTING	QP-SPC-L-002
47	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156

ATTACHMENT 4: CHEMICAL INJECTION QUILLS

1	CHEMICAL INJECTION – FLANGED INTEGRAL DBB C/W QUILL	
2	TAG No.	SP-CIQ-008
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	PROCESS DATA	
6	SERVICE FLUID	CHEMICAL INJECTION
7	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
8	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	FLOW RATE OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
10	FLUID DENSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
11	VISCOSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
12	INJECTION FLUID FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	MECHANICAL DATA	
14	RUN PIPE DESIGN PRESSURE	258.6 Barg
15	RUN PIPE DESIGN TEMPERATURE	200 Deg C
16	RUN PIPE SIZE	NOTE 1
18	RUN PIPE CLASS / PIPE SCHEDULE	156620
19	CORROSION ALLOWANCE	0mm
21	PARTS AND MATERIALS	
22	CONN. FROM DISTRIBUTION	
23	FLANGE	1" ASME B16.5 Class 1500
24	FACE	RF
25	MATERIAL	ASTM B564 UNS N08825
26	CONN. TO RUN PIPE	
27	FLANGE	2" ASME B16.5 Class 1500
28	FACE	RF
29	MATERIAL	ASTM B564 UNS N08825
30	DOUBLE BLOCK & BLEED VALVE	
31	TYPE	½" INTEGRAL DBB C/W ½" NEEDLE TYPE BLEED, FULL BORE, ONE PIECE BODY
32	BODY MATERIAL	ASTM A494 CU5MCUC
33	TRIM	BALL VALVE = RESILIENT SEAT, ANTI STATIC, ANTI BLOWOUT STEM NEEDLE VALVE = ROTATING NEEDLE, PACKED GLAND
34	SEAL	LIP SEALS / MANUFACTURERS STANDARD
35	SEATS	ALLOY 825 + PTFE
36	OPERATION	BALL VALVES = LEVER, NEEDLE = HANDLE
37	QUILL DETAILS	
38	DESIGN	1" Sch.160 PIPE SPACER LUGS TO ID OF FLANGED CONNECTION ON RUN PIPE TO STEADY QUILL IN OPERATION
39	MATERIAL	ASTM B423 UNS N08825
40	LENGTH	QUILL LENGTH TO SUIT RUN PIPE – END OF QUILL TO BE AT CENTRELINE OF RUN PIPE.
41	DIAMETER	QUILL OUTSIDE DIAMETER TO SUIT INTERNAL DIAMETER OF 2" FLANGED CONNECTION ON RUN PIPE.
42	DISPERSION END	QUILL CUT AT 45° WITH SLOT BEHIND.
43	TESTING	
44	MATERIAL CERTIFICATE	BS-EN-10204 3.1
45	HYDROTEST PRESSURE	NOT APPLICABLE
46	PAINTING	QP-SPC-L-002
47	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156

ATTACHMENT 4: CHEMICAL INJECTION QUILLS

1	CHEMICAL INJECTION – FLANGED INTEGRAL DBB C/W QUILL	
2	TAG No.	SP-CIQ-009
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	PROCESS DATA	
6	SERVICE FLUID	CHEMICAL INJECTION
7	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
8	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	FLOW RATE OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
10	FLUID DENSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
11	VISCOSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
12	INJECTION FLUID FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	MECHANICAL DATA	
14	RUN PIPE DESIGN PRESSURE	258.6 Barg
15	RUN PIPE DESIGN TEMPERATURE	200 Deg C
16	RUN PIPE SIZE	NOTE 1
18	RUN PIPE CLASS / PIPE SCHEDULE	156620
19	CORROSION ALLOWANCE	0mm
21	PARTS AND MATERIALS	
22	CONN. FROM DISTRIBUTION	
23	FLANGE	¾" ASME B16.5 Class 1500
24	FACE	RF
25	MATERIAL	ASTM B564 UNS N08825
26	CONN. TO RUN PIPE	
27	FLANGE	2" ASME B16.5 Class 1500
28	FACE	RF
29	MATERIAL	ASTM B564 UNS N08825
30	DOUBLE BLOCK & BLEED VALVE	
31	TYPE	¾" INTEGRAL DBB C/W ½" NEEDLE TYPE BLEED, FULL BORE, ONE PIECE BODY
32	BODY MATERIAL	ASTM A494 CU5MCUC
33	TRIM	BALL VALVE = RESILIENT SEAT, ANTI STATIC, ANTI BLOWOUT STEM NEEDLE VALVE = ROTATING NEEDLE, PACKED GLAND
34	SEAL	LIP SEALS / MANUFACTURERS STANDARD
35	SEATS	ALLOY 825 + PTFE
36	OPERATION	BALL VALVES = LEVER, NEEDLE = HANDLE
37	QUILL DETAILS	
38	DESIGN	1" Sch.160 PIPE SPACER LUGS TO ID OF FLANGED CONNECTION ON RUN PIPE TO STEADY QUILL IN OPERATION
39	MATERIAL	ASTM B423 UNS N08825
40	LENGTH	QUILL LENGTH TO SUIT RUN PIPE – END OF QUILL TO BE AT CENTRELINE OF RUN PIPE.
41	DIAMETER	QUILL OUTSIDE DIAMETER TO SUIT INTERNAL DIAMETER OF 2" FLANGED CONNECTION ON RUN PIPE.
42	DISPERSION END	QUILL CUT AT 45° WITH SLOT BEHIND.
43	TESTING	
44	MATERIAL CERTIFICATE	BS-EN-10204 3.1
45	HYDROTEST PRESSURE	NOT APPLICABLE
46	PAINTING	QP-SPC-L-002
47	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156

ATTACHMENT 4: CHEMICAL INJECTION QUILLS

1	CHEMICAL INJECTION – FLANGED INTEGRAL DBB C/W QUILL	
2	TAG No.	SP-CIQ-010
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	PROCESS DATA	
6	SERVICE FLUID	CHEMICAL INJECTION
7	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
8	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	FLOW RATE OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
10	FLUID DENSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
11	VISCOSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
12	INJECTION FLUID FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	MECHANICAL DATA	
14	RUN PIPE DESIGN PRESSURE	19.6 Barg
15	RUN PIPE DESIGN TEMPERATURE	200 Deg C
16	RUN PIPE SIZE	NOTE 1
18	RUN PIPE CLASS / PIPE SCHEDULE	16620
19	CORROSION ALLOWANCE	0mm
21	PARTS AND MATERIALS	
22	CONN. FROM DISTRIBUTION	
23	FLANGE	¾" ASME B16.5 Class 150
24	FACE	RF
25	MATERIAL	ASTM B564 UNS N08825
26	CONN. TO RUN PIPE	
27	FLANGE	2" ASME B16.5 Class 150
28	FACE	RF
29	MATERIAL	ASTM B564 UNS N08825
30	DOUBLE BLOCK & BLEED VALVE	
31	TYPE	¾" INTEGRAL DBB C/W ½" NEEDLE TYPE BLEED, FULL BORE, ONE PIECE BODY
32	BODY MATERIAL	ASTM A494 CU5MCUC
33	TRIM	BALL VALVE = RESILIENT SEAT, ANTI STATIC, ANTI BLOWOUT STEM NEEDLE VALVE = ROTATING NEEDLE, PACKED GLAND
34	SEAL	LIP SEALS / MANUFACTURERS STANDARD
35	SEATS	ALLOY 825 + PTFE
36	OPERATION	BALL VALVES = LEVER, NEEDLE = HANDLE
37	QUILL DETAILS	
38	DESIGN	1" Sch.160 PIPE SPACER LUGS TO ID OF FLANGED CONNECTION ON RUN PIPE TO STEADY QUILL IN OPERATION
39	MATERIAL	ASTM B423 UNS N08825
40	LENGTH	QUILL LENGTH TO SUIT RUN PIPE – END OF QUILL TO BE AT CENTRELINE OF RUN PIPE.
41	DIAMETER	QUILL OUTSIDE DIAMETER TO SUIT INTERNAL DIAMETER OF 2" FLANGED CONNECTION ON RUN PIPE.
42	DISPERSION END	QUILL CUT AT 45° WITH SLOT BEHIND.
43	TESTING	
44	MATERIAL CERTIFICATE	BS-EN-10204 3.1
45	HYDROTEST PRESSURE	NOT APPLICABLE
46	PAINTING	QP-SPC-L-002
47	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156

ATTACHMENT 4: CHEMICAL INJECTION QUILLS

1	CHEMICAL INJECTION – FLANGED INTEGRAL DBB C/W QUILL	
2	TAG No.	SP-CIQ-011
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	PROCESS DATA	
6	SERVICE FLUID	CHEMICAL INJECTION
7	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
8	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	FLOW RATE OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
10	FLUID DENSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
11	VISCOSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
12	INJECTION FLUID FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	MECHANICAL DATA	
14	RUN PIPE DESIGN PRESSURE	19.6 Barg
15	RUN PIPE DESIGN TEMPERATURE	200 Deg C
16	RUN PIPE SIZE	NOTE 1
18	RUN PIPE CLASS / PIPE SCHEDULE	16620
19	CORROSION ALLOWANCE	0mm
21	PARTS AND MATERIALS	
22	CONN. FROM DISTRIBUTION	
23	FLANGE	1" ASME B16.5 Class 150
24	FACE	RF
25	MATERIAL	ASTM B564 UNS N08825
26	CONN. TO RUN PIPE	
27	FLANGE	2" ASME B16.5 Class 150
28	FACE	RF
29	MATERIAL	ASTM B564 UNS N08825
30	DOUBLE BLOCK & BLEED VALVE	
31	TYPE	1" INTEGRAL DBB C/W ½" NEEDLE TYPE BLEED, FULL BORE, ONE PIECE BODY
32	BODY MATERIAL	ASTM A494 CU5MCUC
33	TRIM	BALL VALVE = RESILIENT SEAT, ANTI STATIC, ANTI BLOWOUT STEM NEEDLE VALVE = ROTATING NEEDLE, PACKED GLAND
34	SEAL	LIP SEALS / MANUFACTURERS STANDARD
35	SEATS	ALLOY 825 + PTFE
36	OPERATION	BALL VALVES = LEVER, NEEDLE = HANDLE
37	QUILL DETAILS	
38	DESIGN	1" Sch.160 PIPE SPACER LUGS TO ID OF FLANGED CONNECTION ON RUN PIPE TO STEADY QUILL IN OPERATION
39	MATERIAL	ASTM B423 UNS N08825
40	LENGTH	QUILL LENGTH TO SUIT RUN PIPE – END OF QUILL TO BE AT CENTRELINE OF RUN PIPE.
41	DIAMETER	QUILL OUTSIDE DIAMETER TO SUIT INTERNAL DIAMETER OF 2" FLANGED CONNECTION ON RUN PIPE.
42	DISPERSION END	QUILL CUT AT 45° WITH SLOT BEHIND.
43	TESTING	
44	MATERIAL CERTIFICATE	BS-EN-10204 3.1
45	HYDROTEST PRESSURE	NOT APPLICABLE
46	PAINTING	QP-SPC-L-002
47	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156

ATTACHMENT 4: CHEMICAL INJECTION QUILLS

1	CHEMICAL INJECTION – FLANGED INTEGRAL DBB C/W QUILL	
2	TAG No.	SP-CIQ-012
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	PROCESS DATA	
6	SERVICE FLUID	CHEMICAL INJECTION
7	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
8	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	FLOW RATE OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
10	FLUID DENSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
11	VISCOSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
12	INJECTION FLUID FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	MECHANICAL DATA	
14	RUN PIPE DESIGN PRESSURE	49.6 Barg
15	RUN PIPE DESIGN TEMPERATURE	160 Deg C
16	RUN PIPE SIZE	NOTE 1
18	RUN PIPE CLASS / PIPE SCHEDULE	33461
19	CORROSION ALLOWANCE	0mm
21	PARTS AND MATERIALS	
22	CONN. FROM DISTRIBUTION	
23	FLANGE	¾" ASME B16.5 Class 300
24	FACE	RF
25	MATERIAL	ASTM B564 UNS N08825
26	CONN. TO RUN PIPE	
27	FLANGE	2" ASME B16.5 Class 300
28	FACE	RF
29	MATERIAL	ASTM B564 UNS N08825
30	DOUBLE BLOCK & BLEED VALVE	
31	TYPE	¾" INTEGRAL DBB C/W ½" NEEDLE TYPE BLEED, FULL BORE, ONE PIECE BODY
32	BODY MATERIAL	ASTM A494 CU5MCUC
33	TRIM	BALL VALVE = RESILIENT SEAT, ANTI STATIC, ANTI BLOWOUT STEM NEEDLE VALVE = ROTATING NEEDLE, PACKED GLAND
34	SEAL	LIP SEALS / MANUFACTURERS STANDARD
35	SEATS	ALLOY 825 + PTFE
36	OPERATION	BALL VALVES = LEVER, NEEDLE = HANDLE
37	QUILL DETAILS	
38	DESIGN	1" Sch.160 PIPE SPACER LUGS TO ID OF FLANGED CONNECTION ON RUN PIPE TO STEADY QUILL IN OPERATION
39	MATERIAL	ASTM B423 UNS N08825
40	LENGTH	QUILL LENGTH TO SUIT RUN PIPE – END OF QUILL TO BE AT CENTRELINE OF RUN PIPE.
41	DIAMETER	QUILL OUTSIDE DIAMETER TO SUIT INTERNAL DIAMETER OF 2" FLANGED CONNECTION ON RUN PIPE.
42	DISPERSION END	QUILL CUT AT 45° WITH SLOT BEHIND.
43	TESTING	
44	MATERIAL CERTIFICATE	BS-EN-10204 3.1
45	HYDROTEST PRESSURE	NOT APPLICABLE
46	PAINTING	QP-SPC-L-002
47	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156

ATTACHMENT 4: CHEMICAL INJECTION QUILLS

1	CHEMICAL INJECTION – FLANGED INTEGRAL DBB C/W QUILL	
2	TAG No.	SP-CIQ-013
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	PROCESS DATA	
6	SERVICE FLUID	CHEMICAL INJECTION
7	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
8	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	FLOW RATE OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
10	FLUID DENSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
11	VISCOSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
12	INJECTION FLUID FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	MECHANICAL DATA	
14	RUN PIPE DESIGN PRESSURE	51.7 Barg
15	RUN PIPE DESIGN TEMPERATURE	200 Deg C
16	RUN PIPE SIZE	NOTE 1
18	RUN PIPE CLASS / PIPE SCHEDULE	36620
19	CORROSION ALLOWANCE	0mm
21	PARTS AND MATERIALS	
22	CONN. FROM DISTRIBUTION	
23	FLANGE	1" ASME B16.5 Class 300
24	FACE	RF
25	MATERIAL	ASTM B564 UNS N08825
26	CONN. TO RUN PIPE	
27	FLANGE	2" ASME B16.5 Class 300
28	FACE	RF
29	MATERIAL	ASTM B564 UNS N08825
30	DOUBLE BLOCK & BLEED VALVE	
31	TYPE	1" INTEGRAL DBB C/W ½" NEEDLE TYPE BLEED, FULL BORE, ONE PIECE BODY
32	BODY MATERIAL	ASTM A494 CU5MCUC
33	TRIM	BALL VALVE = RESILIENT SEAT, ANTI STATIC, ANTI BLOWOUT STEM NEEDLE VALVE = ROTATING NEEDLE, PACKED GLAND
34	SEAL	LIP SEALS / MANUFACTURERS STANDARD
35	SEATS	ALLOY 825 + PTFE
36	OPERATION	BALL VALVES = LEVER, NEEDLE = HANDLE
37	QUILL DETAILS	
38	DESIGN	1" Sch.160 PIPE SPACER LUGS TO ID OF FLANGED CONNECTION ON RUN PIPE TO STEADY QUILL IN OPERATION
39	MATERIAL	ASTM B423 UNS N08825
40	LENGTH	QUILL LENGTH TO SUIT RUN PIPE – END OF QUILL TO BE AT CENTRELINE OF RUN PIPE.
41	DIAMETER	QUILL OUTSIDE DIAMETER TO SUIT INTERNAL DIAMETER OF 2" FLANGED CONNECTION ON RUN PIPE.
42	DISPERSION END	QUILL CUT AT 45° WITH SLOT BEHIND.
43	TESTING	
44	MATERIAL CERTIFICATE	BS-EN-10204 3.1
45	HYDROTEST PRESSURE	NOT APPLICABLE
46	PAINTING	QP-SPC-L-002
47	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156

ATTACHMENT 4: CHEMICAL INJECTION QUILLS

1	CHEMICAL INJECTION – FLANGED INTEGRAL DBB C/W QUILL	
2	TAG No.	SP-CIQ-014
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	PROCESS DATA	
6	SERVICE FLUID	CHEMICAL INJECTION
7	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
8	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	FLOW RATE OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
10	FLUID DENSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
11	VISCOSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
12	INJECTION FLUID FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	MECHANICAL DATA	
14	RUN PIPE DESIGN PRESSURE	103.4 Barg
15	RUN PIPE DESIGN TEMPERATURE	200 Deg C
16	RUN PIPE SIZE	NOTE 1
18	RUN PIPE CLASS / PIPE SCHEDULE	66620
19	CORROSION ALLOWANCE	0mm
21	PARTS AND MATERIALS	
22	CONN. FROM DISTRIBUTION	
23	FLANGE	1" ASME B16.5 Class 600
24	FACE	RF
25	MATERIAL	ASTM B564 UNS N08825
26	CONN. TO RUN PIPE	
27	FLANGE	2" ASME B16.5 Class 600
28	FACE	RF
29	MATERIAL	ASTM B564 UNS N08825
30	DOUBLE BLOCK & BLEED VALVE	
31	TYPE	1" INTEGRAL DBB C/W ½" NEEDLE TYPE BLEED, FULL BORE, ONE PIECE BODY
32	BODY MATERIAL	ASTM A494 CU5MCUC
33	TRIM	BALL VALVE = RESILIENT SEAT, ANTI STATIC, ANTI BLOWOUT STEM NEEDLE VALVE = ROTATING NEEDLE, PACKED GLAND
34	SEAL	LIP SEALS / MANUFACTURERS STANDARD
35	SEATS	ALLOY 825 + PTFE
36	OPERATION	BALL VALVES = LEVER, NEEDLE = HANDLE
37	QUILL DETAILS	
38	DESIGN	1" Sch.160 PIPE SPACER LUGS TO ID OF FLANGED CONNECTION ON RUN PIPE TO STEADY QUILL IN OPERATION
39	MATERIAL	ASTM B423 UNS N08825
40	LENGTH	QUILL LENGTH TO SUIT RUN PIPE – END OF QUILL TO BE AT CENTRELINE OF RUN PIPE.
41	DIAMETER	QUILL OUTSIDE DIAMETER TO SUIT INTERNAL DIAMETER OF 2" FLANGED CONNECTION ON RUN PIPE.
42	DISPERSION END	QUILL CUT AT 45° WITH SLOT BEHIND.
43	TESTING	
44	MATERIAL CERTIFICATE	BS-EN-10204 3.1
45	HYDROTEST PRESSURE	NOT APPLICABLE
46	PAINTING	QP-SPC-L-002
47	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156

ATTACHMENT 4: CHEMICAL INJECTION QUILLS

1	CHEMICAL INJECTION – FLANGED INTEGRAL DBB C/W QUILL	
2	TAG No.	SP-CIQ-015
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	PROCESS DATA	
6	SERVICE FLUID	CHEMICAL INJECTION
7	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
8	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	FLOW RATE OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
10	FLUID DENSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
11	VISCOSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
12	INJECTION FLUID FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	MECHANICAL DATA	
14	RUN PIPE DESIGN PRESSURE	258.6 Barg
15	RUN PIPE DESIGN TEMPERATURE	200 Deg C
16	RUN PIPE SIZE	NOTE 1
18	RUN PIPE CLASS / PIPE SCHEDULE	151093KS
19	CORROSION ALLOWANCE	0mm
21	PARTS AND MATERIALS	
22	CONN. FROM DISTRIBUTION	
23	FLANGE	2" ASME B16.5 Class 1500
24	FACE	RF
25	MATERIAL	ASTM B564 UNS N08825
26	CONN. TO RUN PIPE	
27	FLANGE	2" ASME B16.5 Class 1500
28	FACE	RF
29	MATERIAL	ASTM B564 UNS N08825
30	DOUBLE BLOCK & BLEED VALVE	
31	TYPE	2" INTEGRAL DBB C/W ½" NEEDLE TYPE BLEED, FULL BORE, ONE PIECE BODY
32	BODY MATERIAL	ASTM A494 CU5MCUC
33	TRIM	BALL VALVE = RESILIENT SEAT, ANTI STATIC, ANTI BLOWOUT STEM NEEDLE VALVE = ROTATING NEEDLE, PACKED GLAND
34	SEAL	LIP SEALS / MANUFACTURERS STANDARD
35	SEATS	ALLOY 825 + PTFE
36	OPERATION	BALL VALVES = LEVER, NEEDLE = HANDLE
37	QUILL DETAILS	
38	DESIGN	1" Sch.160 PIPE SPACER LUGS TO ID OF FLANGED CONNECTION ON RUN PIPE TO STEADY QUILL IN OPERATION
39	MATERIAL	ASTM B423 UNS N08825
40	LENGTH	QUILL LENGTH TO SUIT RUN PIPE – END OF QUILL TO BE AT CENTRELINE OF RUN PIPE.
41	DIAMETER	QUILL OUTSIDE DIAMETER TO SUIT INTERNAL DIAMETER OF 2" FLANGED CONNECTION ON RUN PIPE.
42	DISPERSION END	QUILL CUT AT 45° WITH SLOT BEHIND.
43	TESTING	
44	MATERIAL CERTIFICATE	BS-EN-10204 3.1
45	HYDROTEST PRESSURE	NOT APPLICABLE
46	PAINTING	QP-SPC-L-002
47	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156

ATTACHMENT 4: CHEMICAL INJECTION QUILLS

1	CHEMICAL INJECTION – FLANGED INTEGRAL DBB C/W QUILL	
2	TAG No.	SP-CIQ-016
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	PROCESS DATA	
6	SERVICE FLUID	CHEMICAL INJECTION
7	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
8	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	FLOW RATE OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
10	FLUID DENSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
11	VISCOSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
12	INJECTION FLUID FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	MECHANICAL DATA	
14	RUN PIPE DESIGN PRESSURE	258.6 Barg
15	RUN PIPE DESIGN TEMPERATURE	200 Deg C
16	RUN PIPE SIZE	NOTE 1
18	RUN PIPE CLASS / PIPE SCHEDULE	151503
19	CORROSION ALLOWANCE	0mm
21	PARTS AND MATERIALS	
22	CONN. FROM DISTRIBUTION	
23	FLANGE	2" ASME B16.5 Class 1500
24	FACE	RF
25	MATERIAL	ASTM B564 UNS N08825
26	CONN. TO RUN PIPE	
27	FLANGE	2" ASME B16.5 Class 1500
28	FACE	RF
29	MATERIAL	ASTM B564 UNS N08825
30	DOUBLE BLOCK & BLEED VALVE	
31	TYPE	2" INTEGRAL DBB C/W ½" NEEDLE TYPE BLEED, FULL BORE, ONE PIECE BODY
32	BODY MATERIAL	ASTM A494 CU5MCUC
33	TRIM	BALL VALVE = RESILIENT SEAT, ANTI STATIC, ANTI BLOWOUT STEM NEEDLE VALVE = ROTATING NEEDLE, PACKED GLAND
34	SEAL	LIP SEALS / MANUFACTURERS STANDARD
35	SEATS	ALLOY 825 + PTFE
36	OPERATION	BALL VALVES = LEVER, NEEDLE = HANDLE
37	QUILL DETAILS	
38	DESIGN	1" Sch.160 PIPE SPACER LUGS TO ID OF FLANGED CONNECTION ON RUN PIPE TO STEADY QUILL IN OPERATION
39	MATERIAL	ASTM B423 UNS N08825
40	LENGTH	QUILL LENGTH TO SUIT RUN PIPE – END OF QUILL TO BE AT CENTRELINE OF RUN PIPE.
41	DIAMETER	QUILL OUTSIDE DIAMETER TO SUIT INTERNAL DIAMETER OF 2" FLANGED CONNECTION ON RUN PIPE.
42	DISPERSION END	QUILL CUT AT 45° WITH SLOT BEHIND.
43	TESTING	
44	MATERIAL CERTIFICATE	BS-EN-10204 3.1
45	HYDROTEST PRESSURE	NOT APPLICABLE
46	PAINTING	QP-SPC-L-002
47	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156

ATTACHMENT 4: CHEMICAL INJECTION QUILLS

1	CHEMICAL INJECTION – FLANGED INTEGRAL DBB C/W QUILL	
2	TAG No.	SP-CIQ-017
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	PROCESS DATA	
6	SERVICE FLUID	CHEMICAL INJECTION
7	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
8	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	FLOW RATE OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
10	FLUID DENSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
11	VISCOSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
12	INJECTION FLUID FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	MECHANICAL DATA	
14	RUN PIPE DESIGN PRESSURE	258.6 Barg
15	RUN PIPE DESIGN TEMPERATURE	200 Deg C
16	RUN PIPE SIZE	NOTE 1
18	RUN PIPE CLASS / PIPE SCHEDULE	91503
19	CORROSION ALLOWANCE	0mm
21	PARTS AND MATERIALS	
22	CONN. FROM DISTRIBUTION	
23	FLANGE	2" ASME B16.5 Class 1500
24	FACE	RF
25	MATERIAL	ASTM B564 UNS N08825
26	CONN. TO RUN PIPE	
27	FLANGE	2" ASME B16.5 Class 1500
28	FACE	RF
29	MATERIAL	ASTM B564 UNS N08825
30	DOUBLE BLOCK & BLEED VALVE	
31	TYPE	2" INTEGRAL DBB C/W ½" NEEDLE TYPE BLEED, FULL BORE, ONE PIECE BODY
32	BODY MATERIAL	ASTM A494 CU5MCUC
33	TRIM	BALL VALVE = RESILIENT SEAT, ANTI STATIC, ANTI BLOWOUT STEM NEEDLE VALVE = ROTATING NEEDLE, PACKED GLAND
34	SEAL	LIP SEALS / MANUFACTURERS STANDARD
35	SEATS	ALLOY 825 + PTFE
36	OPERATION	BALL VALVES = LEVER, NEEDLE = HANDLE
37	QUILL DETAILS	
38	DESIGN	1" Sch.160 PIPE SPACER LUGS TO ID OF FLANGED CONNECTION ON RUN PIPE TO STEADY QUILL IN OPERATION
39	MATERIAL	ASTM B423 UNS N08825
40	LENGTH	QUILL LENGTH TO SUIT RUN PIPE – END OF QUILL TO BE AT CENTRELINE OF RUN PIPE.
41	DIAMETER	QUILL OUTSIDE DIAMETER TO SUIT INTERNAL DIAMETER OF 2" FLANGED CONNECTION ON RUN PIPE.
42	DISPERSION END	QUILL CUT AT 45° WITH SLOT BEHIND.
43	TESTING	
44	MATERIAL CERTIFICATE	BS-EN-10204 3.1
45	HYDROTEST PRESSURE	NOT APPLICABLE
46	PAINTING	QP-SPC-L-002
47	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156

ATTACHMENT 4: CHEMICAL INJECTION QUILLS

1	CHEMICAL INJECTION – FLANGED INTEGRAL DBB C/W QUILL	
2	TAG No.	SP-CIQ-018
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	PROCESS DATA	
6	SERVICE FLUID	CHEMICAL INJECTION
7	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
8	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	FLOW RATE OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
10	FLUID DENSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
11	VISCOSITY OF HEADER	REFER ATTACHMENT 10: LINE LIST DETAILS
12	INJECTION FLUID FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	MECHANICAL DATA	
14	RUN PIPE DESIGN PRESSURE	258.6 Barg
15	RUN PIPE DESIGN TEMPERATURE	200 Deg C
16	RUN PIPE SIZE	NOTE 1
18	RUN PIPE CLASS / PIPE SCHEDULE	96620
19	CORROSION ALLOWANCE	0mm
21	PARTS AND MATERIALS	
22	CONN. FROM DISTRIBUTION	
23	FLANGE	2" ASME B16.5 Class 1500
24	FACE	RF
25	MATERIAL	ASTM B564 UNS N08825
26	CONN. TO RUN PIPE	
27	FLANGE	2" ASME B16.5 Class 1500
28	FACE	RF
29	MATERIAL	ASTM B564 UNS N08825
30	DOUBLE BLOCK & BLEED VALVE	
31	TYPE	2" INTEGRAL DBB C/W ½" NEEDLE TYPE BLEED, FULL BORE, ONE PIECE BODY
32	BODY MATERIAL	ASTM A494 CU5MCUC
33	TRIM	BALL VALVE = RESILIENT SEAT, ANTI STATIC, ANTI BLOWOUT STEM NEEDLE VALVE = ROTATING NEEDLE, PACKED GLAND
34	SEAL	LIP SEALS / MANUFACTURERS STANDARD
35	SEATS	ALLOY 825 + PTFE
36	OPERATION	BALL VALVES = LEVER, NEEDLE = HANDLE
37	QUILL DETAILS	
38	DESIGN	1" Sch.160 PIPE SPACER LUGS TO ID OF FLANGED CONNECTION ON RUN PIPE TO STEADY QUILL IN OPERATION
39	MATERIAL	ASTM B423 UNS N08825
40	LENGTH	QUILL LENGTH TO SUIT RUN PIPE – END OF QUILL TO BE AT CENTRELINE OF RUN PIPE.
41	DIAMETER	QUILL OUTSIDE DIAMETER TO SUIT INTERNAL DIAMETER OF 2" FLANGED CONNECTION ON RUN PIPE.
42	DISPERSION END	QUILL CUT AT 45° WITH SLOT BEHIND.
43	TESTING	
44	MATERIAL CERTIFICATE	BS-EN-10204 3.1
45	HYDROTEST PRESSURE	NOT APPLICABLE
46	PAINTING	QP-SPC-L-002
47	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION COUPON	
2	TAG No.	SP-XCC-001
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	WATER TEMPERED (COOLING MED.)
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 150/11432
8	DESIGN PRESSURE	19.6 Barg
9	DESIGN TEMPERATURE	150 Deg C
10	RUN PIPE NB	6"
11	RUN PIPE THK	SCH 40
12	CORROSION ALLOWANCE	3 mm
13	RUN PIPE MATERIAL	ASTM A106 GRADE B, NON-SOUR
14	TRIM MATERIAL	AISI 316
15	FLOW VELOCITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	DENSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
17	VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
18	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
19	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
20	PARTS AND MATERIALS	
21	ACCESS FITTING	
22	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 6" RUN-PIPE
23	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
24	MATERIAL	ASTM A105
25	MOUNTING POSITION	12 O'CLOCK POSITION
26	COVER	
27	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
28	MATERIAL	ASTM A105
29	PLUG	
30	TYPE	SOLID
31	MATERIAL	ASTM A105
32	COUPON HOLDER	
33	TYPE	STRIP COUPON HOLDER
34	MATERIAL	AISI 316
35	COUPON	
36	TYPE	STRIP COUPON (2 NOS. EACH)
37	MATERIAL	SAME AS RUN PIPE MATERIAL - ASTM A106 GRADE B, NON-SOUR
38	TESTING	
39	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
40	HYDROTEST PRESSURE	NOT APPLICABLE
41	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
42		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION COUPON	
2	TAG No.	SP-XCC-002
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	PROCESS LIQUID - SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 1500/151093KS
8	DESIGN PRESSURE	255.3 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	6"
11	RUN PIPE THK	SCH 120
12	CORROSION ALLOWANCE	6 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	FLOW VELOCITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	DENSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
17	VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
18	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
19	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
20	PARTS AND MATERIALS	
21	ACCESS FITTING	
22	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 6" RUN-PIPE
23	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
24	MATERIAL	ASTM A350 LF2 CL1
25	MOUNTING POSITION	12 O'CLOCK POSITION
26	COVER	
27	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
28	MATERIAL	ASTM A350 LF2 CL1
29	PLUG	
30	TYPE	SOLID
31	MATERIAL	ASTM A350 LF2 CL1
32	COUPON HOLDER	
33	TYPE	STRIP COUPON HOLDER
34	MATERIAL	ALLOY 825
35	COUPON	
36	TYPE	STRIP COUPON (2 NOS. EACH)
37	MATERIAL	SAME AS RUN PIPE MATERIAL - ASTM A333 GRADE 6, SOUR
38	TESTING	
39	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
40	HYDROTEST PRESSURE	NOT APPLICABLE
41	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
42		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION COUPON	
2	TAG No.	SP-XCC-003
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	OIL CRUDE - SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 1500/151093KS
8	DESIGN PRESSURE	255.3 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	6"
11	RUN PIPE THK	24 mm THK
12	CORROSION ALLOWANCE	6 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	FLOW VELOCITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	DENSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
17	VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
18	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
19	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
20	PARTS AND MATERIALS	
21	ACCESS FITTING	
22	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 6" RUN-PIPE
23	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
24	MATERIAL	ASTM A350 LF2 CL1
25	MOUNTING POSITION	12 O'CLOCK POSITION
26	COVER	
27	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
28	MATERIAL	ASTM A350 LF2 CL1
29	PLUG	
30	TYPE	SOLID
31	MATERIAL	ASTM A350 LF2 CL1
32	COUPON HOLDER	
33	TYPE	STRIP COUPON HOLDER
34	MATERIAL	ALLOY 825
35	COUPON	
36	TYPE	STRIP COUPON (2 NOS. EACH)
37	MATERIAL	SAME AS RUN PIPE MATERIAL - ASTM A333 GRADE 6, SOUR
38	TESTING	
39	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
40	HYDROTEST PRESSURE	NOT APPLICABLE
41	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
42		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION COUPON	
2	TAG No.	SP-XCC-004
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	PROCESS GAS-SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 900/91503
8	DESIGN PRESSURE	153.2 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	8"
11	RUN PIPE THK	SCH 120
12	CORROSION ALLOWANCE	3 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	FLOW VELOCITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	DENSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
17	VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
18	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
19	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
20	PARTS AND MATERIALS	
21	ACCESS FITTING	
22	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 8" RUN-PIPE
23	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
24	MATERIAL	ASTM A350 LF2 CL1
25	MOUNTING POSITION	12 O'CLOCK POSITION
26	COVER	
27	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
28	MATERIAL	ASTM A350 LF2 CL1
29	PLUG	
30	TYPE	SOLID
31	MATERIAL	ASTM A350 LF2 CL1
32	COUPON HOLDER	
33	TYPE	STRIP COUPON HOLDER
34	MATERIAL	ALLOY 825
35	COUPON	
36	TYPE	STRIP COUPON (2 NOS. EACH)
37	MATERIAL	SAME AS RUN PIPE MATERIAL - ASTM A333 GRADE 6, SOUR
38	TESTING	
39	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
40	HYDROTEST PRESSURE	NOT APPLICABLE
41	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
42		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION COUPON	
2	TAG No.	SP-XCC-005
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	OIL CRUDE - SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 1500/151093KS
8	DESIGN PRESSURE	255.3 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	8"
11	RUN PIPE THK	30 mm THK
12	CORROSION ALLOWANCE	6 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	FLOW VELOCITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	DENSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
17	VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
18	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
19	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
20	PARTS AND MATERIALS	
21	ACCESS FITTING	
22	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 8" RUN-PIPE
23	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
24	MATERIAL	ASTM A350 LF2 CL1
25	MOUNTING POSITION	12 O'CLOCK POSITION
26	COVER	
27	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
28	MATERIAL	ASTM A350 LF2 CL1
29	PLUG	
30	TYPE	SOLID
31	MATERIAL	ASTM A350 LF2 CL1
32	COUPON HOLDER	
33	TYPE	STRIP COUPON HOLDER
34	MATERIAL	ALLOY 825
35	COUPON	
36	TYPE	STRIP COUPON (2 NOS. EACH)
37	MATERIAL	SAME AS RUN PIPE MATERIAL - ASTM A333 GRADE 6, SOUR
38	TESTING	
39	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
40	HYDROTEST PRESSURE	NOT APPLICABLE
41	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
42		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION COUPON	
2	TAG No.	SP-XCC-006
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	PROCESS GAS-SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 150/11503
8	DESIGN PRESSURE	19.6 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	10"
11	RUN PIPE THK	SCH 30
12	CORROSION ALLOWANCE	3 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	FLOW VELOCITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	DENSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
17	VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
18	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
19	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
20	PARTS AND MATERIALS	
21	ACCESS FITTING	
22	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 10" RUN-PIPE
23	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
24	MATERIAL	ASTM A350 LF2 CL1
25	MOUNTING POSITION	12 O'CLOCK POSITION
26	COVER	
27	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
28	MATERIAL	ASTM A350 LF2 CL1
29	PLUG	
30	TYPE	SOLID
31	MATERIAL	ASTM A350 LF2 CL1
32	COUPON HOLDER	
33	TYPE	STRIP COUPON HOLDER
34	MATERIAL	ALLOY 825
35	COUPON	
36	TYPE	STRIP COUPON (2 NOS. EACH)
37	MATERIAL	SAME AS RUN PIPE MATERIAL - ASTM A333 GRADE 6, SOUR
38	TESTING	
39	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
40	HYDROTEST PRESSURE	NOT APPLICABLE
41	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
42		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION COUPON	
2	TAG No.	SP-XCC-007
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	OIL CRUDE - SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 900/91093KS
8	DESIGN PRESSURE	153.2 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	10"
11	RUN PIPE THK	SCH 140
12	CORROSION ALLOWANCE	6 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	FLOW VELOCITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	DENSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
17	VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
18	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
19	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
20	PARTS AND MATERIALS	
21	ACCESS FITTING	
22	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 10" RUN-PIPE
23	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
24	MATERIAL	ASTM A350 LF2 CL1
25	MOUNTING POSITION	12 O'CLOCK POSITION
26	COVER	
27	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
28	MATERIAL	ASTM A350 LF2 CL1
29	PLUG	
30	TYPE	SOLID
31	MATERIAL	ASTM A350 LF2 CL1
32	COUPON HOLDER	
33	TYPE	STRIP COUPON HOLDER
34	MATERIAL	ALLOY 825
35	COUPON	
36	TYPE	STRIP COUPON (2 NOS. EACH)
37	MATERIAL	SAME AS RUN PIPE MATERIAL - ASTM A333 GRADE 6, SOUR
38	TESTING	
39	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
40	HYDROTEST PRESSURE	NOT APPLICABLE
41	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
42		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION COUPON	
2	TAG No.	SP-XCC-008
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	PROCESS GAS-SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 900/91503
8	DESIGN PRESSURE	153.2 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	10"
11	RUN PIPE THK	SCH 120
12	CORROSION ALLOWANCE	3 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	FLOW VELOCITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	DENSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
17	VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
18	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
19	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
20	PARTS AND MATERIALS	
21	ACCESS FITTING	
22	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 10" RUN-PIPE
23	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
24	MATERIAL	ASTM A350 LF2 CL1
25	MOUNTING POSITION	12 O'CLOCK POSITION
26	COVER	
27	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
28	MATERIAL	ASTM A350 LF2 CL1
29	PLUG	
30	TYPE	SOLID
31	MATERIAL	ASTM A350 LF2 CL1
32	COUPON HOLDER	
33	TYPE	STRIP COUPON HOLDER
34	MATERIAL	ALLOY 825
35	COUPON	
36	TYPE	STRIP COUPON (2 NOS. EACH)
37	MATERIAL	SAME AS RUN PIPE MATERIAL - ASTM A333 GRADE 6, SOUR
38	TESTING	
39	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
40	HYDROTEST PRESSURE	NOT APPLICABLE
41	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
42		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION COUPON	
2	TAG No.	SP-XCC-009
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	OIL CRUDE - SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 1500/151093KS
8	DESIGN PRESSURE	255.3 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	10"
11	RUN PIPE THK	34 mm THK
12	CORROSION ALLOWANCE	6 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	FLOW VELOCITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	DENSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
17	VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
18	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
19	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
20	PARTS AND MATERIALS	
21	ACCESS FITTING	
22	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 10" RUN-PIPE
23	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
24	MATERIAL	ASTM A350 LF2 CL1
25	MOUNTING POSITION	12 O'CLOCK POSITION
26	COVER	
27	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
28	MATERIAL	ASTM A350 LF2 CL1
29	PLUG	
30	TYPE	SOLID
31	MATERIAL	ASTM A350 LF2 CL1
32	COUPON HOLDER	
33	TYPE	STRIP COUPON HOLDER
34	MATERIAL	ALLOY 825
35	COUPON	
36	TYPE	STRIP COUPON (2 NOS. EACH)
37	MATERIAL	SAME AS RUN PIPE MATERIAL - ASTM A333 GRADE 6, SOUR
38	TESTING	
39	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
40	HYDROTEST PRESSURE	NOT APPLICABLE
41	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
42		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION COUPON	
2	TAG No.	SP-XCC-010
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	OIL CRUDE - SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 150/11093KS
8	DESIGN PRESSURE	19.6 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	12"
11	RUN PIPE THK	SCH STD
12	CORROSION ALLOWANCE	6 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	FLOW VELOCITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	DENSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
17	VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
18	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
19	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
20	PARTS AND MATERIALS	
21	ACCESS FITTING	
22	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 12" RUN-PIPE
23	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
24	MATERIAL	ASTM A350 LF2 CL1
25	MOUNTING POSITION	12 O'CLOCK POSITION
26	COVER	
27	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
28	MATERIAL	ASTM A350 LF2 CL1
29	PLUG	
30	TYPE	SOLID
31	MATERIAL	ASTM A350 LF2 CL1
32	COUPON HOLDER	
33	TYPE	STRIP COUPON HOLDER
34	MATERIAL	ALLOY 825
35	COUPON	
36	TYPE	STRIP COUPON (2 NOS. EACH)
37	MATERIAL	SAME AS RUN PIPE MATERIAL - ASTM A333 GRADE 6, SOUR
38	TESTING	
39	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
40	HYDROTEST PRESSURE	NOT APPLICABLE
41	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
42		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION COUPON	
2	TAG No.	SP-XCC-011
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	OIL CRUDE - SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 300/31503
8	DESIGN PRESSURE	51.1 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	12"
11	RUN PIPE THK	SCH 40
12	CORROSION ALLOWANCE	3 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	FLOW VELOCITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	DENSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
17	VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
18	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
19	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
20	PARTS AND MATERIALS	
21	ACCESS FITTING	
22	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 12" RUN-PIPE
23	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
24	MATERIAL	ASTM A350 LF2 CL1
25	MOUNTING POSITION	12 O'CLOCK POSITION
26	COVER	
27	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
28	MATERIAL	ASTM A350 LF2 CL1
29	PLUG	
30	TYPE	SOLID
31	MATERIAL	ASTM A350 LF2 CL1
32	COUPON HOLDER	
33	TYPE	STRIP COUPON HOLDER
34	MATERIAL	ALLOY 825
35	COUPON	
36	TYPE	STRIP COUPON (2 NOS. EACH)
37	MATERIAL	SAME AS RUN PIPE MATERIAL - ASTM A333 GRADE 6, SOUR
38	TESTING	
39	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
40	HYDROTEST PRESSURE	NOT APPLICABLE
41	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
42		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION COUPON	
2	TAG No.	SP-XCC-012
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	OIL CRUDE - SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 1500/151093KS
8	DESIGN PRESSURE	255.3 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	12"
11	RUN PIPE THK	40 mm THK
12	CORROSION ALLOWANCE	6 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	FLOW VELOCITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	DENSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
17	VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
18	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
19	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
20	PARTS AND MATERIALS	
21	ACCESS FITTING	
22	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 12" RUN-PIPE
23	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
24	MATERIAL	ASTM A350 LF2 CL1
25	MOUNTING POSITION	12 O'CLOCK POSITION
26	COVER	
27	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
28	MATERIAL	ASTM A350 LF2 CL1
29	PLUG	
30	TYPE	SOLID
31	MATERIAL	ASTM A350 LF2 CL1
32	COUPON HOLDER	
33	TYPE	STRIP COUPON HOLDER
34	MATERIAL	ALLOY 825
35	COUPON	
36	TYPE	STRIP COUPON (2 NOS. EACH)
37	MATERIAL	SAME AS RUN PIPE MATERIAL - ASTM A333 GRADE 6, SOUR
38	TESTING	
39	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
40	HYDROTEST PRESSURE	NOT APPLICABLE
41	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
42		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION COUPON	
2	TAG No.	SP-XCC-013
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	PROCESS GAS-SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 900/91503
8	DESIGN PRESSURE	153.2 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	14"
11	RUN PIPE THK	SCH 100
12	CORROSION ALLOWANCE	3 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	FLOW VELOCITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	DENSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
17	VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
18	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
19	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
20	PARTS AND MATERIALS	
21	ACCESS FITTING	
22	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 14" RUN-PIPE
23	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
24	MATERIAL	ASTM A350 LF2 CL1
25	MOUNTING POSITION	12 O'CLOCK POSITION
26	COVER	
27	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
28	MATERIAL	ASTM A350 LF2 CL1
29	PLUG	
30	TYPE	SOLID
31	MATERIAL	ASTM A350 LF2 CL1
32	COUPON HOLDER	
33	TYPE	STRIP COUPON HOLDER
34	MATERIAL	ALLOY 825
35	COUPON	
36	TYPE	STRIP COUPON (2 NOS. EACH)
37	MATERIAL	SAME AS RUN PIPE MATERIAL - ASTM A333 GRADE 6, SOUR
38	TESTING	
39	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
40	HYDROTEST PRESSURE	NOT APPLICABLE
41	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
42		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION COUPON	
2	TAG No.	SP-XCC-014
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	OIL CRUDE - SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 1500/151093KS
8	DESIGN PRESSURE	255.3 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	14"
11	RUN PIPE THK	42 mm THK
12	CORROSION ALLOWANCE	6 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	FLOW VELOCITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	DENSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
17	VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
18	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
19	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
20	PARTS AND MATERIALS	
21	ACCESS FITTING	
22	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 14" RUN-PIPE
23	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
24	MATERIAL	ASTM A350 LF2 CL1
25	MOUNTING POSITION	12 O'CLOCK POSITION
26	COVER	
27	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
28	MATERIAL	ASTM A350 LF2 CL1
29	PLUG	
30	TYPE	SOLID
31	MATERIAL	ASTM A350 LF2 CL1
32	COUPON HOLDER	
33	TYPE	STRIP COUPON HOLDER
34	MATERIAL	ALLOY 825
35	COUPON	
36	TYPE	STRIP COUPON (2 NOS. EACH)
37	MATERIAL	SAME AS RUN PIPE MATERIAL - ASTM A333 GRADE 6, SOUR
38	TESTING	
39	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
40	HYDROTEST PRESSURE	NOT APPLICABLE
41	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
42		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION COUPON	
2	TAG No.	SP-XCC-015
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	OIL CRUDE - SOUR/PROCESS LIQUID - SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 1500/151093KS
8	DESIGN PRESSURE	255.3 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	16"
11	RUN PIPE THK	48 mm THK
12	CORROSION ALLOWANCE	6 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	FLOW VELOCITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	DENSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
17	VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
18	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
19	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
20	PARTS AND MATERIALS	
21	ACCESS FITTING	
22	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 16" RUN-PIPE
23	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
24	MATERIAL	ASTM A350 LF2 CL1
25	MOUNTING POSITION	12 O'CLOCK POSITION
26	COVER	
27	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
28	MATERIAL	ASTM A350 LF2 CL1
29	PLUG	
30	TYPE	SOLID
31	MATERIAL	ASTM A350 LF2 CL1
32	COUPON HOLDER	
33	TYPE	STRIP COUPON HOLDER
34	MATERIAL	ALLOY 825
35	COUPON	
36	TYPE	STRIP COUPON (2 NOS. EACH)
37	MATERIAL	SAME AS RUN PIPE MATERIAL - ASTM A333 GRADE 6, SOUR
38	TESTING	
39	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
40	HYDROTEST PRESSURE	NOT APPLICABLE
41	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
42		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION COUPON	
2	TAG No.	SP-XCC-016
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	PROCESS GAS-SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 150/11503
8	DESIGN PRESSURE	19.6 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	20"
11	RUN PIPE THK	SCH 20
12	CORROSION ALLOWANCE	3 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	FLOW VELOCITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	DENSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
17	VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
18	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
19	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
20	PARTS AND MATERIALS	
21	ACCESS FITTING	
22	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 20" RUN-PIPE
23	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
24	MATERIAL	ASTM A350 LF2 CL1
25	MOUNTING POSITION	12 O'CLOCK POSITION
26	COVER	
27	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
28	MATERIAL	ASTM A350 LF2 CL1
29	PLUG	
30	TYPE	SOLID
31	MATERIAL	ASTM A350 LF2 CL1
32	COUPON HOLDER	
33	TYPE	STRIP COUPON HOLDER
34	MATERIAL	ALLOY 825
35	COUPON	
36	TYPE	STRIP COUPON (2 NOS. EACH)
37	MATERIAL	SAME AS RUN PIPE MATERIAL - ASTM A333 GRADE 6, SOUR
38	TESTING	
39	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
40	HYDROTEST PRESSURE	NOT APPLICABLE
41	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
42		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION COUPON	
2	TAG No.	SP-XCC-017
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	OIL CRUDE - SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 150/11093KS
8	DESIGN PRESSURE	19.6 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	20"
11	RUN PIPE THK	SCH 30
12	CORROSION ALLOWANCE	6 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	FLOW VELOCITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	DENSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
17	VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
18	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
19	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
20	PARTS AND MATERIALS	
21	ACCESS FITTING	
22	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 20" RUN-PIPE
23	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
24	MATERIAL	ASTM A350 LF2 CL1
25	MOUNTING POSITION	12 O'CLOCK POSITION
26	COVER	
27	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
28	MATERIAL	ASTM A350 LF2 CL1
29	PLUG	
30	TYPE	SOLID
31	MATERIAL	ASTM A350 LF2 CL1
32	COUPON HOLDER	
33	TYPE	STRIP COUPON HOLDER
34	MATERIAL	ALLOY 825
35	COUPON	
36	TYPE	STRIP COUPON (2 NOS. EACH)
37	MATERIAL	SAME AS RUN PIPE MATERIAL - ASTM A333 GRADE 6, SOUR
38	TESTING	
39	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
40	HYDROTEST PRESSURE	NOT APPLICABLE
41	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
42		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION COUPON	
2	TAG No.	SP-XCC-018
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	WATER TEMPERED (COOLING MED.)
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 300/31432
8	DESIGN PRESSURE	51.1 Barg
9	DESIGN TEMPERATURE	150 Deg C
10	RUN PIPE NB	24"
11	RUN PIPE THK	SCH 40
12	CORROSION ALLOWANCE	3 mm
13	RUN PIPE MATERIAL	ASTM A106 GRADE B, NON-SOUR
14	TRIM MATERIAL	AISI 316
15	FLOW VELOCITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	DENSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
17	VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
18	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
19	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
20	PARTS AND MATERIALS	
21	ACCESS FITTING	
22	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 24" RUN-PIPE
23	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
24	MATERIAL	ASTM A105
25	MOUNTING POSITION	12 O'CLOCK POSITION
26	COVER	
27	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
28	MATERIAL	ASTM A105
29	PLUG	
30	TYPE	SOLID
31	MATERIAL	ASTM A105
32	COUPON HOLDER	
33	TYPE	STRIP COUPON HOLDER
34	MATERIAL	AISI 316
35	COUPON	
36	TYPE	STRIP COUPON (2 NOS. EACH)
37	MATERIAL	SAME AS RUN PIPE MATERIAL - ASTM A106 GRADE B, NON-SOUR
38	TESTING	
39	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
40	HYDROTEST PRESSURE	NOT APPLICABLE
41	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
42		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION COUPON	
2	TAG No.	SP-XCC-019
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	PROCESS GAS-SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 150/11503
8	DESIGN PRESSURE	19.6 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	24"
11	RUN PIPE THK	SCH 20
12	CORROSION ALLOWANCE	3 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	FLOW VELOCITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	DENSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
17	VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
18	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
19	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
20	PARTS AND MATERIALS	
21	ACCESS FITTING	
22	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 24" RUN-PIPE
23	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
24	MATERIAL	ASTM A350 LF2 CL1
25	MOUNTING POSITION	12 O'CLOCK POSITION
26	COVER	
27	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
28	MATERIAL	ASTM A350 LF2 CL1
29	PLUG	
30	TYPE	SOLID
31	MATERIAL	ASTM A350 LF2 CL1
32	COUPON HOLDER	
33	TYPE	STRIP COUPON HOLDER
34	MATERIAL	ALLOY 825
35	COUPON	
36	TYPE	STRIP COUPON (2 NOS. EACH)
37	MATERIAL	SAME AS RUN PIPE MATERIAL - ASTM A333 GRADE 6, SOUR
38	TESTING	
39	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
40	HYDROTEST PRESSURE	NOT APPLICABLE
41	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
42		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION COUPON	
2	TAG No.	SP-XCC-020
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	OIL CRUDE - SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 1500/151093KS
8	DESIGN PRESSURE	255.3 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	24"
11	RUN PIPE THK	68 mm THK
12	CORROSION ALLOWANCE	6 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	FLOW VELOCITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	DENSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
17	VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
18	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
19	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
20	PARTS AND MATERIALS	
21	ACCESS FITTING	
22	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 24" RUN-PIPE
23	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
24	MATERIAL	ASTM A350 LF2 CL1
25	MOUNTING POSITION	12 O'CLOCK POSITION
26	COVER	
27	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
28	MATERIAL	ASTM A350 LF2 CL1
29	PLUG	
30	TYPE	SOLID
31	MATERIAL	ASTM A350 LF2 CL1
32	COUPON HOLDER	
33	TYPE	STRIP COUPON HOLDER
34	MATERIAL	ALLOY 825
35	COUPON	
36	TYPE	STRIP COUPON (2 NOS. EACH)
37	MATERIAL	SAME AS RUN PIPE MATERIAL - ASTM A333 GRADE 6, SOUR
38	TESTING	
39	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
40	HYDROTEST PRESSURE	NOT APPLICABLE
41	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
42		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION COUPON	
2	TAG No.	SP-XCC-021
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	PROCESS GAS-SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 150/11503
8	DESIGN PRESSURE	19.6 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	36"
11	RUN PIPE THK	SCH 20
12	CORROSION ALLOWANCE	3 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	FLOW VELOCITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	DENSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
17	VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
18	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
19	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
20	PARTS AND MATERIALS	
21	ACCESS FITTING	
22	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 36" RUN-PIPE
23	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
24	MATERIAL	ASTM A350 LF2 CL1
25	MOUNTING POSITION	12 O'CLOCK POSITION
26	COVER	
27	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
28	MATERIAL	ASTM A350 LF2 CL1
29	PLUG	
30	TYPE	SOLID
31	MATERIAL	ASTM A350 LF2 CL1
32	COUPON HOLDER	
33	TYPE	STRIP COUPON HOLDER
34	MATERIAL	ALLOY 825
35	COUPON	
36	TYPE	STRIP COUPON (2 NOS. EACH)
37	MATERIAL	SAME AS RUN PIPE MATERIAL - ASTM A333 GRADE 6, SOUR
38	TESTING	
39	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
40	HYDROTEST PRESSURE	NOT APPLICABLE
41	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
42		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION COUPON	
2	TAG No.	SP-XCC-022
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	OIL CRUDE - SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 150/11093KS
8	DESIGN PRESSURE	19.6 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	36"
11	RUN PIPE THK	SCH 30
12	CORROSION ALLOWANCE	6 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	FLOW VELOCITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	DENSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
17	VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
18	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
19	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
20	PARTS AND MATERIALS	
21	ACCESS FITTING	
22	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 36" RUN-PIPE
23	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
24	MATERIAL	ASTM A350 LF2 CL1
25	MOUNTING POSITION	12 O'CLOCK POSITION
26	COVER	
27	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
28	MATERIAL	ASTM A350 LF2 CL1
29	PLUG	
30	TYPE	SOLID
31	MATERIAL	ASTM A350 LF2 CL1
32	COUPON HOLDER	
33	TYPE	STRIP COUPON HOLDER
34	MATERIAL	ALLOY 825
35	COUPON	
36	TYPE	STRIP COUPON (2 NOS. EACH)
37	MATERIAL	SAME AS RUN PIPE MATERIAL - ASTM A333 GRADE 6, SOUR
38	TESTING	
39	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
40	HYDROTEST PRESSURE	NOT APPLICABLE
41	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
42		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION COUPON	
2	TAG No.	SP-XCC-023
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	WATER TEMPERED (COOLING MED.)
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 150/11432
8	DESIGN PRESSURE	19.6 Barg
9	DESIGN TEMPERATURE	150 Deg C
10	RUN PIPE NB	30"
11	RUN PIPE THK	SCH 20
12	CORROSION ALLOWANCE	3 mm
13	RUN PIPE MATERIAL	ASTM A106 GRADE B, NON-SOUR
14	TRIM MATERIAL	AISI 316
15	FLOW VELOCITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	DENSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
17	VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
18	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
19	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
20	PARTS AND MATERIALS	
21	ACCESS FITTING	
22	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 30" RUN-PIPE
23	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
24	MATERIAL	ASTM A105
25	MOUNTING POSITION	12 O'CLOCK POSITION
26	COVER	
27	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
28	MATERIAL	ASTM A105
29	PLUG	
30	TYPE	SOLID
31	MATERIAL	ASTM A105
32	COUPON HOLDER	
33	TYPE	STRIP COUPON HOLDER
34	MATERIAL	AISI 316
35	COUPON	
36	TYPE	STRIP COUPON (2 NOS. EACH)
37	MATERIAL	SAME AS RUN PIPE MATERIAL - ASTM A106 GRADE B, NON-SOUR
38	TESTING	
39	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
40	HYDROTEST PRESSURE	NOT APPLICABLE
41	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
42		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION COUPON	
2	TAG No.	SP-XCC-024
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	OIL CRUDE - SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 150/11503
8	DESIGN PRESSURE	19.6 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	6"
11	RUN PIPE THK	SCH 40
12	CORROSION ALLOWANCE	3 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	FLOW VELOCITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	DENSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
17	VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
18	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
19	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
20	PARTS AND MATERIALS	
21	ACCESS FITTING	
22	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 6" RUN-PIPE
23	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
24	MATERIAL	ASTM A350 LF2 CL1
25	MOUNTING POSITION	12 O'CLOCK POSITION
26	COVER	
27	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
28	MATERIAL	ASTM A350 LF2 CL1
29	PLUG	
30	TYPE	SOLID
31	MATERIAL	ASTM A350 LF2 CL1
32	COUPON HOLDER	
33	TYPE	STRIP COUPON HOLDER
34	MATERIAL	ALLOY 825
35	COUPON	
36	TYPE	STRIP COUPON (2 NOS. EACH)
37	MATERIAL	SAME AS RUN PIPE MATERIAL - ASTM A333 GRADE 6, SOUR
38	TESTING	
39	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
40	HYDROTEST PRESSURE	NOT APPLICABLE
41	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
42		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION COUPON	
2	TAG No.	SP-XCC-025
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	PROCESS GAS-SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 150/11503
8	DESIGN PRESSURE	19.6 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	12"
11	RUN PIPE THK	SCH 30
12	CORROSION ALLOWANCE	3 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	FLOW VELOCITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	DENSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
17	VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
18	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
19	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
20	PARTS AND MATERIALS	
21	ACCESS FITTING	
22	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 12" RUN-PIPE
23	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
24	MATERIAL	ASTM A350 LF2 CL1
25	MOUNTING POSITION	12 O'CLOCK POSITION
26	COVER	
27	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
28	MATERIAL	ASTM A350 LF2 CL1
29	PLUG	
30	TYPE	SOLID
31	MATERIAL	ASTM A350 LF2 CL1
32	COUPON HOLDER	
33	TYPE	STRIP COUPON HOLDER
34	MATERIAL	ALLOY 825
35	COUPON	
36	TYPE	STRIP COUPON (2 NOS. EACH)
37	MATERIAL	SAME AS RUN PIPE MATERIAL - ASTM A333 GRADE 6, SOUR
38	TESTING	
39	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
40	HYDROTEST PRESSURE	NOT APPLICABLE
41	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
42		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION COUPON	
2	TAG No.	SP-XCC-026
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	PROCESS GAS-SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 150/11503
8	DESIGN PRESSURE	19.6 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	14"
11	RUN PIPE THK	SCH 20
12	CORROSION ALLOWANCE	3 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	FLOW VELOCITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	DENSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
17	VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
18	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
19	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
20	PARTS AND MATERIALS	
21	ACCESS FITTING	
22	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 14" RUN-PIPE
23	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
24	MATERIAL	ASTM A350 LF2 CL1
25	MOUNTING POSITION	12 O'CLOCK POSITION
26	COVER	
27	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
28	MATERIAL	ASTM A350 LF2 CL1
29	PLUG	
30	TYPE	SOLID
31	MATERIAL	ASTM A350 LF2 CL1
32	COUPON HOLDER	
33	TYPE	STRIP COUPON HOLDER
34	MATERIAL	ALLOY 825
35	COUPON	
36	TYPE	STRIP COUPON (2 NOS. EACH)
37	MATERIAL	SAME AS RUN PIPE MATERIAL - ASTM A333 GRADE 6, SOUR
38	TESTING	
39	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
40	HYDROTEST PRESSURE	NOT APPLICABLE
41	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
42		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION COUPON	
2	TAG No.	SP-XCC-027
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	PROCESS GAS-SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 150/11503
8	DESIGN PRESSURE	19.6 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	30"
11	RUN PIPE THK	SCH 20
12	CORROSION ALLOWANCE	3 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	FLOW VELOCITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	DENSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
17	VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
18	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
19	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
20	PARTS AND MATERIALS	
21	ACCESS FITTING	
22	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 30" RUN-PIPE
23	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
24	MATERIAL	ASTM A350 LF2 CL1
25	MOUNTING POSITION	12 O'CLOCK POSITION
26	COVER	
27	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
28	MATERIAL	ASTM A350 LF2 CL1
29	PLUG	
30	TYPE	SOLID
31	MATERIAL	ASTM A350 LF2 CL1
32	COUPON HOLDER	
33	TYPE	STRIP COUPON HOLDER
34	MATERIAL	ALLOY 825
35	COUPON	
36	TYPE	STRIP COUPON (2 NOS. EACH)
37	MATERIAL	SAME AS RUN PIPE MATERIAL - ASTM A333 GRADE 6, SOUR
38	TESTING	
39	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
40	HYDROTEST PRESSURE	NOT APPLICABLE
41	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
42		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION COUPON	
2	TAG No.	SP-XCC-028
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	PROCESS GAS-SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 150/11503
8	DESIGN PRESSURE	19.6 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	42"
11	RUN PIPE THK	SCH XS
12	CORROSION ALLOWANCE	3 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	FLOW VELOCITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	DENSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
17	VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
18	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
19	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
20	PARTS AND MATERIALS	
21	ACCESS FITTING	
22	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 42" RUN-PIPE
23	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
24	MATERIAL	ASTM A350 LF2 CL1
25	MOUNTING POSITION	12 O'CLOCK POSITION
26	COVER	
27	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
28	MATERIAL	ASTM A350 LF2 CL1
29	PLUG	
30	TYPE	SOLID
31	MATERIAL	ASTM A350 LF2 CL1
32	COUPON HOLDER	
33	TYPE	STRIP COUPON HOLDER
34	MATERIAL	ALLOY 825
35	COUPON	
36	TYPE	STRIP COUPON (2 NOS. EACH)
37	MATERIAL	SAME AS RUN PIPE MATERIAL - ASTM A333 GRADE 6, SOUR
38	TESTING	
39	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
40	HYDROTEST PRESSURE	NOT APPLICABLE
41	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
42		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION COUPON	
2	TAG No.	SP-XCC-029
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	OIL CRUDE - SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 1500/151093KS
8	DESIGN PRESSURE	255.3 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	18"
11	RUN PIPE THK	52 mm THK
12	CORROSION ALLOWANCE	6 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	FLOW VELOCITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	DENSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
17	VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
18	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
19	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
20	PARTS AND MATERIALS	
21	ACCESS FITTING	
22	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 18" RUN-PIPE
23	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
24	MATERIAL	ASTM A350 LF2 CL1
25	MOUNTING POSITION	12 O'CLOCK POSITION
26	COVER	
27	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
28	MATERIAL	ASTM A350 LF2 CL1
29	PLUG	
30	TYPE	SOLID
31	MATERIAL	ASTM A350 LF2 CL1
32	COUPON HOLDER	
33	TYPE	STRIP COUPON HOLDER
34	MATERIAL	ALLOY 825
35	COUPON	
36	TYPE	STRIP COUPON (2 NOS. EACH)
37	MATERIAL	SAME AS RUN PIPE MATERIAL - ASTM A333 GRADE 6, SOUR
38	TESTING	
39	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
40	HYDROTEST PRESSURE	NOT APPLICABLE
41	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
42		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION COUPON	
2	TAG No.	SP-XCC-030
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	OIL CRUDE - SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 1500/151093KS
8	DESIGN PRESSURE	255.3 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	20"
11	RUN PIPE THK	58 mm THK
12	CORROSION ALLOWANCE	6 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	FLOW VELOCITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	DENSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
17	VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
18	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
19	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
20	PARTS AND MATERIALS	
21	ACCESS FITTING	
22	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 20" RUN-PIPE
23	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
24	MATERIAL	ASTM A350 LF2 CL1
25	MOUNTING POSITION	12 O'CLOCK POSITION
26	COVER	
27	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
28	MATERIAL	ASTM A350 LF2 CL1
29	PLUG	
30	TYPE	SOLID
31	MATERIAL	ASTM A350 LF2 CL1
32	COUPON HOLDER	
33	TYPE	STRIP COUPON HOLDER
34	MATERIAL	ALLOY 825
35	COUPON	
36	TYPE	STRIP COUPON (2 NOS. EACH)
37	MATERIAL	SAME AS RUN PIPE MATERIAL - ASTM A333 GRADE 6, SOUR
38	TESTING	
39	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
40	HYDROTEST PRESSURE	NOT APPLICABLE
41	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
42		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION COUPON	
2	TAG No.	SP-XCC-031
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	GAS CONDENSATE
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 600/61503
8	DESIGN PRESSURE	102.1 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	6"
11	RUN PIPE THK	SCH 80
12	CORROSION ALLOWANCE	3 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	FLOW VELOCITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	DENSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
17	VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
18	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
19	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
20	PARTS AND MATERIALS	
21	ACCESS FITTING	
22	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 6" RUN-PIPE
23	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
24	MATERIAL	ASTM A350 LF2 CL1
25	MOUNTING POSITION	12 O'CLOCK POSITION
26	COVER	
27	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
28	MATERIAL	ASTM A350 LF2 CL1
29	PLUG	
30	TYPE	SOLID
31	MATERIAL	ASTM A350 LF2 CL1
32	COUPON HOLDER	
33	TYPE	STRIP COUPON HOLDER
34	MATERIAL	ALLOY 825
35	COUPON	
36	TYPE	STRIP COUPON (2 NOS. EACH)
37	MATERIAL	SAME AS RUN PIPE MATERIAL - ASTM A333 GRADE 6, SOUR
38	TESTING	
39	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
40	HYDROTEST PRESSURE	NOT APPLICABLE
41	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
42		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION PROBE	
2	TAG No.	SP-XCP-001
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	PROCESS GAS-SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 900/91503
8	DESIGN PRESSURE	153.2 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	6"
11	RUN PIPE THK	SCH 120
12	CORROSION ALLOWANCE	3 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
16	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	PARTS AND MATERIALS	
18	ACCESS FITTING	
19	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 6" RUN-PIPE
20	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
21	MATERIAL	ASTM A350 LF2 CL1
22	MOUNTING POSITION	12 O'CLOCK POSITION
23	COVER	
24	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
25	MATERIAL	ASTM A350 LF2 CL1
26	PLUG/PROBE	
27	TYPE	SOLID
28	MATERIAL	ALLOY 825
29	TESTING	
30	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
31	HYDROTEST PRESSURE	NOT APPLICABLE
32	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
33		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION PROBE	
2	TAG No.	SP-XCP-002
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	PROCESS LIQUID - SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 1500/151093KS
8	DESIGN PRESSURE	253.3 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	6"
11	RUN PIPE THK	24 mm THK
12	CORROSION ALLOWANCE	6 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
16	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	PARTS AND MATERIALS	
18	ACCESS FITTING	
19	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 6" RUN-PIPE
20	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
21	MATERIAL	ASTM A350 LF2 CL1
22	MOUNTING POSITION	12 O'CLOCK POSITION
23	COVER	
24	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
25	MATERIAL	ASTM A350 LF2 CL1
26	PLUG/PROBE	
27	TYPE	SOLID
28	MATERIAL	ALLOY 825
29	TESTING	
30	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
31	HYDROTEST PRESSURE	NOT APPLICABLE
32	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
33		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION PROBE	
2	TAG No.	SP-XCP-003
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	PROCESS GAS-SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 900/91503
8	DESIGN PRESSURE	153.2 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	8"
11	RUN PIPE THK	SCH 120
12	CORROSION ALLOWANCE	3 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
16	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	PARTS AND MATERIALS	
18	ACCESS FITTING	
19	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 8" RUN-PIPE
20	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
21	MATERIAL	ASTM A350 LF2 CL1
22	MOUNTING POSITION	12 O'CLOCK POSITION
23	COVER	
24	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
25	MATERIAL	ASTM A350 LF2 CL1
26	PLUG/PROBE	
27	TYPE	SOLID
28	MATERIAL	ALLOY 825
29	TESTING	
30	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
31	HYDROTEST PRESSURE	NOT APPLICABLE
32	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
33		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION PROBE	
2	TAG No.	SP-XCP-004
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	OIL CRUDE - SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 1500/151093KS
8	DESIGN PRESSURE	253.3 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	8"
11	RUN PIPE THK	30 mm THK
12	CORROSION ALLOWANCE	6 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
16	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	PARTS AND MATERIALS	
18	ACCESS FITTING	
19	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 8" RUN-PIPE
20	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
21	MATERIAL	ASTM A350 LF2 CL1
22	MOUNTING POSITION	12 O'CLOCK POSITION
23	COVER	
24	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
25	MATERIAL	ASTM A350 LF2 CL1
26	PLUG/PROBE	
27	TYPE	SOLID
28	MATERIAL	ALLOY 825
29	TESTING	
30	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
31	HYDROTEST PRESSURE	NOT APPLICABLE
32	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
33		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION PROBE	
2	TAG No.	SP-XCP-005
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	OIL CRUDE - SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 900/91093KS
8	DESIGN PRESSURE	153.2 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	10"
11	RUN PIPE THK	SCH 140
12	CORROSION ALLOWANCE	6 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
16	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	PARTS AND MATERIALS	
18	ACCESS FITTING	
19	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 10" RUN-PIPE
20	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
21	MATERIAL	ASTM A350 LF2 CL1
22	MOUNTING POSITION	12 O'CLOCK POSITION
23	COVER	
24	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
25	MATERIAL	ASTM A350 LF2 CL1
26	PLUG/PROBE	
27	TYPE	SOLID
28	MATERIAL	ALLOY 825
29	TESTING	
30	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
31	HYDROTEST PRESSURE	NOT APPLICABLE
32	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
33		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION PROBE	
2	TAG No.	SP-XCP-006
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	PROCESS GAS-SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 900/91503
8	DESIGN PRESSURE	153.2 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	10"
11	RUN PIPE THK	SCH 120
12	CORROSION ALLOWANCE	3 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
16	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	PARTS AND MATERIALS	
18	ACCESS FITTING	
19	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 10" RUN-PIPE
20	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
21	MATERIAL	ASTM A350 LF2 CL1
22	MOUNTING POSITION	12 O'CLOCK POSITION
23	COVER	
24	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
25	MATERIAL	ASTM A350 LF2 CL1
26	PLUG/PROBE	
27	TYPE	SOLID
28	MATERIAL	ALLOY 825
29	TESTING	
30	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
31	HYDROTEST PRESSURE	NOT APPLICABLE
32	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
33		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION PROBE	
2	TAG No.	SP-XCP-007
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	OIL CRUDE - SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 1500/151093KS
8	DESIGN PRESSURE	253.3 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	10"
11	RUN PIPE THK	30 mm THK
12	CORROSION ALLOWANCE	6 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
16	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	PARTS AND MATERIALS	
18	ACCESS FITTING	
19	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 10" RUN-PIPE
20	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
21	MATERIAL	ASTM A350 LF2 CL1
22	MOUNTING POSITION	12 O'CLOCK POSITION
23	COVER	
24	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
25	MATERIAL	ASTM A350 LF2 CL1
26	PLUG/PROBE	
27	TYPE	SOLID
28	MATERIAL	ALLOY 825
29	TESTING	
30	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
31	HYDROTEST PRESSURE	NOT APPLICABLE
32	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
33		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION PROBE	
2	TAG No.	SP-XCP-008
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	OIL CRUDE - SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 150/11093KS
8	DESIGN PRESSURE	19.6 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	12"
11	RUN PIPE THK	SCH STD
12	CORROSION ALLOWANCE	6 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
16	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	PARTS AND MATERIALS	
18	ACCESS FITTING	
19	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 12" RUN-PIPE
20	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
21	MATERIAL	ASTM A350 LF2 CL1
22	MOUNTING POSITION	12 O'CLOCK POSITION
23	COVER	
24	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
25	MATERIAL	ASTM A350 LF2 CL1
26	PLUG/PROBE	
27	TYPE	SOLID
28	MATERIAL	ALLOY 825
29	TESTING	
30	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
31	HYDROTEST PRESSURE	NOT APPLICABLE
32	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
33		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION PROBE	
2	TAG No.	SP-XCP-009
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	OIL CRUDE - SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 300/31503
8	DESIGN PRESSURE	51.1 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	12"
11	RUN PIPE THK	SCH 40
12	CORROSION ALLOWANCE	3 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
16	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	PARTS AND MATERIALS	
18	ACCESS FITTING	
19	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 12" RUN-PIPE
20	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
21	MATERIAL	ASTM A350 LF2 CL1
22	MOUNTING POSITION	12 O'CLOCK POSITION
23	COVER	
24	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
25	MATERIAL	ASTM A350 LF2 CL1
26	PLUG/PROBE	
27	TYPE	SOLID
28	MATERIAL	ALLOY 825
29	TESTING	
30	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
31	HYDROTEST PRESSURE	NOT APPLICABLE
32	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
33		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION PROBE	
2	TAG No.	SP-XCP-010
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	OIL CRUDE - SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 1500/151093KS
8	DESIGN PRESSURE	253.3 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	12"
11	RUN PIPE THK	40 mm THK
12	CORROSION ALLOWANCE	6 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
16	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	PARTS AND MATERIALS	
18	ACCESS FITTING	
19	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 12" RUN-PIPE
20	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
21	MATERIAL	ASTM A350 LF2 CL1
22	MOUNTING POSITION	12 O'CLOCK POSITION
23	COVER	
24	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
25	MATERIAL	ASTM A350 LF2 CL1
26	PLUG/PROBE	
27	TYPE	SOLID
28	MATERIAL	ALLOY 825
29	TESTING	
30	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
31	HYDROTEST PRESSURE	NOT APPLICABLE
32	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
33		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION PROBE	
2	TAG No.	SP-XCP-011
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	PROCESS GAS-SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 900/91503
8	DESIGN PRESSURE	153.2 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	14"
11	RUN PIPE THK	SCH 100
12	CORROSION ALLOWANCE	3 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
16	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	PARTS AND MATERIALS	
18	ACCESS FITTING	
19	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 14" RUN-PIPE
20	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
21	MATERIAL	ASTM A350 LF2 CL1
22	MOUNTING POSITION	12 O'CLOCK POSITION
23	COVER	
24	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
25	MATERIAL	ASTM A350 LF2 CL1
26	PLUG/PROBE	
27	TYPE	SOLID
28	MATERIAL	ALLOY 825
29	TESTING	
30	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
31	HYDROTEST PRESSURE	NOT APPLICABLE
32	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
33		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION PROBE	
2	TAG No.	SP-XCP-012
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	OIL CRUDE - SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 1500/151093KS
8	DESIGN PRESSURE	253.3 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	14"
11	RUN PIPE THK	42 mm THK
12	CORROSION ALLOWANCE	6 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
16	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	PARTS AND MATERIALS	
18	ACCESS FITTING	
19	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 14" RUN-PIPE
20	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
21	MATERIAL	ASTM A350 LF2 CL1
22	MOUNTING POSITION	12 O'CLOCK POSITION
23	COVER	
24	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
25	MATERIAL	ASTM A350 LF2 CL1
26	PLUG/PROBE	
27	TYPE	SOLID
28	MATERIAL	ALLOY 825
29	TESTING	
30	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
31	HYDROTEST PRESSURE	NOT APPLICABLE
32	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
33		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION PROBE	
2	TAG No.	SP-XCP-013
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	OIL CRUDE - SOUR/ PROCESS GAS-SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 1500/151093KS
8	DESIGN PRESSURE	253.3 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	16"
11	RUN PIPE THK	48 mm THK
12	CORROSION ALLOWANCE	6 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
16	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	PARTS AND MATERIALS	
18	ACCESS FITTING	
19	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 16" RUN-PIPE
20	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
21	MATERIAL	ASTM A350 LF2 CL1
22	MOUNTING POSITION	12 O'CLOCK POSITION
23	COVER	
24	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
25	MATERIAL	ASTM A350 LF2 CL1
26	PLUG/PROBE	
27	TYPE	SOLID
28	MATERIAL	ALLOY 825
29	TESTING	
30	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
31	HYDROTEST PRESSURE	NOT APPLICABLE
32	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
33		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION PROBE	
2	TAG No.	SP-XCP-014
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	OIL CRUDE - SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 150/11093KS
8	DESIGN PRESSURE	19.6 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	20"
11	RUN PIPE THK	SCH STD
12	CORROSION ALLOWANCE	6 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
16	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	PARTS AND MATERIALS	
18	ACCESS FITTING	
19	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 20" RUN-PIPE
20	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
21	MATERIAL	ASTM A350 LF2 CL1
22	MOUNTING POSITION	12 O'CLOCK POSITION
23	COVER	
24	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
25	MATERIAL	ASTM A350 LF2 CL1
26	PLUG/PROBE	
27	TYPE	SOLID
28	MATERIAL	ALLOY 825
29	TESTING	
30	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
31	HYDROTEST PRESSURE	NOT APPLICABLE
32	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
33		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION PROBE	
2	TAG No.	SP-XCP-015
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	OIL CRUDE - SOUR/ PROCESS GAS-SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 1500/151093KS
8	DESIGN PRESSURE	253.3 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	24"
11	RUN PIPE THK	68 mm THK
12	CORROSION ALLOWANCE	6 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
16	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	PARTS AND MATERIALS	
18	ACCESS FITTING	
19	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 24" RUN-PIPE
20	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
21	MATERIAL	ASTM A350 LF2 CL1
22	MOUNTING POSITION	12 O'CLOCK POSITION
23	COVER	
24	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
25	MATERIAL	ASTM A350 LF2 CL1
26	PLUG/PROBE	
27	TYPE	SOLID
28	MATERIAL	ALLOY 825
29	TESTING	
30	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
31	HYDROTEST PRESSURE	NOT APPLICABLE
32	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
33		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION PROBE	
2	TAG No.	SP-XCP-016
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	WATER TEMPERED (COOLING MED.)
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 150/11432
8	DESIGN PRESSURE	19.6 Barg
9	DESIGN TEMPERATURE	150 Deg C
10	RUN PIPE NB	6"
11	RUN PIPE THK	SCH 40
12	CORROSION ALLOWANCE	3 mm
13	RUN PIPE MATERIAL	ASTM A106 GRADE B, NON-SOUR
14	TRIM MATERIAL	AISI 316
15	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
16	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	PARTS AND MATERIALS	
18	ACCESS FITTING	
19	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 6" RUN-PIPE
20	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
21	MATERIAL	ASTM A105
22	MOUNTING POSITION	12 O'CLOCK POSITION
23	COVER	
24	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
25	MATERIAL	ASTM A105
26	PLUG/PROBE	
27	TYPE	SOLID
28	MATERIAL	AISI 316
29	TESTING	
30	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
31	HYDROTEST PRESSURE	NOT APPLICABLE
32	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
33		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION PROBE	
2	TAG No.	SP-XCP-017
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	WATER TEMPERED (COOLING MED.)
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 300/31432
8	DESIGN PRESSURE	51.1 Barg
9	DESIGN TEMPERATURE	150 Deg C
10	RUN PIPE NB	24"
11	RUN PIPE THK	SCH 40
12	CORROSION ALLOWANCE	3 mm
13	RUN PIPE MATERIAL	ASTM A106 GRADE B, NON-SOUR
14	TRIM MATERIAL	AISI 316
15	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
16	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	PARTS AND MATERIALS	
18	ACCESS FITTING	
19	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 24" RUN-PIPE
20	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
21	MATERIAL	ASTM A105
22	MOUNTING POSITION	12 O'CLOCK POSITION
23	COVER	
24	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
25	MATERIAL	ASTM A105
26	PLUG/PROBE	
27	TYPE	SOLID
28	MATERIAL	AISI 316
29	TESTING	
30	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
31	HYDROTEST PRESSURE	NOT APPLICABLE
32	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
33		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION PROBE	
2	TAG No.	SP-XCP-018
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	PROCESS GAS-SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 150/11503
8	DESIGN PRESSURE	19.6 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	10"
11	RUN PIPE THK	SCH 30
12	CORROSION ALLOWANCE	3 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
16	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	PARTS AND MATERIALS	
18	ACCESS FITTING	
19	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 10" RUN-PIPE
20	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
21	MATERIAL	ASTM A350 LF2 CL1
22	MOUNTING POSITION	12 O'CLOCK POSITION
23	COVER	
24	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
25	MATERIAL	ASTM A350 LF2 CL1
26	PLUG/PROBE	
27	TYPE	SOLID
28	MATERIAL	ALLOY 825
29	TESTING	
30	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
31	HYDROTEST PRESSURE	NOT APPLICABLE
32	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
33		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION PROBE	
2	TAG No.	SP-XCP-019
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	PROCESS GAS-SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 150/11503
8	DESIGN PRESSURE	19.6 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	20"
11	RUN PIPE THK	SCH 20
12	CORROSION ALLOWANCE	3 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
16	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	PARTS AND MATERIALS	
18	ACCESS FITTING	
19	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 20" RUN-PIPE
20	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
21	MATERIAL	ASTM A350 LF2 CL1
22	MOUNTING POSITION	12 O'CLOCK POSITION
23	COVER	
24	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
25	MATERIAL	ASTM A350 LF2 CL1
26	PLUG/PROBE	
27	TYPE	SOLID
28	MATERIAL	ALLOY 825
29	TESTING	
30	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
31	HYDROTEST PRESSURE	NOT APPLICABLE
32	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
33		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION PROBE	
2	TAG No.	SP-XCP-020
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	PROCESS GAS-SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 150/11503
8	DESIGN PRESSURE	19.6 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	24"
11	RUN PIPE THK	SCH 20
12	CORROSION ALLOWANCE	3 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
16	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	PARTS AND MATERIALS	
18	ACCESS FITTING	
19	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 24" RUN-PIPE
20	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
21	MATERIAL	ASTM A350 LF2 CL1
22	MOUNTING POSITION	12 O'CLOCK POSITION
23	COVER	
24	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
25	MATERIAL	ASTM A350 LF2 CL1
26	PLUG/PROBE	
27	TYPE	SOLID
28	MATERIAL	ALLOY 825
29	TESTING	
30	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
31	HYDROTEST PRESSURE	NOT APPLICABLE
32	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
33		

ATTACHMENT 5: CORROSION COUPONS AND PROBES

1	CORROSION PROBE	
2	TAG No.	SP-XCP-021
3	LINE NO./P&ID NO.	REFER ATTACHMENT 1: SP INDEX
4	QTY	REFER ATTACHMENT 1: SP INDEX
5	SERVICE	PROCESS GAS-SOUR
6	DESIGN DATA	
7	PIPING CLASS / SPECIFICATION	CL 150/11503
8	DESIGN PRESSURE	19.6 Barg
9	DESIGN TEMPERATURE	175 Deg C
10	RUN PIPE NB	36"
11	RUN PIPE THK	SCH 20
12	CORROSION ALLOWANCE	3 mm
13	RUN PIPE MATERIAL	ASTM A333 GRADE 6, SOUR
14	TRIM MATERIAL	ALLOY 825
15	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
16	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	PARTS AND MATERIALS	
18	ACCESS FITTING	
19	BODY TYPE	2" ACCESS FITTING FLAREWELD TYPE NON-TEE WELDED DIRECTLY ON 36" RUN-PIPE
20	MONITORING OPTION	TOP MOUNTED - SUITABLE FOR 'BOTTOM OF LINE' CORROSION MEASUREMENT
21	MATERIAL	ASTM A350 LF2 CL1
22	MOUNTING POSITION	12 O'CLOCK POSITION
23	COVER	
24	TYPE	HEAVY DUTY PROTECTIVE COVER WITHOUT HOLE
25	MATERIAL	ASTM A350 LF2 CL1
26	PLUG/PROBE	
27	TYPE	SOLID
28	MATERIAL	ALLOY 825
29	TESTING	
30	MATERIAL CERTIFICATE	BS EN 10204 - 3.1
31	HYDROTEST PRESSURE	NOT APPLICABLE
32	SPECIAL REQUIREMENTS	NACE MR0175 / ISO 15156 (LATEST EDITION), QP-STD-R-001, QP-STD-L-009
33		

ATTACHMENT 6: FLAME ARRESTERS

1	FLAME ARRESTER	
2	PIPING SP DATASHEET	SP-FMA-001
3	TYPE / DESCRIPTION	1/2" Flame arrester / Deflagration type to BS7244 / BS EN ISO 16852 with renewable element. Vertical inline type. (Vent line terminates with 180 deg return bend and bird screen)
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE	GAS VENT (DRY FLARE)
9	DESIGN PRESSURE – BODY	19.6 Barg @ 38 Deg C (ASME B16.5 Class 150 material group 1.1)
10	DESIGN TEMPERATURE – BODY	-50 to 175 Deg C
11	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
12	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	FLOW RATE	Vendor to provide flow curves
14	PRESSURE DROP	Vendor to provide flow curves
15	SPECIFIC GRAVITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	MOL WEIGHT	REFER ATTACHMENT 10: LINE LIST DETAILS
17	FLASH POINT	REFER ATTACHMENT 10: LINE LIST DETAILS
18	EXTERNAL ENVIRONMENT	Offshore marine exposed
19	MECHANICAL DATA OF PROCESS LINE	
20	PIPING CLASS/ PRESSURE RATING	13461 / ASME Class 150
21	PIPING DESIGN PRESSURE (MAX)	19.0 Barg
22	PIPING DESIGN TEMP. (MAX)	160 Deg C
23	CORROSION ALLOWANCE	0 mm
24	DESIGN REQUIREMENTS	
25	DESIGN CODE	ASME B31.3
26	END CONNECTIONS	1/2" ASME B16.5 Flanged WN RF – Sch 160
27	DIMENSIONS	Manufacturers standard
28	FLAME ARRESTER HOUSING	Manufacturers standard
29	FLAME ARRESTER ELEMENT	Manufacturers standard
30	MATERIALS	
31	FITTINGS	ASTM A420-WPL6
32	FLANGES	ASTM A350-LF2 cl 1
33	GASKET	Manufacturers standard
34	BOLTING	ASTM A320-L7M/A194-7M
35	ELEMENT	Manufacturers standard
36		
37	PAINTING	QP-SPC-L-002
38	COLOUR	NOTE 1
39		
40	TESTING	
41	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
42	HYDROTEST PRESSURE	30 Barg
43	SPECIAL REQUIREMENTS	Flame arrester to be installed in the vertical and in accordance with manufacturer's instructions. Pipework length between flame arrester and atmosphere to be within manufacturers set limits.
44		

ATTACHMENT 6: FLAME ARRESTERS

1	FLAME ARRESTER	
2	PIPING SP DATASHEET	SP-FMA-002
3	TYPE / DESCRIPTION	1 1/2" Flame arrester / Deflagration type to BS7244 / BS EN ISO 16852 with renewable element. Vertical inline type. (Vent line terminates with 180 deg return bend and bird screen)
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE	GAS VENT (DRY FLARE)
9	DESIGN PRESSURE – BODY	19.6 Barg @ 38 Deg C (ASME B16.5 Class 150 material group 1.1)
10	DESIGN TEMPERATURE – BODY	-50 to 175 Deg C
11	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
12	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	FLOW RATE	Vendor to provide flow curves
14	PRESSURE DROP	Vendor to provide flow curves
15	SPECIFIC GRAVITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	MOL WEIGHT	REFER ATTACHMENT 10: LINE LIST DETAILS
17	FLASH POINT	REFER ATTACHMENT 10: LINE LIST DETAILS
18	EXTERNAL ENVIRONMENT	Offshore marine exposed
19	MECHANICAL DATA OF PROCESS LINE	
20	PIPING CLASS/ PRESSURE RATING	13461 / ASME Class 150
21	PIPING DESIGN PRESSURE (MAX)	19.0 Barg
22	PIPING DESIGN TEMP. (MAX)	160 Deg C
23	CORROSION ALLOWANCE	0 mm
24	DESIGN REQUIREMENTS	
25	DESIGN CODE	ASME B31.3
26	END CONNECTIONS	1 1/2" ASME B16.5 Flanged WN RF – Sch 160
27	DIMENSIONS	Manufacturers standard
28	FLAME ARRESTER HOUSING	Manufacturers standard
29	FLAME ARRESTER ELEMENT	Manufacturers standard
30	MATERIALS	
31	FITTINGS	ASTM A420-WPL6
32	FLANGES	ASTM A350-LF2 cl 1
33	GASKET	Manufacturers standard
34	BOLTING	ASTM A320-L7M/A194-7M
35	ELEMENT	Manufacturers standard
36		
37	PAINTING	QP-SPC-L-002
38	COLOUR	NOTE 1
39		
40	TESTING	
41	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
42	HYDROTEST PRESSURE	30 Barg
43	SPECIAL REQUIREMENTS	Flame arrestor to be installed in the vertical and in accordance with manufacturer's instructions. Pipework length between flame arrestor and atmosphere to be within manufacturers set limits.
44		

ATTACHMENT 6: FLAME ARRESTERS

1	FLAME ARRESTER	
2	PIPING SP DATASHEET	SP-FMA-003
3	TYPE / DESCRIPTION	2" Flame arrester / Deflagration type to BS7244 / BS EN ISO 16852 with renewable element. Vertical inline type. (Vent line terminates with 180 deg return bend and bird screen)
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE	GAS VENT (DRY FLARE)
9	DESIGN PRESSURE – BODY	19.6 Barg @ 38 Deg C (ASME B16.5 Class 150 material group 1.1)
10	DESIGN TEMPERATURE – BODY	-50 to 175 Deg C
11	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
12	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	FLOW RATE	Vendor to provide flow curves
14	PRESSURE DROP	Vendor to provide flow curves
15	SPECIFIC GRAVITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	MOL WEIGHT	REFER ATTACHMENT 10: LINE LIST DETAILS
17	FLASH POINT	REFER ATTACHMENT 10: LINE LIST DETAILS
18	EXTERNAL ENVIRONMENT	Offshore marine exposed
19	MECHANICAL DATA OF PROCESS LINE	
20	PIPING CLASS/ PRESSURE RATING	13461 / ASME Class 150
21	PIPING DESIGN PRESSURE (MAX)	19.0 Barg
22	PIPING DESIGN TEMP. (MAX)	160 Deg C
23	CORROSION ALLOWANCE	0 mm
24	DESIGN REQUIREMENTS	
25	DESIGN CODE	ASME B31.3
26	END CONNECTIONS	2" ASME B16.5 Flanged WN RF – Sch 160
27	DIMENSIONS	Manufacturers standard
28	FLAME ARRESTER HOUSING	Manufacturers standard
29	FLAME ARRESTER ELEMENT	Manufacturers standard
30	MATERIALS	
31	FITTINGS	ASTM A420-WPL6
32	FLANGES	ASTM A350-LF2 cl 1
33	GASKET	Manufacturers standard
34	BOLTING	ASTM A320-L7M/A194-7M
35	ELEMENT	Manufacturers standard
36		
37	PAINTING	QP-SPC-L-002
38	COLOUR	NOTE 1
39		
40	TESTING	
41	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
42	HYDROTEST PRESSURE	30 Barg
43	SPECIAL REQUIREMENTS	Flame arrester to be installed in the vertical and in accordance with manufacturer's instructions. Pipework length between flame arrester and atmosphere to be within manufacturers set limits.
44		

ATTACHMENT 6: FLAME ARRESTERS

1	FLAME ARRESTER	
2	PIPING SP DATASHEET	SP-FMA-004
3	TYPE / DESCRIPTION	3" Flame arrester / Deflagration type to BS7244 / BS EN ISO 16852 with renewable element. Vertical inline type. (Vent line terminates with 180 deg return bend and bird screen)
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE	GAS VENT (WET FLARE)
9	DESIGN PRESSURE – BODY	20.0 Barg @ 38 Deg C (ASME B16.5 Class 150 material group 3.8)
10	DESIGN TEMPERATURE – BODY	-85 to 200 Deg C
11	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
12	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	FLOW RATE	Vendor to provide flow curves
14	PRESSURE DROP	Vendor to provide flow curves
15	SPECIFIC GRAVITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	MOL WEIGHT	REFER ATTACHMENT 10: LINE LIST DETAILS
17	FLASH POINT	REFER ATTACHMENT 10: LINE LIST DETAILS
18	EXTERNAL ENVIRONMENT	Offshore marine exposed
19	MECHANICAL DATA OF PROCESS LINE	
20	PIPING CLASS/ PRESSURE RATING	16620 / ASME Class 150
21	PIPING DESIGN PRESSURE (MAX)	20.0 Barg
22	PIPING DESIGN TEMP. (MAX)	200 Deg C
23	CORROSION ALLOWANCE	0mm
24	DESIGN REQUIREMENTS	
25	DESIGN CODE	ASME B31.3
26	END CONNECTIONS	3" ASME B16.5 Flanged WN RF – Sch 10S
27	DIMENSIONS	Manufacturers standard
28	FLAME ARRESTER HOUSING	Manufacturers standard
29	FLAME ARRESTER ELEMENT	Manufacturers standard
30	MATERIALS	
31	FITTINGS	ASTM B366-WPNICMC Sch 10S
32	FLANGES	ASTM B564 UNS N08825
33	GASKET	Manufacturers standard
34	BOLTING	ASTM A320-L7M/A194-7M
35	ELEMENT	Manufacturers standard
36		
37	PAINTING	QP-SPC-L-002
38	COLOUR	NOTE 1
39		
40	TESTING	
41	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
42	HYDROTEST PRESSURE	30 Barg
43	SPECIAL REQUIREMENTS	Flame arrestor to be installed in the vertical and in accordance with manufacturer's instructions. Pipework length between flame arrestor and atmosphere to be within manufacturers set limits.
44		

ATTACHMENT 6: FLAME ARRESTERS

1	FLAME ARRESTER	
2	PIPING SP DATASHEET	SP-FMA-005
3	TYPE / DESCRIPTION	8" Flame arrester / Deflagration type to BS7244 / BS EN ISO 16852 with renewable element. Vertical inline type. (Vent line terminates with 180 deg return bend and bird screen)
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE	VENT AIR & NITROGEN
9	DESIGN PRESSURE – BODY	19.6 Barg @ 38 Deg C (ASME B16.5 Class 150 material group 1.1)
10	DESIGN TEMPERATURE – BODY	-29 to 150 Deg C
11	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
12	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	FLOW RATE	Vendor to provide flow curves
14	PRESSURE DROP	Vendor to provide flow curves
15	SPECIFIC GRAVITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	MOL WEIGHT	REFER ATTACHMENT 10: LINE LIST DETAILS
17	FLASH POINT	REFER ATTACHMENT 10: LINE LIST DETAILS
18	EXTERNAL ENVIRONMENT	Offshore marine exposed
19	MECHANICAL DATA OF PROCESS LINE	
20	PIPING CLASS/ PRESSURE RATING	11432 / ASME Class 150
21	PIPING DESIGN PRESSURE (MAX)	19.6 Barg
22	PIPING DESIGN TEMP. (MAX)	150 Deg C
23	CORROSION ALLOWANCE	3 mm
24	DESIGN REQUIREMENTS	
25	DESIGN CODE	ASME B31.3
26	END CONNECTIONS	8" ASME B16.5 Flanged WN RF – Sch 160
27	DIMENSIONS	Manufacturers standard
28	FLAME ARRESTER HOUSING	Manufacturers standard
29	FLAME ARRESTER ELEMENT	Manufacturers standard
30	MATERIALS	
31	FITTINGS	ASTM A234-WPB
32	FLANGES	ASTMA105
33	GASKET	Manufacturers standard
34	BOLTING	ASTM A193-B7/A194-2H
35	ELEMENT	Manufacturers standard
36		
37	PAINTING	QP-SPC-L-002
38	COLOUR	NOTE 1
39		
40	TESTING	
41	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
42	HYDROTEST PRESSURE	30 Barg
43	SPECIAL REQUIREMENTS	Flame arrester to be installed in the vertical and in accordance with manufacturer's instructions. Pipework length between flame arrester and atmosphere to be within manufacturers set limits.
44		

ATTACHMENT 7: FLEXIBLE HOSES AND CONNECTIONS

1	HOSE CONNECTION	
2	TAG No.	SP-HSC-001
3	LINE NO.	REFER ATTACHMENT 1: SP INDEX
4	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
5	QTY	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	NITROGEN GAS
8	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	LINE SIZE	1"
11	SOUR SERVICE	Non Sour
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	11432 / Class 150
14	PIPING DESIGN PRESSURE (MAX)	19.6 Barg
15	PIPING DESIGN TEMP. (MAX)	150 Deg C
16	CORROSION ALLOWANCE	3mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	MANUFACTURER'S STANDARD
19	END CONNECTIONS	NOTE 1
20	SIZE / THICKNESS	NOTE 1
21	MATERIALS	
22	CONNECTION	NOTE 1
23	DUST CAP	NOTE 1
24		
25	MODEL	NOTE 1
26		
27	MATERIAL CERTIFICATE	BS-EN-10204 3.1 FOR PRESSURE CONTAINING
28		
29	TYPE OF CONNECTION	NOTE 1
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31	COLOUR	NOTE 1
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ATTACHMENT 7: FLEXIBLE HOSES AND CONNECTIONS

1	HOSE CONNECTION	
2	TAG No.	SP-HSC-002
3	LINE NO.	REFER ATTACHMENT 1: SP INDEX
4	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
5	QTY	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	NITROGEN GAS
8	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	LINE SIZE	1"
11	SOUR SERVICE	Sour
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	11503 / Class 150
14	PIPING DESIGN PRESSURE (MAX)	19.6 Barg
15	PIPING DESIGN TEMP. (MAX)	175 Deg C
16	CORROSION ALLOWANCE	3mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	MANUFACTURER'S STANDARD
19	END CONNECTIONS	NOTE 1
20	SIZE / THICKNESS	NOTE 1
21	MATERIALS	
22	CONNECTION	NOTE 1
23	DUST CAP	NOTE 1
24		
25	MODEL	NOTE 1
26		
27	MATERIAL CERTIFICATE	BS-EN-10204 3.1 FOR PRESSURE CONTAINING
28		
29	TYPE OF CONNECTION	NOTE 1
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31	COLOUR	NOTE 1
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ATTACHMENT 7: FLEXIBLE HOSES AND CONNECTIONS

1	HOSE CONNECTION	
2	TAG No.	SP-HSC-003
3	LINE NO.	REFER ATTACHMENT 1: SP INDEX
4	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
5	QTY	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	NITROGEN GAS
8	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	LINE SIZE	1"
11	SOUR SERVICE	Sour
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	11441 / Class 150
14	PIPING DESIGN PRESSURE (MAX)	19.6 Barg
15	PIPING DESIGN TEMP. (MAX)	110 Deg C
16	CORROSION ALLOWANCE	3mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	MANUFACTURER'S STANDARD
19	END CONNECTIONS	NOTE 1
20	SIZE / THICKNESS	NOTE 1
21	MATERIALS	
22	CONNECTION	NOTE 1
23	DUST CAP	NOTE 1
24		
25	MODEL	NOTE 1
26		
27	MATERIAL CERTIFICATE	BS-EN-10204 3.1 FOR PRESSURE CONTAINING
28		
29	TYPE OF CONNECTION	NOTE 1
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31	COLOUR	NOTE 1
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ATTACHMENT 7: FLEXIBLE HOSES AND CONNECTIONS

1	HOSE CONNECTION	
2	TAG No.	SP-HSC-004
3	LINE NO.	REFER ATTACHMENT 1: SP INDEX
4	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
5	QTY	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	NITROGEN GAS, OPEN DRAIN
8	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	LINE SIZE	2"
11	SOUR SERVICE	Non Sour
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	11432 / Class 150
14	PIPING DESIGN PRESSURE (MAX)	19.6 Barg
15	PIPING DESIGN TEMP. (MAX)	150 Deg C
16	CORROSION ALLOWANCE	3mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	MANUFACTURER'S STANDARD
19	END CONNECTIONS	NOTE 1
20	SIZE / THICKNESS	NOTE 1
21	MATERIALS	
22	CONNECTION	NOTE 1
23	DUST CAP	NOTE 1
24		
25	MODEL	NOTE 1
26		
27	MATERIAL CERTIFICATE	BS-EN-10204 3.1 FOR PRESSURE CONTAINING
28		
29	TYPE OF CONNECTION	NOTE 1
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31	COLOUR	NOTE 1
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ATTACHMENT 7: FLEXIBLE HOSES AND CONNECTIONS

1	HOSE CONNECTION	
2	TAG No.	SP-HSC-005
3	LINE NO.	REFER ATTACHMENT 1: SP INDEX
4	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
5	QTY	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	OIL DRAIN
8	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	LINE SIZE	2"
11	SOUR SERVICE	Sour
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	11441 / Class 150
14	PIPING DESIGN PRESSURE (MAX)	19.6 Barg
15	PIPING DESIGN TEMP. (MAX)	110 Deg C
16	CORROSION ALLOWANCE	3mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	MANUFACTURER'S STANDARD
19	END CONNECTIONS	NOTE 1
20	SIZE / THICKNESS	NOTE 1
21	MATERIALS	
22	CONNECTION	NOTE 1
23	DUST CAP	NOTE 1
24		
25	MODEL	NOTE 1
26		
27	MATERIAL CERTIFICATE	BS-EN-10204 3.1 FOR PRESSURE CONTAINING
28		
29	TYPE OF CONNECTION	NOTE 1
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31	COLOUR	NOTE 1
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ATTACHMENT 7: FLEXIBLE HOSES AND CONNECTIONS

1	HOSE CONNECTION	
2	TAG No.	SP-HSC-006
3	LINE NO.	REFER ATTACHMENT 1: SP INDEX
4	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
5	QTY	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	OPEN DRAIN
8	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	LINE SIZE	2"
11	SOUR SERVICE	Non Sour
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	17320 / Class 150
14	PIPING DESIGN PRESSURE (MAX)	20 Barg
15	PIPING DESIGN TEMP. (MAX)	85 Deg C
16	CORROSION ALLOWANCE	0mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	MANUFACTURER'S STANDARD
19	END CONNECTIONS	NOTE 1
20	SIZE / THICKNESS	NOTE 1
21	MATERIALS	
22	CONNECTION	NOTE 1
23	DUST CAP	NOTE 1
24		
25	MODEL	NOTE 1
26		
27	MATERIAL CERTIFICATE	BS-EN-10204 3.1 FOR PRESSURE CONTAINING
28		
29	TYPE OF CONNECTION	NOTE 1
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31	COLOUR	NOTE 1
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ATTACHMENT 7: FLEXIBLE HOSES AND CONNECTIONS

1	HOSE CONNECTION	
2	TAG No.	SP-HSC-007
3	LINE NO.	REFER ATTACHMENT 1: SP INDEX
4	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
5	QTY	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	INSTRUMENT AIR
8	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	LINE SIZE	2"
11	SOUR SERVICE	Non Sour
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	18011 / Class 150
14	PIPING DESIGN PRESSURE (MAX)	19.6 Barg
15	PIPING DESIGN TEMP. (MAX)	85 Deg C
16	CORROSION ALLOWANCE	0mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	MANUFACTURER'S STANDARD
19	END CONNECTIONS	NOTE 1
20	SIZE / THICKNESS	NOTE 1
21	MATERIALS	
22	CONNECTION	NOTE 1
23	DUST CAP	NOTE 1
24		
25	MODEL	NOTE 1
26		
27	MATERIAL CERTIFICATE	BS-EN-10204 3.1 FOR PRESSURE CONTAINING
28		
29	TYPE OF CONNECTION	NOTE 1
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31	COLOUR	NOTE 1
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ATTACHMENT 7: FLEXIBLE HOSES AND CONNECTIONS

1	HOSE CONNECTION	
2	TAG No.	SP-HSC-008
3	LINE NO.	REFER ATTACHMENT 1: SP INDEX
4	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
5	QTY	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	CLOSED DRAIN
8	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	LINE SIZE	2"
11	SOUR SERVICE	Sour
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	151503 / Class 1500
14	PIPING DESIGN PRESSURE (MAX)	255.3 Barg
15	PIPING DESIGN TEMP. (MAX)	175 Deg C
16	CORROSION ALLOWANCE	3mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	MANUFACTURER'S STANDARD
19	END CONNECTIONS	NOTE 1
20	SIZE / THICKNESS	NOTE 1
21	MATERIALS	
22	CONNECTION	NOTE 1
23	DUST CAP	NOTE 1
24		
25	MODEL	NOTE 1
26		
27	MATERIAL CERTIFICATE	BS-EN-10204 3.1 FOR PRESSURE CONTAINING
28		
29	TYPE OF CONNECTION	NOTE 1
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31	COLOUR	NOTE 1
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ATTACHMENT 7: FLEXIBLE HOSES AND CONNECTIONS

1	HOSE CONNECTION	
2	TAG No.	SP-HSC-009
3	LINE NO.	REFER ATTACHMENT 1: SP INDEX
4	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
5	QTY	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	NITROGEN GAS
8	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	LINE SIZE	2"
11	SOUR SERVICE	Sour
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	153461 / Class 1500
14	PIPING DESIGN PRESSURE (MAX)	248.2 Barg
15	PIPING DESIGN TEMP. (MAX)	160 Deg C
16	CORROSION ALLOWANCE	3mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	MANUFACTURER'S STANDARD
19	END CONNECTIONS	NOTE 1
20	SIZE / THICKNESS	NOTE 1
21	MATERIALS	
22	CONNECTION	NOTE 1
23	DUST CAP	NOTE 1
24		
25	MODEL	NOTE 1
26		
27	MATERIAL CERTIFICATE	BS-EN-10204 3.1 FOR PRESSURE CONTAINING
28		
29	TYPE OF CONNECTION	NOTE 1
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31	COLOUR	NOTE 1
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ATTACHMENT 7: FLEXIBLE HOSES AND CONNECTIONS

1	HOSE CONNECTION	
2	TAG No.	SP-HSC-010
3	LINE NO.	REFER ATTACHMENT 1: SP INDEX
4	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
5	QTY	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	RAW WATER
8	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	LINE SIZE	3"
11	SOUR SERVICE	Non Sour
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	17320 / Class 150
14	PIPING DESIGN PRESSURE (MAX)	20 Barg
15	PIPING DESIGN TEMP. (MAX)	85 Deg C
16	CORROSION ALLOWANCE	0 mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	MANUFACTURER'S STANDARD
19	END CONNECTIONS	NOTE 1
20	SIZE / THICKNESS	NOTE 1
21	MATERIALS	
22	CONNECTION	NOTE 1
23	DUST CAP	NOTE 1
24		
25	MODEL	NOTE 1
26		
27	MATERIAL CERTIFICATE	BS-EN-10204 3.1 FOR PRESSURE CONTAINING
28		
29	TYPE OF CONNECTION	NOTE 1
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31	COLOUR	NOTE 1
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ATTACHMENT 7: FLEXIBLE HOSES AND CONNECTIONS

1	HOSE CONNECTION	
2	TAG No.	SP-HSC-011
3	LINE NO.	REFER ATTACHMENT 1: SP INDEX
4	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
5	QTY	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	OIL DRAIN
8	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	LINE SIZE	4"
11	SOUR SERVICE	Sour
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	11441 / Class 150
14	PIPING DESIGN PRESSURE (MAX)	19.6 Barg
15	PIPING DESIGN TEMP. (MAX)	110 Deg C
16	CORROSION ALLOWANCE	3mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	MANUFACTURER'S STANDARD
19	END CONNECTIONS	NOTE 1
20	SIZE / THICKNESS	NOTE 1
21	MATERIALS	
22	CONNECTION	NOTE 1
23	DUST CAP	NOTE 1
24		
25	MODEL	NOTE 1
26		
27	MATERIAL CERTIFICATE	BS-EN-10204 3.1 FOR PRESSURE CONTAINING
28		
29	TYPE OF CONNECTION	NOTE 1
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31	COLOUR	NOTE 1
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ATTACHMENT 7: FLEXIBLE HOSES AND CONNECTIONS

1	MECHANICAL COUPLING	
2	TAG No.	SP-HSC-012
3	LINE NO.	REFER ATTACHMENT 1: SP INDEX
4	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
5	QTY	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	OIL DRAIN
8	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	LINE SIZE	3"
11	SOUR SERVICE	Sour
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	11441 / Class 150
14	PIPING DESIGN PRESSURE (MAX)	19.6 Barg
15	PIPING DESIGN TEMP. (MAX)	110 Deg C
16	CORROSION ALLOWANCE	3mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	MANUFACTURER'S STANDARD
19	END CONNECTIONS	NOTE 1
20	SIZE / THICKNESS	NOTE 1
21	MATERIALS	
22	CONNECTION	NOTE 1
23	DUST CAP	NOTE 1
24		
25	MODEL	NOTE 1
26		
27	MATERIAL CERTIFICATE	BS-EN-10204 3.1 FOR PRESSURE CONTAINING
28		
29	TYPE OF CONNECTION	NOTE 1
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31	COLOUR	NOTE 1
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ATTACHMENT 7: FLEXIBLE HOSES AND CONNECTIONS

1	MECHANICAL COUPLING	
2	TAG No.	SP-HSC-013
3	LINE NO.	REFER ATTACHMENT 1: SP INDEX
4	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
5	QTY	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	DIESEL FUEL, UTILITY WATER
8	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	LINE SIZE	4"
11	SOUR SERVICE	Non Sour
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	11432 / Class 150
14	PIPING DESIGN PRESSURE (MAX)	19.6 Barg
15	PIPING DESIGN TEMP. (MAX)	150 Deg C
16	CORROSION ALLOWANCE	3mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	MANUFACTURER'S STANDARD
19	END CONNECTIONS	NOTE 1
20	SIZE / THICKNESS	NOTE 1
21	MATERIALS	
22	CONNECTION	NOTE 1
23	DUST CAP	NOTE 1
24		
25	MODEL	NOTE 1
26		
27	MATERIAL CERTIFICATE	BS-EN-10204 3.1 FOR PRESSURE CONTAINING
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29	TYPE OF CONNECTION	NOTE 1
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31	COLOUR	NOTE 1
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ATTACHMENT 7: FLEXIBLE HOSES AND CONNECTIONS

1	MECHANICAL COUPLING FEMALE	
2	TAG No.	SP-HSC-014
3	LINE NO.	REFER ATTACHMENT 1: SP INDEX
4	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
5	QTY	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	DIESEL FUEL, UTILITY WATER
8	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	LINE SIZE	4"
11	SOUR SERVICE	Non Sour
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	11432 / Class 150
14	PIPING DESIGN PRESSURE (MAX)	19.6 Barg
15	PIPING DESIGN TEMP. (MAX)	150 Deg C
16	CORROSION ALLOWANCE	3mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	MANUFACTURER'S STANDARD
19	END CONNECTIONS	NOTE 1
20	SIZE / THICKNESS	NOTE 1
21	MATERIALS	
22	CONNECTION	NOTE 1
23	DUST CAP	NOTE 1
24		
25	MODEL	NOTE 1
26		
27	MATERIAL CERTIFICATE	BS-EN-10204 3.1 FOR PRESSURE CONTAINING
28		
29	TYPE OF CONNECTION	NOTE 1
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31	COLOUR	NOTE 1
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ATTACHMENT 7: FLEXIBLE HOSES AND CONNECTIONS

1	MECHANICAL COUPLING MALE	
2	TAG No.	SP-HSC-015
3	LINE NO.	REFER ATTACHMENT 1: SP INDEX
4	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
5	QTY	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	OIL DRAIN
8	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	LINE SIZE	3"
11	SOUR SERVICE	Sour
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	14411 / Class 150
14	PIPING DESIGN PRESSURE (MAX)	19.6 Barg
15	PIPING DESIGN TEMP. (MAX)	110 Deg C
16	CORROSION ALLOWANCE	3mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	MANUFACTURER'S STANDARD
19	END CONNECTIONS	NOTE 1
20	SIZE / THICKNESS	NOTE 1
21	MATERIALS	
22	CONNECTION	NOTE 1
23	DUST CAP	NOTE 1
24		
25	MODEL	NOTE 1
26		
27	MATERIAL CERTIFICATE	BS-EN-10204 3.1 FOR PRESSURE CONTAINING
28		
29	TYPE OF CONNECTION	NOTE 1
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31	COLOUR	NOTE 1
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ATTACHMENT 7: FLEXIBLE HOSES AND CONNECTIONS

1	HOSE CONNECTION	
2	TAG No.	SP-HSC-016
3	LINE NO.	REFER ATTACHMENT 1: SP INDEX
4	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
5	QTY	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	NITROGEN GAS
8	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	LINE SIZE	1"
11	SOUR SERVICE	Sour
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	151503 / Class 1500
14	PIPING DESIGN PRESSURE (MAX)	255.3 Barg
15	PIPING DESIGN TEMP. (MAX)	175 Deg C
16	CORROSION ALLOWANCE	3mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	MANUFACTURER'S STANDARD
19	END CONNECTIONS	NOTE 1
20	SIZE / THICKNESS	NOTE 1
21	MATERIALS	
22	CONNECTION	NOTE 1
23	DUST CAP	NOTE 1
24		
25	MODEL	NOTE 1
26		
27	MATERIAL CERTIFICATE	BS-EN-10204 3.1 FOR PRESSURE CONTAINING
28		
29	TYPE OF CONNECTION	NOTE 1
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31	COLOUR	NOTE 1
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ATTACHMENT 7: FLEXIBLE HOSES AND CONNECTIONS

1	HOSE CONNECTION	
2	TAG No.	SP-HSC-017
3	LINE NO.	REFER ATTACHMENT 1: SP INDEX
4	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
5	QTY	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	NITROGEN GAS
8	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	LINE SIZE	1"
11	SOUR SERVICE	Sour
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	61503 / Class 600
14	PIPING DESIGN PRESSURE (MAX)	102.1 Barg
15	PIPING DESIGN TEMP. (MAX)	175 Deg C
16	CORROSION ALLOWANCE	3mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	MANUFACTURER'S STANDARD
19	END CONNECTIONS	NOTE 1
20	SIZE / THICKNESS	NOTE 1
21	MATERIALS	
22	CONNECTION	NOTE 1
23	DUST CAP	NOTE 1
24		
25	MODEL	NOTE 1
26		
27	MATERIAL CERTIFICATE	BS-EN-10204 3.1 FOR PRESSURE CONTAINING
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29	TYPE OF CONNECTION	NOTE 1
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31	COLOUR	NOTE 1
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ATTACHMENT 7: FLEXIBLE HOSES AND CONNECTIONS

1	HOSE CONNECTION	
2	TAG No.	SP-HSC-018
3	LINE NO.	REFER ATTACHMENT 1: SP INDEX
4	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
5	QTY	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	NITROGEN, PROCESS GAS, GAS CONDENSATE
8	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	LINE SIZE	1"
11	SOUR SERVICE	Sour
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	91503 / Class 1500
14	PIPING DESIGN PRESSURE (MAX)	255.3 Barg
15	PIPING DESIGN TEMP. (MAX)	175 Deg C
16	CORROSION ALLOWANCE	3mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	MANUFACTURER'S STANDARD
19	END CONNECTIONS	NOTE 1
20	SIZE / THICKNESS	NOTE 1
21	MATERIALS	
22	CONNECTION	NOTE 1
23	DUST CAP	NOTE 1
24		
25	MODEL	NOTE 1
26		
27	MATERIAL CERTIFICATE	BS-EN-10204 3.1 FOR PRESSURE CONTAINING
28		
29	TYPE OF CONNECTION	NOTE 1
30		
31	COLOUR	NOTE 1
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ATTACHMENT 7: FLEXIBLE HOSES AND CONNECTIONS

1	MECHANICAL COUPLING	
2	TAG No.	SP-HSC-019
3	LINE NO.	REFER ATTACHMENT 1: SP INDEX
4	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
5	QTY	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	OIL DRAIN/OPEN DRAIN
8	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	LINE SIZE	3"
11	SOUR SERVICE	Non-Sour
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	17320 / Class 150
14	PIPING DESIGN PRESSURE (MAX)	20 Barg
15	PIPING DESIGN TEMP. (MAX)	85 Deg C
16	CORROSION ALLOWANCE	0 mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	MANUFACTURER'S STANDARD
19	END CONNECTIONS	NOTE 1
20	SIZE / THICKNESS	NOTE 1
21	MATERIALS	
22	CONNECTION	NOTE 1
23	DUST CAP	NOTE 1
24		
25	MODEL	NOTE 1
26		
27	MATERIAL CERTIFICATE	BS-EN-10204 3.1 FOR PRESSURE CONTAINING
28		
29	TYPE OF CONNECTION	NOTE 1
30		
31	COLOUR	NOTE 1
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ATTACHMENT 7: FLEXIBLE HOSES AND CONNECTIONS

1	MECHANICAL COUPLING MALE	
2	TAG No.	SP-HSC-020
3	LINE NO.	REFER ATTACHMENT 1: SP INDEX
4	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
5	QTY	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	OIL DRAIN / OIL DRAIN
8	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	LINE SIZE	3"
11	SOUR SERVICE	Non-Sour
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	17320 / Class 150
14	PIPING DESIGN PRESSURE (MAX)	20 Barg
15	PIPING DESIGN TEMP. (MAX)	85 Deg C
16	CORROSION ALLOWANCE	0 mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	MANUFACTURER'S STANDARD
19	END CONNECTIONS	NOTE 1
20	SIZE / THICKNESS	NOTE 1
21	MATERIALS	
22	CONNECTION	NOTE 1
23	DUST CAP	NOTE 1
24		
25	MODEL	NOTE 1
26		
27	MATERIAL CERTIFICATE	BS-EN-10204 3.1 FOR PRESSURE CONTAINING
28		
29	TYPE OF CONNECTION	NOTE 1
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31	COLOUR	NOTE 1
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ATTACHMENT 7: FLEXIBLE HOSES AND CONNECTIONS

1	HOSE CONNECTION	
2	TAG No.	SP-HSC-021
3	LINE NO.	REFER ATTACHMENT 1: SP INDEX
4	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
5	QTY	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	PROCESS GAS
8	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	LINE SIZE	1"
11	SOUR SERVICE	Sour
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	16620 / Class 150
14	PIPING DESIGN PRESSURE (MAX)	20 Barg
15	PIPING DESIGN TEMP. (MAX)	175 Deg C
16	CORROSION ALLOWANCE	3mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	MANUFACTURER'S STANDARD
19	END CONNECTIONS	NOTE 1
20	SIZE / THICKNESS	NOTE 1
21	MATERIALS	
22	CONNECTION	NOTE 1
23	DUST CAP	NOTE 1
24		
25	MODEL	NOTE 1
26		
27	MATERIAL CERTIFICATE	BS-EN-10204 3.1 FOR PRESSURE CONTAINING
28		
29	TYPE OF CONNECTION	NOTE 1
30		
31	COLOUR	NOTE 1
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ATTACHMENT 7: FLEXIBLE HOSES AND CONNECTIONS

1	FLEXIBLE HOSE	
2	TAG No.	SP-FLX-001
3	LINE NO.	REFER ATTACHMENT 1: SP INDEX
4	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
5	QTY	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	CHEMICAL GLYCOL
8	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	LINE SIZE	1½"
11	SOUR SERVICE	Non Sour
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	13461 / Class 150
14	PIPING DESIGN PRESSURE (MAX)	19 Barg
15	PIPING DESIGN TEMP. (MAX)	160 Deg C
16	CORROSION ALLOWANCE	3mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	MANUFACTURER'S STANDARD
19	END CONNECTIONS	NOTE 1
20	SIZE / THICKNESS	NOTE 1
21	MATERIALS	
22	CONNECTION	NOTE 1
23	DUST CAP	NOTE 1
24		
25	MODEL	NOTE 1
26		
27	MATERIAL CERTIFICATE	BS-EN-10204 3.1 FOR PRESSURE CONTAINING
28		
29	TYPE OF CONNECTION	NOTE 1
30		
31	COLOUR	NOTE 1
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ATTACHMENT 7: FLEXIBLE HOSES AND CONNECTIONS

1	FLEXIBLE HOSE	
2	TAG No.	SP-FLX-002
3	LINE NO.	REFER ATTACHMENT 1: SP INDEX
4	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
5	QTY	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	CHEMICAL INJECTION
8	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	LINE SIZE	1½"
11	SOUR SERVICE	Sour
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	13461 / Class 150
14	PIPING DESIGN PRESSURE (MAX)	19 Barg
15	PIPING DESIGN TEMP. (MAX)	160 Deg C
16	CORROSION ALLOWANCE	0mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	MANUFACTURER'S STANDARD
19	END CONNECTIONS	NOTE 1
20	SIZE / THICKNESS	NOTE 1
21	MATERIALS	
22	CONNECTION	NOTE 1
23	DUST CAP	NOTE 1
24		
25	MODEL	NOTE 1
26		
27	MATERIAL CERTIFICATE	BS-EN-10204 3.1 FOR PRESSURE CONTAINING
28		
29	TYPE OF CONNECTION	NOTE 1
30		
31	COLOUR	NOTE 1
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ATTACHMENT 7: FLEXIBLE HOSES AND CONNECTIONS

1	FLEXIBLE HOSE	
2	TAG No.	SP-FLX-003
3	LINE NO.	REFER ATTACHMENT 1: SP INDEX
4	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
5	QTY	REFER ATTACHMENT 1: SP INDEX
6	PROCESS DATA OF PROCESS LINE	
7	SERVICE	OPEN DRAIN
8	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
9	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	LINE SIZE	3"
11	SOUR SERVICE	Non-Sour
12	MECHANICAL DATA OF PROCESS LINE	
13	PIPING CLASS/ PRESSURE RATING	17320 / Class 150
14	PIPING DESIGN PRESSURE (MAX)	20 Barg
15	PIPING DESIGN TEMP. (MAX)	85 Deg C
16	CORROSION ALLOWANCE	0mm
17	DESIGN REQUIREMENTS	
18	DESIGN CODE	MANUFACTURER'S STANDARD
19	END CONNECTIONS	NOTE 1
20	SIZE / THICKNESS	NOTE 1
21	MATERIALS	
22	CONNECTION	NOTE 1
23	DUST CAP	NOTE 1
24		
25	MODEL	NOTE 1
26		
27	MATERIAL CERTIFICATE	BS-EN-10204 3.1 FOR PRESSURE CONTAINING
28		
29	TYPE OF CONNECTION	NOTE 1
30		
31	COLOUR	NOTE 1
32		
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ATTACHMENT 8: STRAINERS

1	STRAINER	
2	PIPING SP DATASHEET	SP-STR-001
3	TYPE / DESCRIPTION	Permanent Y-type strainer
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE	Water tempered or treated / Diesel fuel
9	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
11	LINE SIZE	3"
12	MAXIMUM PARTICLE SIZE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
14	FLUID SPECIFIC GRAVITY	REFER ATTACHMENT 10: LINE LIST DETAILS
15	FLUID VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	MECHANICAL DATA OF PROCESS LINE	
18	PIPING CLASS/ PRESSURE RATING	11432 / ASME Class 150
19	PIPING DESIGN PRESSURE (MAX)	19.6 Barg @ 38 Deg C (ASME B16.5 Class 150 material group 1.1)
20	PIPING DESIGN TEMP. (MAX)	150 Deg C
21	CORROSION ALLOWANCE	3 mm
22	DESIGN REQUIREMENTS	
23	DESIGN CODE	ASME B31.3
24	END CONNECTIONS	RF Flanged ends
25	SIZE / THICKNESS	3" Sch 80
26	MATERIALS	
27	BODY	ASTM A105
28	FLANGE / COVER	ASTM A105
29	STRAINER ELEMENT	AISI 316
30	GASKET	AISI 316, Graphite CS center ring / SS inner ring
31	BOLTING	ASTM A193-B7 / A194-2H
32	DIMENSIONS	MANUFACTURER'S STANDARD
33		
34	PAINTING	QP-SPC-L-002
35	COLOUR	NOTE 1
36		
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	30 Barg
41	SPECIAL REQUIREMENTS	
42		

ATTACHMENT 8: STRAINERS

1	STRAINER	
2	PIPING SP DATASHEET	SP-STR-002
3	TYPE / DESCRIPTION	Permanent Y-type strainer
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE	OIL DRAIN
9	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
11	LINE SIZE	3"
12	MAXIMUM PARTICLE SIZE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
14	FLUID SPECIFIC GRAVITY	REFER ATTACHMENT 10: LINE LIST DETAILS
15	FLUID VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	MECHANICAL DATA OF PROCESS LINE	
18	PIPING CLASS/ PRESSURE RATING	11441 / ASME Class 150
19	PIPING DESIGN PRESSURE (MAX)	19.6 Barg @ 38 Deg C (ASME B16.5 Class 150 material group 1.1)
20	PIPING DESIGN TEMP. (MAX)	110 Deg C
21	CORROSION ALLOWANCE	3 mm
22	DESIGN REQUIREMENTS	
23	DESIGN CODE	ASME B31.3
24	END CONNECTIONS	RF Flanged ends
25	SIZE / THICKNESS	3" Sch 80
26	MATERIALS	
27	BODY	ASTM A105
28	FLANGE / COVER	ASTM A105
29	STRAINER ELEMENT	AISI 316
30	GASKET	AISI 316, Graphite CS center ring / SS inner ring
31	BOLTING	ASTM A193-B7 / A194-2H
32	DIMENSIONS	MANUFACTURER'S STANDARD
33		
34	PAINTING	QP-SPC-L-002
35	COLOUR	NOTE 1
36		
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	30 Barg
41	SPECIAL REQUIREMENTS	
42		

ATTACHMENT 8: STRAINERS

1	STRAINER	
2	PIPING SP DATASHEET	SP-STR-003
3	TYPE / DESCRIPTION	Permanent Y-type strainer
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE	CLOSED DRAIN
9	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
11	LINE SIZE	3"
12	MAXIMUM PARTICLE SIZE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
14	FLUID SPECIFIC GRAVITY	REFER ATTACHMENT 10: LINE LIST DETAILS
15	FLUID VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	MECHANICAL DATA OF PROCESS LINE	
18	PIPING CLASS/ PRESSURE RATING	13844 / ASME Class 150
19	PIPING DESIGN PRESSURE (MAX)	19.6 Barg @ 38 Deg C (ASME B16.5 Class 150 material group 2.8)
20	PIPING DESIGN TEMP. (MAX)	100 Deg C
21	CORROSION ALLOWANCE	0 mm
22	DESIGN REQUIREMENTS	
23	DESIGN CODE	ASME B31.3
24	END CONNECTIONS	RF Flanged ends
25	SIZE / THICKNESS	3" Sch 10S
26	MATERIALS	
27	BODY	ASTM A182-F55
28	FLANGE / COVER	ASTM A182-F55
29	STRAINER ELEMENT	AISI 316
30	GASKET	6Mo, Graphite CS center ring / 6Mo inner ring
31	BOLTING	ASTM A193-B7 / A194-2H
32	DIMENSIONS	MANUFACTURER'S STANDARD
33		
34	PAINTING	QP-SPC-L-002
35	COLOUR	NOTE 1
36		
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	30 Barg
41	SPECIAL REQUIREMENTS	
42		

ATTACHMENT 8: STRAINERS

1	STRAINER	
2	PIPING SP DATASHEET	SP-STR-004
3	TYPE / DESCRIPTION	Permanent Y-type strainer
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE	WATER POTABLE (HOT OR COLD)
9	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
11	LINE SIZE	3"
12	MAXIMUM PARTICLE SIZE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
14	FLUID SPECIFIC GRAVITY	REFER ATTACHMENT 10: LINE LIST DETAILS
15	FLUID VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	MECHANICAL DATA OF PROCESS LINE	
18	PIPING CLASS/ PRESSURE RATING	17012 / ASME Class 150
19	PIPING DESIGN PRESSURE (MAX)	20 Barg @ 38 Deg C
20	PIPING DESIGN TEMP. (MAX)	85 Deg C
21	CORROSION ALLOWANCE	0 mm
22	DESIGN REQUIREMENTS	
23	DESIGN CODE	ASME B31.3
24	END CONNECTIONS	RF Flanged ends
25	SIZE / THICKNESS	3" / NOTE 2
26	MATERIALS	
27	BODY	ASTM B148-UNS C95800
28	FLANGE / COVER	ASTM B148-UNS C95800
29	STRAINER ELEMENT	Ni Al Bronze
30	GASKET	Ethylene propylene rubber (EPDM) hardness 70+/-5 shore A
31	BOLTING	ASTM A193-B7 / A194-2H
32	DIMENSIONS	MANUFACTURER'S STANDARD
33		
34	PAINTING	QP-SPC-L-002
35	COLOUR	NOTE 1
36		
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	30 Barg
41	SPECIAL REQUIREMENTS	
42		

ATTACHMENT 8: STRAINERS

1	STRAINER	
2	PIPING SP DATASHEET	SP-STR-005
3	TYPE / DESCRIPTION	Permanent Y-type strainer
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE	WATER POTABLE (HOT OR COLD)
9	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
11	LINE SIZE	3"
12	MAXIMUM PARTICLE SIZE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
14	FLUID SPECIFIC GRAVITY	REFER ATTACHMENT 10: LINE LIST DETAILS
15	FLUID VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	MECHANICAL DATA OF PROCESS LINE	
18	PIPING CLASS/ PRESSURE RATING	17320 / ASME Class 150
19	PIPING DESIGN PRESSURE (MAX)	20 Barg @ 38 Deg C
20	PIPING DESIGN TEMP. (MAX)	85 Deg C
21	CORROSION ALLOWANCE	0 mm
22	DESIGN REQUIREMENTS	
23	DESIGN CODE	ASME B31.3
24	END CONNECTIONS	RF Flanged ends
25	SIZE / THICKNESS	3" / NOTE 2
26	MATERIALS	
27	BODY	ASTM B148-UNS C95800
28	FLANGE / COVER	ASTM B148-UNS C95800
29	STRAINER ELEMENT	AISI 316
30	GASKET	Ethylene propylene rubber (EPDM) hardness 70+/-5 shore A
31	BOLTING	ASTM A193-B7 / A194-2H
32	DIMENSIONS	MANUFACTURER'S STANDARD
33		
34	PAINTING	QP-SPC-L-002
35	COLOUR	NOTE 1
36		
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	30 Barg
41	SPECIAL REQUIREMENTS	
42		

ATTACHMENT 8: STRAINERS

1	STRAINER	
2	PIPING SP DATASHEET	SP-STR-006
3	TYPE / DESCRIPTION	Permanent Y-type strainer
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE	CHEMICAL GLYCOL (RICH, LEAN, MEG)/ GAS CONDENSATE
9	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
11	LINE SIZE	4"
12	MAXIMUM PARTICLE SIZE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
14	FLUID SPECIFIC GRAVITY	REFER ATTACHMENT 10: LINE LIST DETAILS
15	FLUID VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	MECHANICAL DATA OF PROCESS LINE	
18	PIPING CLASS/ PRESSURE RATING	13461 / ASME Class 150
19	PIPING DESIGN PRESSURE (MAX)	19 Barg @ 38 Deg C (ASME B16.5 Class 150 material group 2.2)
20	PIPING DESIGN TEMP. (MAX)	160 Deg C
21	CORROSION ALLOWANCE	0 mm
22	DESIGN REQUIREMENTS	
23	DESIGN CODE	ASME B31.3
24	END CONNECTIONS	RF Flanged ends
25	SIZE / THICKNESS	4" Sch 10S
26	MATERIALS	
27	BODY	ASTM A182-F316
28	FLANGE / COVER	ASTM A182-F316
29	STRAINER ELEMENT	AISI 316
30	GASKET	AISI 316, Graphite CS center ring/SS inner ring
31	BOLTING	ASTM A320-L 7M/A 194-7M
32	DIMENSIONS	MANUFACTURER'S STANDARD
33		
34	PAINTING	QP-SPC-L-002
35	COLOUR	NOTE 1
36		
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	30 Barg
41	SPECIAL REQUIREMENTS	
42		

ATTACHMENT 8: STRAINERS

1	STRAINER	
2	PIPING SP DATASHEET	SP-STR-007
3	TYPE / DESCRIPTION	Permanent Y-type strainer
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE	GAS CONDENSATE/CHEMICAL GLYCOL (RICH, LEAN, MEG)
9	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
11	LINE SIZE	4"
12	MAXIMUM PARTICLE SIZE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
14	FLUID SPECIFIC GRAVITY	REFER ATTACHMENT 10: LINE LIST DETAILS
15	FLUID VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	MECHANICAL DATA OF PROCESS LINE	
18	PIPING CLASS/ PRESSURE RATING	16620 / ASME Class 150
19	PIPING DESIGN PRESSURE (MAX)	20 Barg @ 38 Deg C (ASME B16.5 Class 150 material group 3.8)
20	PIPING DESIGN TEMP. (MAX)	200 Deg C
21	CORROSION ALLOWANCE	0 mm
22	DESIGN REQUIREMENTS	
23	DESIGN CODE	ASME B31.3
24	END CONNECTIONS	RF Flanged ends
25	SIZE / THICKNESS	4" Sch 10S
26	MATERIALS	
27	BODY	ASTM B564 UNS 08825
28	FLANGE / COVER	ASTM B564 UNS 08825
29	STRAINER ELEMENT	Alloy 825
30	GASKET	Alloy 825, Graphite CS center ring/Alloy 825 inner ring
31	BOLTING	ASTM A320-L 7M/A 194-7M
32	DIMENSIONS	MANUFACTURER'S STANDARD
33		
34	PAINTING	QP-SPC-L-002
35	COLOUR	NOTE 1
36		
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	30 Barg
41	SPECIAL REQUIREMENTS	
42		

ATTACHMENT 8: STRAINERS

1	STRAINER	
2	PIPING SP DATASHEET	SP-STR-008
3	TYPE / DESCRIPTION	Permanent Y-type strainer
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE	WATER FIRE (SEA WATER) (WET)
9	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
11	LINE SIZE	4"
12	MAXIMUM PARTICLE SIZE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
14	FLUID SPECIFIC GRAVITY	REFER ATTACHMENT 10: LINE LIST DETAILS
15	FLUID VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	MECHANICAL DATA OF PROCESS LINE	
18	PIPING CLASS/ PRESSURE RATING	17012 / ASME Class 150
19	PIPING DESIGN PRESSURE (MAX)	20 Barg @ 38 Deg C
20	PIPING DESIGN TEMP. (MAX)	85 Deg C
21	CORROSION ALLOWANCE	0 mm
22	DESIGN REQUIREMENTS	
23	DESIGN CODE	ASME B31.3
24	END CONNECTIONS	RF Flanged ends
25	SIZE / THICKNESS	4" Sch / NOTE 2
26	MATERIALS	
27	BODY	ASTM B148-UNS C95800
28	FLANGE / COVER	ASTM B148-UNS C95800
29	STRAINER ELEMENT	Ni Al Bronze
30	GASKET	Ethylene propylene rubber (EPDM) hardness 70+/-5 shore A
31	BOLTING	ASTM A193-B7 / A194-2H
32	DIMENSIONS	MANUFACTURER'S STANDARD
33		
34	PAINTING	QP-SPC-L-002
35	COLOUR	NOTE 1
36		
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	30 Barg
41	SPECIAL REQUIREMENTS	
42		

ATTACHMENT 8: STRAINERS

1	STRAINER	
2	PIPING SP DATASHEET	SP-STR-009
3	TYPE / DESCRIPTION	Permanent Y-type strainer
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE	OIL REJECT / OIL RECOVERY (HYDROCYCLONES)
9	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
11	LINE SIZE	6"
12	MAXIMUM PARTICLE SIZE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
14	FLUID SPECIFIC GRAVITY	REFER ATTACHMENT 10: LINE LIST DETAILS
15	FLUID VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	MECHANICAL DATA OF PROCESS LINE	
18	PIPING CLASS/ PRESSURE RATING	16620 / ASME Class 150
19	PIPING DESIGN PRESSURE (MAX)	20 Barg @ 38 Deg C (ASME B16.5 Class 150 material group 3.8)
20	PIPING DESIGN TEMP. (MAX)	200 Deg C
21	CORROSION ALLOWANCE	0 mm
22	DESIGN REQUIREMENTS	
23	DESIGN CODE	ASME B31.3
24	END CONNECTIONS	RF Flanged ends
25	SIZE / THICKNESS	6" Sch 10S
26	MATERIALS	
27	BODY	ASTM B564 UNS 08825
28	FLANGE / COVER	ASTM B564 UNS 08825
29	STRAINER ELEMENT	Alloy 825
30	GASKET	Alloy 825, Graphite CS center ring / Alloy 825 inner ring
31	BOLTING	ASTM A320-L 7M/A 194-7M
32	DIMENSIONS	MANUFACTURER'S STANDARD
33		
34	PAINTING	QP-SPC-L-002
35	COLOUR	NOTE 1
36		
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	30 Barg
41	SPECIAL REQUIREMENTS	
42		

ATTACHMENT 8: STRAINERS

1	STRAINER	
2	PIPING SP DATASHEET	SP-STR-010
3	TYPE / DESCRIPTION	Permanent Y-type strainer
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE	WATER POTABLE (HOT OR COLD)
9	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
11	LINE SIZE	6"
12	MAXIMUM PARTICLE SIZE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
14	FLUID SPECIFIC GRAVITY	REFER ATTACHMENT 10: LINE LIST DETAILS
15	FLUID VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	MECHANICAL DATA OF PROCESS LINE	
18	PIPING CLASS/ PRESSURE RATING	17012 / ASME Class 150
19	PIPING DESIGN PRESSURE (MAX)	20 Barg @ 38 Deg C
20	PIPING DESIGN TEMP. (MAX)	85 Deg C
21	CORROSION ALLOWANCE	0 mm
22	DESIGN REQUIREMENTS	
23	DESIGN CODE	ASME B31.3
24	END CONNECTIONS	RF Flanged ends
25	SIZE / THICKNESS	6" Sch / NOTE 2
26	MATERIALS	
27	BODY	ASTM B148-UNS C95800
28	FLANGE / COVER	ASTM B148-UNS C95800
29	STRAINER ELEMENT	Ni Al Bronze
30	GASKET	Ethylene propylene rubber (EPDM) hardness 70+/-5 shore A
31	BOLTING	ASTM A193-B7 / A194-2H
32	DIMENSIONS	MANUFACTURER'S STANDARD
33		
34	PAINTING	QP-SPC-L-002
35	COLOUR	NOTE 1
36		
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	30 Barg
41	SPECIAL REQUIREMENTS	
42		

ATTACHMENT 8: STRAINERS

1	STRAINER	
2	PIPING SP DATASHEET	SP-STR-011
3	TYPE / DESCRIPTION	Permanent Y-type strainer
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE	WATER TEMPERED (COOLING MED.)
9	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
11	LINE SIZE	8"
12	MAXIMUM PARTICLE SIZE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
14	FLUID SPECIFIC GRAVITY	REFER ATTACHMENT 10: LINE LIST DETAILS
15	FLUID VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	MECHANICAL DATA OF PROCESS LINE	
18	PIPING CLASS/ PRESSURE RATING	11432 / ASME Class 150
19	PIPING DESIGN PRESSURE (MAX)	19.6 Barg @ 38 Deg C (ASME B16.5 Class 150 material group 1.1)
20	PIPING DESIGN TEMP. (MAX)	150 Deg C
21	CORROSION ALLOWANCE	3 mm
22	DESIGN REQUIREMENTS	
23	DESIGN CODE	ASME B31.3
24	END CONNECTIONS	RF Flanged ends
25	SIZE / THICKNESS	8" Sch 30
26	MATERIALS	
27	BODY	ASTM A105
28	FLANGE / COVER	ASTM A105
29	STRAINER ELEMENT	AISI 316
30	GASKET	AISI 316, Graphite CS center ring / SS inner ring
31	BOLTING	ASTM A193-B7 / A194-2H
32	DIMENSIONS	MANUFACTURER'S STANDARD
33		
34	PAINTING	QP-SPC-L-002
35	COLOUR	NOTE 1
36		
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	30 Barg
41	SPECIAL REQUIREMENTS	
42		

ATTACHMENT 8: STRAINERS

1	STRAINER	
2	PIPING SP DATASHEET	SP-STR-012
3	TYPE / DESCRIPTION	Permanent Y-type strainer
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE	PRODUCED WATER
9	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
11	LINE SIZE	10"
12	MAXIMUM PARTICLE SIZE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
14	FLUID SPECIFIC GRAVITY	REFER ATTACHMENT 10: LINE LIST DETAILS
15	FLUID VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	MECHANICAL DATA OF PROCESS LINE	
18	PIPING CLASS/ PRESSURE RATING	16620 / ASME Class 150
19	PIPING DESIGN PRESSURE (MAX)	20 Barg @ 38 Deg C (ASME B16.5 Class 150 material group 3.8)
20	PIPING DESIGN TEMP. (MAX)	200 Deg C
21	CORROSION ALLOWANCE	0 mm
22	DESIGN REQUIREMENTS	
23	DESIGN CODE	ASME B31.3
24	END CONNECTIONS	RF Flanged ends
25	SIZE / THICKNESS	10" Sch 20
26	MATERIALS	
27	BODY	ASTM B564 UNS 08825
28	FLANGE / COVER	ASTM B564 UNS 08825
29	STRAINER ELEMENT	Alloy 825
30	GASKET	Alloy 825, Graphite CS center ring / Alloy 825 inner ring
31	BOLTING	ASTM A320-L 7M/A 194-7M
32	DIMENSIONS	MANUFACTURER'S STANDARD
33		
34	PAINTING	QP-SPC-L-002
35	COLOUR	NOTE 1
36		
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	30 Barg
41	SPECIAL REQUIREMENTS	
42		

ATTACHMENT 8: STRAINERS

1	STRAINER	
2	PIPING SP DATASHEET	SP-STR-013
3	TYPE / DESCRIPTION	Permanent Y-type strainer
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE	WATER TEMPERED (COOLING MED.)
9	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
11	LINE SIZE	18"
12	MAXIMUM PARTICLE SIZE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
14	FLUID SPECIFIC GRAVITY	REFER ATTACHMENT 10: LINE LIST DETAILS
15	FLUID VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	MECHANICAL DATA OF PROCESS LINE	
18	PIPING CLASS/ PRESSURE RATING	11432 / ASME Class 150
19	PIPING DESIGN PRESSURE (MAX)	19.6 Barg @ 38 Deg C (ASME B16.5 Class 150 material group 1.1)
20	PIPING DESIGN TEMP. (MAX)	150 Deg C
21	CORROSION ALLOWANCE	3 mm
22	DESIGN REQUIREMENTS	
23	DESIGN CODE	ASME B31.3
24	END CONNECTIONS	RF Flanged ends
25	SIZE / THICKNESS	18" Sch 20
26	MATERIALS	
27	BODY	ASTM A105
28	FLANGE / COVER	ASTM A105
29	STRAINER ELEMENT	AISI 316
30	GASKET	AISI 316, Graphite CS center ring / SS inner ring
31	BOLTING	ASTM A193-B7 / A194-2H
32	DIMENSIONS	MANUFACTURER'S STANDARD
33		
34	PAINTING	QP-SPC-L-002
35	COLOUR	NOTE 1
36		
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	30 Barg
41	SPECIAL REQUIREMENTS	
42		

ATTACHMENT 8: STRAINERS

1	STRAINER	
2	PIPING SP DATASHEET	SP-STR-014
3	TYPE / DESCRIPTION	Permanent Y-type strainer
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE	OIL REJECT / OIL RECOVERY
9	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
11	LINE SIZE	2"
12	MAXIMUM PARTICLE SIZE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
14	FLUID SPECIFIC GRAVITY	REFER ATTACHMENT 10: LINE LIST DETAILS
15	FLUID VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	MECHANICAL DATA OF PROCESS LINE	
18	PIPING CLASS/ PRESSURE RATING	16620 / ASME Class 150
19	PIPING DESIGN PRESSURE (MAX)	20 Barg @ 38 Deg C (ASME B16.5 Class 150 material group 3.8)
20	PIPING DESIGN TEMP. (MAX)	200 Deg C
21	CORROSION ALLOWANCE	0 mm
22	DESIGN REQUIREMENTS	
23	DESIGN CODE	ASME B31.3
24	END CONNECTIONS	RF Flanged ends
25	SIZE / THICKNESS	2" Sch 10S
26	MATERIALS	
27	BODY	ASTM B564 UNS 08825
28	FLANGE / COVER	ASTM B564 UNS 08825
29	STRAINER ELEMENT	Alloy 825
30	GASKET	Alloy 825, Graphite CS center ring/Alloy 825 inner ring
31	BOLTING	ASTM A320-L 7M/A 194-7M
32	DIMENSIONS	MANUFACTURER'S STANDARD
33		
34	PAINTING	QP-SPC-L-002
35	COLOUR	NOTE 1
36		
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	30 Barg
41	SPECIAL REQUIREMENTS	
42		

ATTACHMENT 8: STRAINERS

1	STRAINER	
2	PIPING SP DATASHEET	SP-STR-015
3	TYPE / DESCRIPTION	Permanent Y-type strainer
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE	GAS CONDENSATE
9	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
11	LINE SIZE	3"
12	MAXIMUM PARTICLE SIZE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
14	FLUID SPECIFIC GRAVITY	REFER ATTACHMENT 10: LINE LIST DETAILS
15	FLUID VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	MECHANICAL DATA OF PROCESS LINE	
18	PIPING CLASS/ PRESSURE RATING	16620 / ASME Class 150
19	PIPING DESIGN PRESSURE (MAX)	20 Barg @ 38 Deg C (ASME B16.5 Class 150 material group 3.8)
20	PIPING DESIGN TEMP. (MAX)	200 Deg C
21	CORROSION ALLOWANCE	0 mm
22	DESIGN REQUIREMENTS	
23	DESIGN CODE	ASME B31.3
24	END CONNECTIONS	RF Flanged ends
25	SIZE / THICKNESS	3" Sch 10S
26	MATERIALS	
27	BODY	ASTM B564 UNS 08825
28	FLANGE / COVER	ASTM B564 UNS 08825
29	STRAINER ELEMENT	Alloy 825
30	GASKET	Alloy 825, Graphite CS center ring/Alloy 825 inner ring
31	BOLTING	ASTM A320-L 7M/A 194-7M
32	DIMENSIONS	MANUFACTURER'S STANDARD
33		
34	PAINTING	QP-SPC-L-002
35	COLOUR	NOTE 1
36		
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	30 Barg
41	SPECIAL REQUIREMENTS	
42		

ATTACHMENT 8: STRAINERS

1	STRAINER	
2	PIPING SP DATASHEET	SP-STR-016
3	TYPE / DESCRIPTION	Permanent Y-type strainer
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE	OIL REJECT / OIL RECOVERY (HYDROCYCLONES)
9	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
11	LINE SIZE	8"
12	MAXIMUM PARTICLE SIZE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
14	FLUID SPECIFIC GRAVITY	REFER ATTACHMENT 10: LINE LIST DETAILS
15	FLUID VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	MECHANICAL DATA OF PROCESS LINE	
18	PIPING CLASS/ PRESSURE RATING	16620 / ASME Class 150
19	PIPING DESIGN PRESSURE (MAX)	20 Barg @ 38 Deg C (ASME B16.5 Class 150 material group 3.8)
20	PIPING DESIGN TEMP. (MAX)	200 Deg C
21	CORROSION ALLOWANCE	0 mm
22	DESIGN REQUIREMENTS	
23	DESIGN CODE	ASME B31.3
24	END CONNECTIONS	RF Flanged ends
25	SIZE / THICKNESS	8" Sch 20
26	MATERIALS	
27	BODY	ASTM B564 UNS 08825
28	FLANGE / COVER	ASTM B564 UNS 08825
29	STRAINER ELEMENT	Alloy 825
30	GASKET	Alloy 825, Graphite CS center ring / Alloy 825 inner ring
31	BOLTING	ASTM A320-L 7M/A 194-7M
32	DIMENSIONS	MANUFACTURER'S STANDARD
33		
34	PAINTING	QP-SPC-L-002
35	COLOUR	NOTE 1
36		
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	30 Barg
41	SPECIAL REQUIREMENTS	
42		

ATTACHMENT 8: STRAINERS

1	STRAINER	
2	PIPING SP DATASHEET	SP-STR-017
3	TYPE / DESCRIPTION	Permanent Y-type strainer
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE	PRODUCED WATER
9	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
11	LINE SIZE	12"
12	MAXIMUM PARTICLE SIZE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
14	FLUID SPECIFIC GRAVITY	REFER ATTACHMENT 10: LINE LIST DETAILS
15	FLUID VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	MECHANICAL DATA OF PROCESS LINE	
18	PIPING CLASS/ PRESSURE RATING	16620 / ASME Class 150
19	PIPING DESIGN PRESSURE (MAX)	20 Barg @ 38 Deg C (ASME B16.5 Class 150 material group 3.8)
20	PIPING DESIGN TEMP. (MAX)	200 Deg C
21	CORROSION ALLOWANCE	0 mm
22	DESIGN REQUIREMENTS	
23	DESIGN CODE	ASME B31.3
24	END CONNECTIONS	RF Flanged ends
25	SIZE / THICKNESS	12" Sch 10S
26	MATERIALS	
27	BODY	ASTM B564 UNS 08825
28	FLANGE / COVER	ASTM B564 UNS 08825
29	STRAINER ELEMENT	Alloy 825
30	GASKET	Alloy 825, Graphite CS center ring / Alloy 825 inner ring
31	BOLTING	ASTM A320-L 7M/A 194-7M
32	DIMENSIONS	MANUFACTURER'S STANDARD
33		
34	PAINTING	QP-SPC-L-002
35	COLOUR	NOTE 1
36		
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	30 Barg
41	SPECIAL REQUIREMENTS	
42		

ATTACHMENT 8: STRAINERS

1	STRAINER	
2	PIPING SP DATASHEET	SP-STR-018
3	TYPE / DESCRIPTION	Permanent Y-type strainer
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE	OIL DRAIN
9	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
11	LINE SIZE	4"
12	MAXIMUM PARTICLE SIZE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
14	FLUID SPECIFIC GRAVITY	REFER ATTACHMENT 10: LINE LIST DETAILS
15	FLUID VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	MECHANICAL DATA OF PROCESS LINE	
18	PIPING CLASS/ PRESSURE RATING	17320 / ASME Class 150
19	PIPING DESIGN PRESSURE (MAX)	20 Barg @ 38 Deg C
20	PIPING DESIGN TEMP. (MAX)	85 Deg C
21	CORROSION ALLOWANCE	0 mm
22	DESIGN REQUIREMENTS	
23	DESIGN CODE	ASME B31.3
24	END CONNECTIONS	RF Flanged ends
25	SIZE / THICKNESS	4" / NOTE 2
26	MATERIALS	
27	BODY	ASTM B148-UNS C95800
28	FLANGE / COVER	ASTM B148-UNS C95800
29	STRAINER ELEMENT	AISI 316
30	GASKET	Ethylene propylene rubber (EPDM) hardness 70+/-5 shore A
31	BOLTING	ASTM A193-B7 / A194-2H
32	DIMENSIONS	MANUFACTURER'S STANDARD
33		
34	PAINTING	QP-SPC-L-002
35	COLOUR	NOTE 1
36		
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	30 Barg
41	SPECIAL REQUIREMENTS	
42		

ATTACHMENT 8: STRAINERS

1	STRAINER	
2	PIPING SP DATASHEET	SP-STT-001
3	TYPE / DESCRIPTION	Temporary strainer
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE	PROCESS GAS-SOUR
9	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
11	LINE SIZE	12"
12	MAXIMUM PARTICLE SIZE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
14	FLUID SPECIFIC GRAVITY	REFER ATTACHMENT 10: LINE LIST DETAILS
15	FLUID VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	MECHANICAL DATA OF PROCESS LINE	
18	PIPING CLASS/ PRESSURE RATING	91503 / ASME Class 900
19	PIPING DESIGN PRESSURE (MAX)	153.2 Barg @ 38 Deg C (ASME B16.5 Class 900 material group 1.1)
20	PIPING DESIGN TEMP. (MAX)	175 Deg C
21	CORROSION ALLOWANCE	3 mm
22	DESIGN REQUIREMENTS	
23	DESIGN CODE	ASME B31.3
24	END CONNECTIONS	RF Flanged ends
25	SIZE / THICKNESS	12" Sch 100
26	MATERIALS	
27	BODY	ASTM A350-LF2 cl 1
28	FLANGE / COVER	ASTM A350-LF2 cl 1
29	STRAINER ELEMENT	AISI 316
30	GASKET	AISI 316, Graphite CS center ring / SS inner ring
31	BOLTING	ASTM A320-L7M / A194-7M
32	DIMENSIONS	MANUFACTURER'S STANDARD
33		
34	PAINTING	QP-SPC-L-002
35	COLOUR	NOTE 1
36		
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	230 Barg
41	SPECIAL REQUIREMENTS	Spacer ring to be included
42		

ATTACHMENT 8: STRAINERS

1	STRAINER	
2	PIPING SP DATASHEET	SP-STT-002
3	TYPE / DESCRIPTION	Temporary strainer
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE	PROCESS GAS-SOUR
9	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
11	LINE SIZE	12"
12	MAXIMUM PARTICLE SIZE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
14	FLUID SPECIFIC GRAVITY	REFER ATTACHMENT 10: LINE LIST DETAILS
15	FLUID VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	MECHANICAL DATA OF PROCESS LINE	
18	PIPING CLASS/ PRESSURE RATING	151503 / ASME Class 1500
19	PIPING DESIGN PRESSURE (MAX)	255.3 Barg @ 38 Deg C (ASME B16.5 Class 1500 material group 1.1)
20	PIPING DESIGN TEMP. (MAX)	175 Deg C
21	CORROSION ALLOWANCE	3 mm
22	DESIGN REQUIREMENTS	
23	DESIGN CODE	ASME B31.3
24	END CONNECTIONS	RF Flanged ends
25	SIZE / THICKNESS	12" Sch 160
26	MATERIALS	
27	BODY	ASTM A350-LF2 cl 1
28	FLANGE / COVER	ASTM A350-LF2 cl 1
29	STRAINER ELEMENT	AISI 316
30	GASKET	AISI 316, Graphite CS center ring / SS inner ring
31	BOLTING	ASTM A320-L7M / A194-7M
32	DIMENSIONS	MANUFACTURER'S STANDARD
33		
34	PAINTING	QP-SPC-L-002
35	COLOUR	NOTE 1
36		
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	383 Barg
41	SPECIAL REQUIREMENTS	Spacer ring to be included
42		

ATTACHMENT 8: STRAINERS

1	STRAINER	
2	PIPING SP DATASHEET	SP-STT-003
3	TYPE / DESCRIPTION	Temporary strainer
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE	PROCESS GAS-SOUR
9	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
11	LINE SIZE	14"
12	MAXIMUM PARTICLE SIZE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
14	FLUID SPECIFIC GRAVITY	REFER ATTACHMENT 10: LINE LIST DETAILS
15	FLUID VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	MECHANICAL DATA OF PROCESS LINE	
18	PIPING CLASS/ PRESSURE RATING	13461 / ASME Class 150
19	PIPING DESIGN PRESSURE (MAX)	19 Barg @ 38 Deg C (ASME B16.5 Class 150 material group 2.2)
20	PIPING DESIGN TEMP. (MAX)	160 Deg C
21	CORROSION ALLOWANCE	0 mm
22	DESIGN REQUIREMENTS	
23	DESIGN CODE	ASME B31.3
24	END CONNECTIONS	RF Flanged ends
25	SIZE / THICKNESS	14" Sch 10S
26	MATERIALS	
27	BODY	ASTM A182-F316
28	FLANGE / COVER	ASTM A182-F316
29	STRAINER ELEMENT	AISI 316
30	GASKET	AISI 316, Graphite CS center ring / SS inner ring
31	BOLTING	ASTM A320-L7M / A194-7M
32	DIMENSIONS	MANUFACTURER'S STANDARD
33		
34	PAINTING	QP-SPC-L-002
35	COLOUR	NOTE 1
36		
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	30 Barg
41	SPECIAL REQUIREMENTS	Spacer ring to be included
42		

ATTACHMENT 8: STRAINERS

1	STRAINER	
2	PIPING SP DATASHEET	SP-STT-004
3	TYPE / DESCRIPTION	Temporary strainer
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE	PROCESS GAS-SOUR
9	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
11	LINE SIZE	16"
12	MAXIMUM PARTICLE SIZE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
14	FLUID SPECIFIC GRAVITY	REFER ATTACHMENT 10: LINE LIST DETAILS
15	FLUID VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	MECHANICAL DATA OF PROCESS LINE	
18	PIPING CLASS/ PRESSURE RATING	33461 / ASME Class 300
19	PIPING DESIGN PRESSURE (MAX)	49.6 Barg @ 38 Deg C (ASME B16.5 Class 300 material group 2.2)
20	PIPING DESIGN TEMP. (MAX)	160 Deg C
21	CORROSION ALLOWANCE	0 mm
22	DESIGN REQUIREMENTS	
23	DESIGN CODE	ASME B31.3
24	END CONNECTIONS	RF Flanged ends
25	SIZE / THICKNESS	16" Sch 40
26	MATERIALS	
27	BODY	ASTM A182-F316
28	FLANGE / COVER	ASTM A182-F316
29	STRAINER ELEMENT	AISI 316
30	GASKET	AISI 316, Graphite CS center ring / SS inner ring
31	BOLTING	ASTM A320-L7M / A194-7M
32	DIMENSIONS	MANUFACTURER'S STANDARD
33		
34	PAINTING	QP-SPC-L-002
35	COLOUR	NOTE 1
36		
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	75 Barg
41	SPECIAL REQUIREMENTS	Spacer ring to be included
42		

ATTACHMENT 8: STRAINERS

1	STRAINER	
2	PIPING SP DATASHEET	SP-STT-005
3	TYPE / DESCRIPTION	Temporary strainer
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE	PROCESS GAS-SOUR
9	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
11	LINE SIZE	20"
12	MAXIMUM PARTICLE SIZE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
14	FLUID SPECIFIC GRAVITY	REFER ATTACHMENT 10: LINE LIST DETAILS
15	FLUID VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	MECHANICAL DATA OF PROCESS LINE	
18	PIPING CLASS/ PRESSURE RATING	13461 / ASME Class 150
19	PIPING DESIGN PRESSURE (MAX)	19 Barg @ 38 Deg C (ASME B16.5 Class 150 material group 2.2)
20	PIPING DESIGN TEMP. (MAX)	160 Deg C
21	CORROSION ALLOWANCE	0 mm
22	DESIGN REQUIREMENTS	
23	DESIGN CODE	ASME B31.3
24	END CONNECTIONS	RF Flanged ends
25	SIZE / THICKNESS	20" Sch 10S
26	MATERIALS	
27	BODY	ASTM A182-F316
28	FLANGE / COVER	ASTM A182-F316
29	STRAINER ELEMENT	AISI 316
30	GASKET	AISI 316, Graphite CS center ring / SS inner ring
31	BOLTING	ASTM A320-L7M / A194-7M
32	DIMENSIONS	MANUFACTURER'S STANDARD
33		
34	PAINTING	QP-SPC-L-002
35	COLOUR	NOTE 1
36		
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	30 Barg
41	SPECIAL REQUIREMENTS	Spacer ring to be included
42		

ATTACHMENT 8: STRAINERS

1	STRAINER	
2	PIPING SP DATASHEET	SP-STT-006
3	TYPE / DESCRIPTION	Temporary strainer
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE	PROCESS GAS-SOUR
9	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
11	LINE SIZE	20"
12	MAXIMUM PARTICLE SIZE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
14	FLUID SPECIFIC GRAVITY	REFER ATTACHMENT 10: LINE LIST DETAILS
15	FLUID VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	MECHANICAL DATA OF PROCESS LINE	
18	PIPING CLASS/ PRESSURE RATING	33461 / ASME Class 300
19	PIPING DESIGN PRESSURE (MAX)	49.6 Barg @ 38 Deg C (ASME B16.5 Class 300 material group 2.2)
20	PIPING DESIGN TEMP. (MAX)	160 Deg C
21	CORROSION ALLOWANCE	0 mm
22	DESIGN REQUIREMENTS	
23	DESIGN CODE	ASME B31.3
24	END CONNECTIONS	RF Flanged ends
25	SIZE / THICKNESS	20" Sch 30
26	MATERIALS	
27	BODY	ASTM A182-F316
28	FLANGE / COVER	ASTM A182-F316
29	STRAINER ELEMENT	AISI 316
30	GASKET	AISI 316, Graphite CS center ring / SS inner ring
31	BOLTING	ASTM A320-L7M / A194-7M
32	DIMENSIONS	MANUFACTURER'S STANDARD
33		
34	PAINTING	QP-SPC-L-002
35	COLOUR	NOTE 1
36		
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	75 Barg
41	SPECIAL REQUIREMENTS	Spacer ring to be included
42		

ATTACHMENT 8: STRAINERS

1	STRAINER	
2	PIPING SP DATASHEET	SP-STT-007
3	TYPE / DESCRIPTION	Temporary strainer
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE	PROCESS GAS-SOUR
9	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
11	LINE SIZE	30"
12	MAXIMUM PARTICLE SIZE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
14	FLUID SPECIFIC GRAVITY	REFER ATTACHMENT 10: LINE LIST DETAILS
15	FLUID VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	MECHANICAL DATA OF PROCESS LINE	
18	PIPING CLASS/ PRESSURE RATING	13461 / ASME Class 150
19	PIPING DESIGN PRESSURE (MAX)	19 Barg @ 38 Deg C (ASME B16.5 Class 150 material group 2.2)
20	PIPING DESIGN TEMP. (MAX)	160 Deg C
21	CORROSION ALLOWANCE	0 mm
22	DESIGN REQUIREMENTS	
23	DESIGN CODE	ASME B31.3
24	END CONNECTIONS	RF Flanged ends
25	SIZE / THICKNESS	30" Sch 10S
26	MATERIALS	
27	BODY	ASTM A182-F316
28	FLANGE / COVER	ASTM A182-F316
29	STRAINER ELEMENT	AISI 316
30	GASKET	AISI 316, Graphite CS center ring / SS inner ring
31	BOLTING	ASTM A320-L7M / A194-7M
32	DIMENSIONS	MANUFACTURER'S STANDARD
33		
34	PAINTING	QP-SPC-L-002
35	COLOUR	NOTE 1
36		
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	30 Barg
41	SPECIAL REQUIREMENTS	Spacer ring to be included
42		

ATTACHMENT 8: STRAINERS

1	STRAINER	
2	PIPING SP DATASHEET	SP-STT-008
3	TYPE / DESCRIPTION	Temporary strainer
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE	PROCESS GAS-SOUR
9	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
11	LINE SIZE	24"
12	MAXIMUM PARTICLE SIZE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
14	FLUID SPECIFIC GRAVITY	REFER ATTACHMENT 10: LINE LIST DETAILS
15	FLUID VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	MECHANICAL DATA OF PROCESS LINE	
18	PIPING CLASS/ PRESSURE RATING	36620 / ASME Class 300
19	PIPING DESIGN PRESSURE (MAX)	51.7 Barg @ 38 Deg C (ASME B16.5 Class 300 material group 1.1)
20	PIPING DESIGN TEMP. (MAX)	200 Deg C
21	CORROSION ALLOWANCE	0 mm
22	DESIGN REQUIREMENTS	
23	DESIGN CODE	ASME B31.3
24	END CONNECTIONS	RF Flanged ends
25	SIZE / THICKNESS	24" Sch 30
26	MATERIALS	
27	BODY	ASTM A352-LCC + 825 Clad
28	FLANGE / COVER	ASTM A352-LCC + 825 Clad
29	STRAINER ELEMENT	Alloy 825
30	GASKET	AISI 316, Graphite CS center ring / 825 inner ring
31	BOLTING	ASTM A320-L7M / A194-7M
32	DIMENSIONS	MANUFACTURER'S STANDARD
33		
34	PAINTING	QP-SPC-L-002
35	COLOUR	NOTE 1
36		
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	78 Barg
41	SPECIAL REQUIREMENTS	Spacer ring to be included
42		

ATTACHMENT 8: STRAINERS

1	STRAINER	
2	PIPING SP DATASHEET	SP-STT-009
3	TYPE / DESCRIPTION	Temporary strainer
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE	PROCESS GAS-SOUR
9	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
11	LINE SIZE	16"
12	MAXIMUM PARTICLE SIZE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
14	FLUID SPECIFIC GRAVITY	REFER ATTACHMENT 10: LINE LIST DETAILS
15	FLUID VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	MECHANICAL DATA OF PROCESS LINE	
18	PIPING CLASS/ PRESSURE RATING	66620 / ASME Class 600
19	PIPING DESIGN PRESSURE (MAX)	103.4 Barg @ 38 Deg C (ASME B16.5 Class 600 material group 1.1)
20	PIPING DESIGN TEMP. (MAX)	200 Deg C
21	CORROSION ALLOWANCE	0 mm
22	DESIGN REQUIREMENTS	
23	DESIGN CODE	ASME B31.3
24	END CONNECTIONS	RF Flanged ends
25	SIZE / THICKNESS	16" Sch 80
26	MATERIALS	
27	BODY	ASTM A352-LCC + 825 Clad
28	FLANGE / COVER	ASTM A352-LCC + 825 Clad
29	STRAINER ELEMENT	Alloy 825
30	GASKET	AISI 316, Graphite CS center ring / 825 inner ring
31	BOLTING	ASTM A320-L7M / A194-7M
32	DIMENSIONS	MANUFACTURER'S STANDARD
33		
34	PAINTING	QP-SPC-L-002
35	COLOUR	NOTE 1
36		
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	156 Barg
41	SPECIAL REQUIREMENTS	Spacer ring to be included
42		

ATTACHMENT 8: STRAINERS

1	STRAINER	
2	PIPING SP DATASHEET	SP-STT-010
3	TYPE / DESCRIPTION	Temporary strainer
4	TAG No.	REFER ATTACHMENT 1: SP INDEX
5	LINE NO.	REFER ATTACHMENT 1: SP INDEX
6	P&ID NO.	REFER ATTACHMENT 1: SP INDEX
7	PROCESS DATA OF PROCESS LINE	
8	SERVICE	PROCESS GAS-SOUR
9	OPERATING PRESSURE	REFER ATTACHMENT 10: LINE LIST DETAILS
10	OPERATING TEMPERATURE	REFER ATTACHMENT 10: LINE LIST DETAILS
11	LINE SIZE	12"
12	MAXIMUM PARTICLE SIZE	REFER ATTACHMENT 10: LINE LIST DETAILS
13	PRESSURE DROP	REFER ATTACHMENT 10: LINE LIST DETAILS
14	FLUID SPECIFIC GRAVITY	REFER ATTACHMENT 10: LINE LIST DETAILS
15	FLUID VISCOSITY	REFER ATTACHMENT 10: LINE LIST DETAILS
16	FLOW RATE	REFER ATTACHMENT 10: LINE LIST DETAILS
17	MECHANICAL DATA OF PROCESS LINE	
18	PIPING CLASS/ PRESSURE RATING	96620 / ASME Class 900
19	PIPING DESIGN PRESSURE (MAX)	155.1 Barg @ 38 Deg C (ASME B16.5 Class 300 material group 1.1)
20	PIPING DESIGN TEMP. (MAX)	200 Deg C
21	CORROSION ALLOWANCE	0 mm
22	DESIGN REQUIREMENTS	
23	DESIGN CODE	ASME B31.3
24	END CONNECTIONS	RF Flanged ends
25	SIZE / THICKNESS	12" Sch 100
26	MATERIALS	
27	BODY	ASTM A352-LCC + 825 Clad
28	FLANGE / COVER	ASTM A352-LCC + 825 Clad
29	STRAINER ELEMENT	Alloy 825
30	GASKET	AISI 316, Graphite CS center ring / 825 inner ring
31	BOLTING	ASTM A320-L7M / A194-7M
32	DIMENSIONS	MANUFACTURER'S STANDARD
33		
34	PAINTING	QP-SPC-L-002
35	COLOUR	NOTE 1
36		
37		
38	TESTING	
39	MATERIAL CERTIFICATE	BS-EN-10204 3.1 for pressure containing BS-EN-10204 2.2 for non-pressure containing
40	HYDROTEST PRESSURE	233 Barg
41	SPECIAL REQUIREMENTS	Spacer ring to be included
42		

ATTACHMENT 9: NON SLAM CHECK VALVES

MESC	771044-216-1	SP-NRV-001
Buying description	Non Slam	Swing-type check valves
Abbreviated description		VCHS, DN250, CL1500, FL, LTCS, AL825
Unit of issues		PC
Product group		77DEAA
Additional Data		

Attribute	Value
Nominal size	DN 250
	NPS 10
Design spec, pressure rating	ASME CL 1500
Design spec	API 594 MANUFACTURER'S STANDARD
Length, f to f (e to e)	991 mm
	39.00 in
Type of end connection	FLANGED
Type of face	RAISED FACE
Type of pattern	B
Type of closure member	SWING NON SLAM
Type of construction	EXTERNALLY ASSEMBLED HINGE PIN AXIAL FLOW
	INTERNALLY ASSEMBLED HINGE PIN
Type of bonnet/cover	BOLTED
Type of bonnet/cover gasket	RING JOINT OCTAGONAL
	SPIRAL WOUND
Type of seat	METAL
Uni/bi-directional	UNI-DIRECTIONAL
Service(s)	SOUR
Mat requirement, sour service	ISO 15156
Temperature, min	MINUS 50 deg C
	MINUS 58 deg F
Temperature, max	PLUS 345 deg C 175
	PLUS 650 deg F 347
Emission class	BH
Mat, body	CARBON STEEL, LOW TEMP
Mat, trim	ALLOY 825
Mat, seals	GRAPHITE
Mat spec, body	ASTM A350 GRADE LF2, CLASS 1
	ASTM A352 GRADE LCC
Mat spec, cover	ASTM A350 GRADE LF2, CLASS 1
	ASTM A352 GRADE LCC
Mat spec, closure member	ASTM A350 GRADE LF2, CLASS 1
	ASTM A352 GRADE LCC
Mat spec, closure memb facing	ALLOY 825
Mat spec, other wetted parts	ASTM A350 GRADE LF2, CLASS 1
	ASTM A352 GRADE LCC
Mat spec, hinge pin	ASTM B425 UNS N08825
Mat spec, seat facing	ALLOY 825
Mat spec, gasket metallic part	ASTM A182 GRADE F 316 (SPW)
	ASTM A182 GRADE F 316L (SPW)
	ASTM A240 TYPE 316 (SPW)
	ASTM A240 TYPE 316L (SPW)
	SOFT IRON (RTJ)
Mat spec, gasket seal element	GRAPHITE (SPW)
Mat spec, bolts/studs	ASTM A320 GRADE L7M
Mat spec, nut(s)	ASTM A194 GRADE 7M
Mandatory requirements	MESC SPE 77/104 2023
	MESC SPE 77/300A 2021

MESC	771044-216-1	SP-NRV-002
Buying description	Non Slam	Swing-type check valves
Abbreviated description	VCHS, DN250, CL1500, FL, LTCS, AL825	
Unit of issues	PC	CL2500
Product group	77DEAA	
Additional Data		

Attribute	Value
Nominal size	DN 250
	NPS 10
Design spec, pressure rating	ASME CL 1500 2500
Design spec	API 594 MANUFACTURER'S STANDARD
Length, f to f (e to e)	991 mm
	39.00 in
Type of end connection	FLANGED
Type of face	RAISED FACE
Type of pattern	B
Type of closure member	SWING NON SLAM
Type of construction	EXTERNALLY ASSEMBLED HINGE PIN AXIAL FLOW
	INTERNALLY ASSEMBLED HINGE PIN
Type of bonnet/cover	BOLTED
Type of bonnet/cover gasket	RING JOINT OCTAGONAL
	SPIRAL WOUND
Type of seat	METAL
Uni/bi-directional	UNI-DIRECTIONAL
Service(s)	SOUR
Mat requirement, sour service	ISO 15156
Temperature, min	MINUS 50 deg C
	MINUS 58 deg F
Temperature, max	PLUS 345 deg C 175
	PLUS 650 deg F 347
Emission class	BH
Mat, body	CARBON STEEL, LOW TEMP
Mat, trim	ALLOY 825
Mat, seals	GRAPHITE
Mat spec, body	ASTM A350 GRADE LF2, CLASS 1
	ASTM A352 GRADE LCC
Mat spec, cover	ASTM A350 GRADE LF2, CLASS 1
	ASTM A352 GRADE LCC
Mat spec, closure member	ASTM A350 GRADE LF2, CLASS 1
	ASTM A352 GRADE LCC
Mat spec, closure memb facing	ALLOY 825
Mat spec, other wetted parts	ASTM A350 GRADE LF2, CLASS 1
	ASTM A352 GRADE LCC
Mat spec, hinge pin	ASTM B425 UNS N08825
Mat spec, seat facing	ALLOY 825
Mat spec, gasket metallic part	ASTM A182 GRADE F 316 (SPW)
	ASTM A182 GRADE F 316L (SPW)
	ASTM A240 TYPE 316 (SPW)
	ASTM A240 TYPE 316L (SPW)
	SOFT IRON (RTJ)
Mat spec, gasket seal element	GRAPHITE (SPW)
Mat spec, bolts/studs	ASTM A320 GRADE L7M
Mat spec, nut(s)	ASTM A194 GRADE 7M
Mandatory requirements	MESC SPE 77/104 2023
	MESC SPE 77/300A 2021

MESC	771319-010-1	SP-NRV-003
Buying description	Non Slam	Swing-type check valves
Abbreviated description		VCHS, DN80, CL150, FL, 316, 316/ST6
Unit of issues		PC
Product group		77DEDD
Additional Data		

Attribute	Value
Nominal size	DN 80
	NPS 3
Design spec, pressure rating	ASME CL 150
Design spec	API 594 MANUFACTURER'S STANDARD
Length, f to f (e to e)	241 mm
	9.5 in
Type of end connection	FLANGED
Type of face	RAISED FACE
Type of pattern	B
Type of closure member	SWING NON SLAM
Type of construction	EXTERNALLY ASSEMBLED HINGE PIN AXIAL FLOW
	INTERNALLY ASSEMBLED HINGE PIN
Type of bonnet/cover	BOLTED
Type of bonnet/cover gasket	GPH W/ CORRUGATED METAL INSERT
	SPIRAL WOUND
Type of seat	METAL
Uni/bi-directional	UNI-DIRECTIONAL
Service(s)	SOUR
Mat requirement, sour service	ISO 15156
Temperature, min	MINUS 101 deg C 50
	MINUS 150 deg F 58
Temperature, max	PLUS 300 deg C 160
	PLUS 570 deg F 320
Emission class	BH
Mat, body	AISI 316
Mat, trim	AISI 316/STELLITE 6
Mat, seals	GRAPHITE
Mat spec, body	ASTM A182 GRADE F 316
	ASTM A351 -CF8M
Mat spec, cover	ASTM A182 GRADE F 316
	ASTM A351 -CF8M
Mat spec, closure member	ASTM A351 -CF8M
	ASTM A479 -316
	ASTM A479 -316L
Mat spec, closure memb facing	STELLITE 6
Mat spec, other wetted parts	ASTM A182 GRADE F 316
	ASTM A351 -CF8M
Mat spec, hinge pin	ASTM A182 GRADE F 316
	ASTM A182 GRADE F 316L
	ASTM A276 TYPE 316
	ASTM A276 TYPE 316L
	ASTM A479 -316
	ASTM A479 -316L
Mat spec, seat facing	STELLITE 6
Mat spec, gasket metallic part	ASTM A240 TYPE 316
	ASTM A240 TYPE 316L
Mat spec, gasket seal element	GRAPHITE
Mat spec, bolts/studs	ASTM A193 GRADE B8M-CLASS 1 L7M

MESC	771319-160.1	SP-NRV-004
Buying description	Non Slam	Swing type check valves
Abbreviated description		VCHS,DN80,CL900,FL,316,316/ST6
Unit of issues		PC
Product group		77DEDD
Additional Data		

Attribute	Value
Nominal size	DN 80
	NPS 3
Design spec, pressure rating	ASME CL 900
Design spec	API 594 MANUFACTURER'S STANDARD
Length, f to f (e to e)	381 mm
	15.00 in
Type of end connection	FLANGED
Type of face	RAISED FACE
Type of pattern	B
Type of closure member	SWING NON SLAM
Type of construction	EXTERNALLY ASSEMBLED HINGE PIN AXIAL FLOW
	INTERNALLY ASSEMBLED HINGE PIN
Type of bonnet/cover	BOLTED
Type of bonnet/cover gasket	RING JOINT OCTAGONAL
	SPIRAL WOUND
Type of seat	METAL
Uni/bi-directional	UNI-DIRECTIONAL
Service(s)	SOUR
Mat requirement, sour service	ISO 15156
Temperature, min	MINUS 101 deg C 50
	MINUS 150 deg F 58
Temperature, max	PLUS 300 deg C 160
	PLUS 570 deg F 320
Emission class	BH
Mat, body	AISI 316
Mat, trim	AISI 316/STELLITE 6
Mat, seals	GRAPHITE
Mat spec, body	ASTM A182 GRADE F 316
	ASTM A351 -CF8M
Mat spec, cover	ASTM A182 GRADE F 316
	ASTM A351 -CF8M
Mat spec, closure member	ASTM A351 -CF8M
	ASTM A479 -316
	ASTM A479 -316L
Mat spec, closure memb facing	STELLITE 6
Mat spec, other wetted parts	ASTM A182 GRADE F 316
	ASTM A351 -CF8M
Mat spec, hinge pin	ASTM A182 GRADE F 316
	ASTM A182 GRADE F 316L
	ASTM A276 TYPE 316
	ASTM A276 TYPE 316L
	ASTM A479 -316
	ASTM A479 -316L
Mat spec, seat facing	STELLITE 6
Mat spec, gasket metallic part	ASTM A182 GRADE F 316 (SPW)
	ASTM A182 GRADE F 316L (SPW)
	ASTM A240 TYPE 316 (SPW)
	TYPE 316 (RTJ)

MESC	776724-071.1	SP-NRV-005
Buying description	Non Slam	Dual plate check valves
Abbreviated description		VCHDP, DN500, CL300, DF, LTCS, AL825
Unit of issues		PC
Product group		77DEAA
Additional Data		

Attribute	Value
Nominal size	DN 500
	NPS 20
Design spec, pressure rating	ASME CL 300
Design spec	API STD 594 MANUFACTURER'S STANDARD
Design spec, end flanges	ASME B16.5
Length, f to f (e to e)	292 mm
	11.5 in
Type of end connection	DOUBLE FLANGED
Type of face	RAISED FACE
Type of pattern	A
Type of closure member	DUAL PLATE NON SLAM
Type of construction	RETAINERLESS AXIAL FLOW
Type of seat	METAL
Uni/bi-directional	UNI-DIRECTIONAL
Service(s)	SOUR
Mat requirement, sour service	ISO 15156
Temperature, min	MINUS 50 deg C
	MINUS 58 deg F
Temperature, max	PLUS 345 deg C 200
	PLUS 650 deg F 392
Special requirements	CLADDED
Mat, body	CARBON STEEL, LOW TEMP
Mat, trim	ALLOY 825
Mat spec, body	ASTM A350 GRADE LF2, CLASS 1
	ASTM A352 GRADE LCC
Mat spec, body cladding	UNS N08825
Mat spec, closure member	ASTM A494 -CU5MCUC
	ASTM B564 UNS N08825
Mat spec, other wetted parts	UNS N06625
	UNS N08825
Mat spec, hinge pin	ASTM B425 UNS N08825
Mat spec, spring(s)	API STD 6ACRA UNS N07718
	ASTM B637 UNS N07718
Mandatory requirements	MESC SPE 77/133 2021
	MESC SPE 77/300A 2021
	MESC SPE 77/302 2024
	MESC SPE 77/303 2024
	MESC SPE 77/313 2024
Caps code	CHDF NC10
Dummy Caps code	CDAAR LEES VOBGOU
Inspection category	QSL-1
Tec classification code	CH-DP-MX-UD-RL-XX-XX-API594-VH

MESC	771640-314.1	SP-NRV-006
Buying description	Non Slam	Swing-type check valves
Abbreviated description		VCHS, DN150, CL150, FL, AL825, AL825
Unit of issues		PC
Product group		77DEVV
Additional Data		

Attribute	Value
Nominal size	DN 150
	NPS 6
Design spec, pressure rating	ASME CL 150
Design spec	API 594 MANUFACTURER'S STANDARD
Length, f to f (e to e)	356 mm
	14.00 in
Type of end connection	FLANGED
Type of face	RAISED FACE
Type of pattern	B
Type of closure member	SWING NON SLAM
Type of construction	EXTERNALLY ASSEMBLED HINGE PIN AXIAL FLOW
	INTERNALLY ASSEMBLED HINGE PIN
Type of bonnet/cover	BOLTED
Type of bonnet/cover gasket	GPH W/ CORRUGATED METAL INSERT
	SPIRAL WOUND
Type of seat	METAL
Uni/bi-directional	UNI-DIRECTIONAL
Service(s)	SOUR
Mat requirement, sour service	ISO 15156
Temperature, min	MINUS 50 deg C 85
	MINUS 58 deg F 121
Temperature, max	PLUS 300 deg C 200
	PLUS 570 deg F 392
Emission class	BH
Mat, body	ALLOY 825
Mat, trim	ALLOY 825
Mat, seals	GRAPHITE
Mat spec, body	ASTM A494 -CU5MCUC
	ASTM B564 UNS N08825
Mat spec, cover	ASTM A494 -CU5MCUC
	ASTM B564 UNS N08825
Mat spec, closure member	ASTM A494 -CU5MCUC
	ASTM B564 UNS N08825
Mat spec, other wetted parts	ASTM A494 -CU5MCUC
	ASTM B564 UNS N08825
Mat spec, hinge pin	ASTM B425 UNS N08825
Mat spec, gasket metallic part	ASTM B425 UNS N08825
Mat spec, gasket seal element	GRAPHITE
Mat spec, bolts/studs	ASTM A193 GRADE B8M-CLASS 1 L7M
Mat spec, nut(s)	ASTM A194 GRADE 8MA 7M
Mandatory requirements	MESC SPE 77/104 2023
	MESC SPE 77/300A 2021
	MESC SPE 77/302 2024
	MESC SPE 77/303 2024
	MESC SPE 77/312 2024
	MESC SPE 85/101 2023
	MESC SPE 85/103 2022
	MESC SPE 85/203 2024

MESC	776724-073.1	SP-NRV-007
Buying description	Non Slam	Dual plate check valves
Abbreviated description		VCHDP, DN600, CL300, DF, LTCS, AL825
Unit of issues		PC
Product group		77DEAA
Additional Data		

Attribute	Value
Nominal size	DN 600
	NPS 24
Design spec, pressure rating	ASME CL 300
Design spec	API STD 594 MANUFACTURER'S STANDARD
Design spec, end flanges	ASME B16.5
Length, f to f (e to e)	318 mm
	12.5 in
Type of end connection	DOUBLE FLANGED
Type of face	RAISED FACE
Type of pattern	A
Type of closure member	DUAL PLATE NON SLAM
Type of construction	RETAINERLESS AXIAL FLOW
Type of seat	METAL
Uni/bi-directional	UNI-DIRECTIONAL
Service(s)	SOUR
Mat requirement, sour service	ISO 15156
Temperature, min	MINUS 50 deg C 85
	MINUS 58 deg F 121
Temperature, max	PLUS 345 deg C 200
	PLUS 650 deg F 392
Special requirements	CLADDED
Mat, body	CARBON STEEL, LOW TEMP ALLOY 825
Mat, trim	ALLOY 825
Mat spec, body	ASTM A350 GRADE LF2, CLASS 1 ALLOY 825
	ASTM A352 GRADE LCC
Mat spec, body cladding	UNS N08825
Mat spec, closure member	ASTM A494 -CU5MCUC
	ASTM B564 UNS N08825
Mat spec, other wetted parts	UNS N06625
	UNS N08825
Mat spec, hinge pin	ASTM B425 UNS N08825
Mat spec, spring(s)	API STD 6ACRA UNS N07718
	ASTM B637 UNS N07718
Mandatory requirements	MESC SPE 77/133 2021
	MESC SPE 77/300A 2021
	MESC SPE 77/302 2024
	MESC SPE 77/303 2024
	MESC SPE 77/313 2024
Caps code	CHDF NC10
Dummy Caps code	CDAAR LEES VOBGOU
Inspection category	QSL-1
Tec classification code	CH-DP-MX-UD-RL-XX-XX-API594-VH

MESC	776724-119-1	SP-NRV-008
Buying description	Non Slam	Dual plate check valves
Abbreviated description		VCHDP, DN400, CL600, DF, LTCS, AL825
Unit of issues		PC
Product group		77DEAA
Additional Data		

Attribute	Value
Nominal size	DN 400
	NPS 16
Design spec, pressure rating	ASME CL 600
Design spec	API 594 MANUFACTURER'S STANDARD
Design spec, end flanges	ASME B16.5
Length, f to f (e to e)	305 mm
	12.00 in
Type of end connection	DOUBLE FLANGED
Type of face	RAISED FACE
Type of pattern	A
Type of closure member	DUAL PLATE NON SLAM
Type of construction	RETAINERLESS AXIAL FLOW
Type of seat	METAL
Uni/bi-directional	UNI-DIRECTIONAL
Service(s)	SOUR
Mat requirement, sour service	ISO 15156
Temperature, min	MINUS 50 deg C 85
	MINUS 58 deg F 121
Temperature, max	PLUS 345 deg C 200
	PLUS 650 deg F 392
Special requirements	CLADDED
Mat, body	CARBON STEEL, LOW TEMP ALLOY 825
Mat, trim	ALLOY 825
Mat spec, body	ASTM A350 GRADE LF2, CLASS 1 ALLOY 825
	ASTM A352 GRADE LCC
Mat spec, body cladding	UNS N08825
Mat spec, closure member	ASTM A494 -CU5MCUC
	ASTM B564 UNS N08825
Mat spec, other wetted parts	UNS N06625
	UNS N08825
Mat spec, hinge pin	ASTM B425 UNS N08825
Mat spec, spring(s)	API STD 6ACRA UNS N07718
	ASTM B637 UNS N07718
Mandatory requirements	MESC SPE 77/133 2021
	MESC SPE 77/300A 2021
	MESC SPE 77/302 2024
	MESC SPE 77/303 2024
	MESC SPE 77/313 2024
Caps code	CHDF NC10
Dummy Caps code	CDAAR LEES VOCGOU
Inspection category	QSL-2
Tec classification code	CH-DP-MX-UD-RL-XX-XX-API594-VH

MESC	771044-209.1	SP-NRV-009
Buying description	Non Slam	Piston type check valves
Abbreviated description		VCHP, DN50, CL1500, FL, LTCS, AL825
Unit of issues		PC
Product group		77DEAA
Additional Data		

Attribute	Value
Nominal size	DN 50
	NPS 2
Design spec, pressure rating	ASME CL 1500
Design spec	API STD 602 MANUFACTURER'S STANDARD
Length, f to f (e to e)	368 mm
	14.5 in
Type of end connection	FLANGED
Type of face	RAISED FACE
Type of closure member	PISTON NON SLAM
Type of bore	STANDARD AXIAL FLOW
Type of bonnet/cover	BOLTED
Type of bonnet/cover gasket	SPIRAL WOUND
Type of seat	METAL
Uni/bi-directional	UNI-DIRECTIONAL
Service(s)	SOUR
Mat requirement, sour service	ISO 15156
Temperature, min	MINUS 50 deg C
	MINUS 58 deg F
Temperature, max	PLUS 345 deg C 175
	PLUS 650 deg F 347
Emission class	BH
Mat, body	CARBON STEEL, LOW TEMP
Mat, trim	ALLOY 825
Mat, seals	GRAPHITE
Mat spec, body	ASTM A350 GRADE LF2, CLASS 1
Mat spec, cover	ASTM A350 GRADE LF2, CLASS 1
Mat spec, closure member	ASTM A494 -CU5MCUC
	ASTM B425 UNS N08825
	STELLITE 6
Mat spec, gasket metallic part	ASTM A182 GRADE F 316
	ASTM A182 GRADE F 316L
	ASTM A240 TYPE 316
	ASTM A240 TYPE 316L
Mat spec, gasket seal element	GRAPHITE
Mat spec, bolts/studs	ASTM A320 GRADE L7M
Mat spec, nut(s)	ASTM A194 GRADE 7M
Mandatory requirements	MESC SPE 77/101 2023
	MESC SPE 77/300A 2021
	MESC SPE 77/302 2024
	MESC SPE 77/303 2024
	MESC SPE 77/312 2024
	MESC SPE 85/103 2022
	MESC SPE 85/203 2024
Caps code	CHVF KS18
Dummy Caps code	CPABR CBFS VOFGOU
Inspection category	QSL-1
Tec classification code	CH-PI-MG-UD-XX-BB-XX-API602-ST

MESC	771044-160.1	SP-NRV-010
Buying description	Non Slam	Swing type check valves
Abbreviated description		VCHS, DN80, CL900, FL, LTCS, AL825
Unit of issues		PC
Product group		77DEAA
Additional Data		

Attribute	Value
Nominal size	DN 80
	NPS 3
Design spec, pressure rating	ASME CL 900
Design spec	API 594 MANUFACTURER'S STANDARD
Length, f to f (e to e)	381 mm
	15.00 in
Type of end connection	FLANGED
Type of face	RAISED FACE
Type of pattern	B
Type of closure member	SWING NON SLAM
Type of construction	EXTERNALLY ASSEMBLED HINGE PIN AXIAL FLOW
	INTERNALLY ASSEMBLED HINGE PIN
Type of bonnet/cover	BOLTED
Type of bonnet/cover gasket	RING JOINT OCTAGONAL
	SPIRAL WOUND
Type of seat	METAL
Uni/bi-directional	UNI-DIRECTIONAL
Service(s)	SOUR
Mat requirement, sour service	ISO 15156
Temperature, min	MINUS 50 deg C
	MINUS 58 deg F
Temperature, max	PLUS 345 deg C 175
	PLUS 650 deg F 347
Emission class	BH
Mat, body	CARBON STEEL, LOW TEMP
Mat, trim	ALLOY 825
Mat, seals	GRAPHITE
Mat spec, body	ASTM A350 GRADE LF2, CLASS 1
	ASTM A352 GRADE LCC
Mat spec, cover	ASTM A350 GRADE LF2, CLASS 1
	ASTM A352 GRADE LCC
Mat spec, closure member	ASTM A350 GRADE LF2, CLASS 1
	ASTM A352 GRADE LCC
Mat spec, closure memb facing	ALLOY 825
Mat spec, other wetted parts	ASTM A350 GRADE LF2, CLASS 1
	ASTM A352 GRADE LCC
Mat spec, hinge pin	ASTM B425 UNS N08825
Mat spec, seat facing	ALLOY 825
Mat spec, gasket metallic part	ASTM A182 GRADE F 316 (SPW)
	ASTM A182 GRADE F 316L (SPW)
	ASTM A240 TYPE 316 (SPW)
	ASTM A240 TYPE 316L (SPW)
	SOFT IRON (RTJ)
Mat spec, gasket seal element	GRAPHITE (SPW)
Mat spec, bolts/studs	ASTM A320 GRADE L7M
Mat spec, nut(s)	ASTM A194 GRADE 7M
Mandatory requirements	MESC SPE 77/104 2023
	MESC SPE 77/300A 2021

MESC	771053-076.1	SP-NRV-011
Buying description	Non Slam	Swing-type check valves
Abbreviated description		VCHS, DN250,CL900,FLG,LTCS,AL825
Unit of issues		PC
Product group		77DEAA
Additional Data		

Attribute	Value
Nominal size	DN 250
	NPS 10
Design spec, pressure rating	ASME CL 900
Design spec	API 594 MANUFACTURER'S STANDARD
Length, f to f (e to e)	838 mm
	33.00 in
Type of end connection	FLANGED
Type of face	RAISED FACE
Type of pattern	B
Type of closure member	SWING NON SLAM
Type of construction	INTERNALLY ASSEMBLED HINGE PIN AXIAL FLOW
Type of bonnet/cover	BOLTED
Type of bonnet/cover gasket	RING JOINT OCTAGONAL
	SPIRAL WOUND
Type of seat	METAL
Uni/bi-directional	UNI-DIRECTIONAL
Service(s)	SOUR
Mat requirement, sour service	ISO 15156
Temperature, min	MINUS 50 deg C 85
	MINUS 58 deg F 121
Temperature, max	PLUS 345 deg C 200
	PLUS 650 deg F 392
Emission class	BH
Special requirements	CLADDED
Mat, body	CARBON STEEL, LOW TEMP ALLOY 825
Mat, trim	ALLOY 825
Mat, seals	GRAPHITE
Mat spec, body	ASTM A350 GRADE LF2, CLASS 1 ALLOY 825
	ASTM A352 GRADE LCC
Mat spec, body cladding	UNS N08825
Mat spec, cover	ASTM A350 GRADE LF2, CLASS 1 ALLOY 825
	ASTM A352 GRADE LCC
Mat spec, closure member	ASTM A494 -CU5MCUC
	ASTM B564 UNS N08825
Mat spec, other wetted parts	UNS N06625
	UNS N08825
Mat spec, hinge pin	ASTM B425 UNS N08825
Mat spec, gasket metallic part	ASTM B424 UNS N08825
	ASTM B564 UNS N08825
Mat spec, gasket seal element	GRAPHITE (SPW)
Mat spec, bolts/studs	ASTM A320 GRADE L7M
Mat spec, nut(s)	ASTM A194 GRADE 7M
Mandatory requirements	MESC SPE 77/104 2023
	MESC SPE 77/300A 2021
	MESC SPE 77/302 2024
	MESC SPE 77/303 2024
	MESC SPE 77/312 2024
	MESC SPE 77/313 2024

MESC	776724-167.1	SP-NRV-012
Buying description	Non Slam	Dual plate check valves
Abbreviated description		VCHDP, DN300, CL900, DF, LTCS, AL825
Unit of issues		PC
Product group		77DEAA
Additional Data		

Attribute	Value
Nominal size	DN 300
	NPS 12
Design spec, pressure rating	ASME CL 900
Design spec	API 594 MANUFACTURER'S STANDARD
Design spec, end flanges	ASME B16.5
Length, f to f (e to e)	292 mm
	11.5 in
Type of end connection	DOUBLE FLANGED
Type of face	RAISED FACE
Type of pattern	A
Type of closure member	DUAL PLATE NON SLAM
Type of construction	RETAINERLESS AXIAL FLOW
Type of seat	METAL
Uni/bi-directional	UNI-DIRECTIONAL
Service(s)	SOUR
Mat requirement, sour service	ISO 15156
Temperature, min	MINUS 50 deg C 85
	MINUS 58 deg F 121
Temperature, max	PLUS 345 deg C 200
	PLUS 650 deg F 392
Special requirements	CLADDED
Mat, body	CARBON STEEL, LOW TEMP ALLOY 825
Mat, trim	ALLOY 825
Mat spec, body	ASTM A350 GRADE LF2, CLASS 1 ALLOY 825
	ASTM A352 GRADE LCC
Mat spec, body cladding	UNS N08825
Mat spec, closure member	ASTM A494 -CU5MCUC
	ASTM B564 UNS N08825
Mat spec, other wetted parts	UNS N06625
	UNS N08825
Mat spec, hinge pin	ASTM B425 UNS N08825
Mat spec, spring(s)	API STD 6ACRA UNS N07718
	ASTM B637 UNS N07718
Mandatory requirements	MESC SPE 77/133 2021
	MESC SPE 77/300A 2021
	MESC SPE 77/302 2024
	MESC SPE 77/303 2024
	MESC SPE 77/313 2024
Caps code	CHDF NC10
Dummy Caps code	CDAAR LEES VOEGOU
Inspection category	QSL-2
Tec classification code	CH-DP-MX-UD-RL-XX-XX-API594-VH

MESC	776724-168.1	SP-NRV-013
Buying description	Non Slam	Dual plate check valves
Abbreviated description		VCHDP, DN350, CL900, DF, LTCS, AL825
Unit of issues		PC
Product group		77DEAA
Additional Data		

Attribute	Value
Nominal size	DN 350
	NPS 14
Design spec, pressure rating	ASME CL 900
Design spec	API 594 MANUFACTURER'S STANDARD
Design spec, end flanges	ASME B16.5
Length, f to f (e to e)	356 mm
	14.00 in
Type of end connection	DOUBLE FLANGED
Type of face	RAISED FACE
Type of pattern	A
Type of closure member	DUAL PLATE NON SLAM
Type of construction	RETAINERLESS AXIAL FLOW
Type of seat	METAL
Uni/bi-directional	UNI-DIRECTIONAL
Service(s)	SOUR
Mat requirement, sour service	ISO 15156
Temperature, min	MINUS 50 deg C 85
	MINUS 58 deg F 121
Temperature, max	PLUS 345 deg C 200
	PLUS 650 deg F 392
Special requirements	CLADDED
Mat, body	CARBON STEEL, LOW TEMP ALLOY 825
Mat, trim	ALLOY 825
Mat spec, body	ASTM A350 GRADE LF2, CLASS 1 ALLOY 825
	ASTM A352 GRADE LCC
Mat spec, body cladding	UNS N08825
Mat spec, closure member	ASTM A494 -CU5MCUC
	ASTM B564 UNS N08825
Mat spec, other wetted parts	UNS N06625
	UNS N08825
Mat spec, hinge pin	ASTM B425 UNS N08825
Mat spec, spring(s)	API STD 6ACRA UNS N07718
	ASTM B637 UNS N07718
Mandatory requirements	MESC SPE 77/133 2021
	MESC SPE 77/300A 2021
	MESC SPE 77/302 2024
	MESC SPE 77/303 2024
	MESC SPE 77/313 2024
Caps code	CHDF NC10
Dummy Caps code	CDAAR LEES VOEGOU
Inspection category	QSL-2
Tec classification code	CH-DP-MX-UD-RL-XX-XX-API594-VH

MESC	771044-216-1	SP-NRV-014
Buying description	Non Slam	Swing type check valves
Abbreviated description	VCHS, DN250, CL1500, FL, LTCS, AL825	
Unit of issues	PC	200 CL2500
Product group	77DEAA	
Additional Data		

Attribute	Value
Nominal size	DN 250 200
	NPS 10 8
Design spec, pressure rating	ASME CL 1500 2500
Design spec	API 594 MANUFACTURER'S STANDARD
Length, f to f (e to e)	991 mm
	39.00 in
Type of end connection	FLANGED
Type of face	RAISED FACE
Type of pattern	B
Type of closure member	SWING NON SLAM
Type of construction	EXTERNALLY ASSEMBLED HINGE PIN AXIAL FLOW
	INTERNALLY ASSEMBLED HINGE PIN
Type of bonnet/cover	BOLTED
Type of bonnet/cover gasket	RING JOINT OCTAGONAL
	SPIRAL WOUND
Type of seat	METAL
Uni/bi-directional	UNI-DIRECTIONAL
Service(s)	SOUR
Mat requirement, sour service	ISO 15156
Temperature, min	MINUS 50 deg C
	MINUS 58 deg F
Temperature, max	PLUS 345 deg C 175
	PLUS 650 deg F 347
Emission class	BH
Mat, body	CARBON STEEL, LOW TEMP
Mat, trim	ALLOY 825
Mat, seals	GRAPHITE
Mat spec, body	ASTM A350 GRADE LF2, CLASS 1
	ASTM A352 GRADE LCC
Mat spec, cover	ASTM A350 GRADE LF2, CLASS 1
	ASTM A352 GRADE LCC
Mat spec, closure member	ASTM A350 GRADE LF2, CLASS 1
	ASTM A352 GRADE LCC
Mat spec, closure memb facing	ALLOY 825
Mat spec, other wetted parts	ASTM A350 GRADE LF2, CLASS 1
	ASTM A352 GRADE LCC
Mat spec, hinge pin	ASTM B425 UNS N08825
Mat spec, seat facing	ALLOY 825
Mat spec, gasket metallic part	ASTM A182 GRADE F 316 (SPW)
	ASTM A182 GRADE F 316L (SPW)
	ASTM A240 TYPE 316 (SPW)
	ASTM A240 TYPE 316L (SPW)
	SOFT IRON (RTJ)
Mat spec, gasket seal element	GRAPHITE (SPW)
Mat spec, bolts/studs	ASTM A320 GRADE L7M
Mat spec, nut(s)	ASTM A194 GRADE 7M
Mandatory requirements	MESC SPE 77/104 2023
	MESC SPE 77/300A 2021

NOM. PIPE SIZE	LINE NO.	MAT'L SPEC	FROM	TO	P&ID	INSUL.		MEDIUM	P H A S E	OPERATING CONDITIONS		DESIGN CONDITIONS		AT OPERATING CONDITIONS					TEST CONDITIONS	
						T Y P E	THICK NESS			PRESS bar A	TEMP. C	PRESS bar A	TEMP. C	DENSITY kg/m3	VISC cP	FLOW RATE		VEL m/s	PRESS. bar A	TEST MEDIUM
																kg/h	m3/h			
1"	1"-632-CI-0167-13461	13461	1"-635-CI-0036-13461	1/2"-632-WT-0204-11432	4355-PS3BR11-6-51-0002-001;4355-PS3K-6-51-0100-001;4355-PS3K-6-51-0046-001			Chemical Injection	L	5.2	AMB	18.0	4 / 85	1070	SUBJECT TO MSDS	0.29	0.00027	-		
1"	1"-632-CI-0195-13461	13461	1"-635-CI-0044-13461	1/2"-632-WT-0204-11432	4355-PS3BR11-6-51-0002-001;4355-PS3K-6-51-0102-001;4355-PS3K-6-51-0046-001			Chemical Injection	L	5	AMB	18.0	4 / 85	SUBJECT TO MSDS	SUBJECT TO MSDS	-	0.00017083	-		
10"	10"-633-OC-0027-91093KS	91093KS	10"-633-OC-0037-96620-2CW	10"-635-OC-0019-91093KS	4355-PS3BR12-6-50-0001-001			Oil Crude	G+L	10.2	9.1 to 42	117.0	-29 / 85	79 to 160	0.012 / 5.6 / 1.3	52162.9 to 94811.1	580 to 909.3	4.15 to 6.5		
1"	1"-633-CI-0131-13461	13461	1"-635-CI-0051-13461	2"-633-WT-0215-11432	4355-PS3BR12-6-51-0002-001;4355-PS3M-6-51-0066-001;4355-PS3M-6-51-0053-001			Chemical Injection	L	5	AMB	18.0	4 / 85	1070	SUBJECT TO MSDS	3.21	0.003	-		
1"	1"-633-CI-0132-13461	13461	1"-635-CI-0056-13461	1/2"-633-WT-0215-11432	4355-PS3BR12-6-51-0002-001;4355-PS3M-6-51-0066-001;4355-PS3M-6-51-0053-001			Chemical Injection	L	5	AMB	18.0	4 / 85	SUBJECT TO MSDS	SUBJECT TO MSDS	-	0.0019	-		
3/4"	3/4"-633-CI-0133-13461	13461	1"-635-CI-0061-13461	2"-633-WT-0215-11432	4355-PS3BR12-6-51-0002-001;4355-PS3M-6-51-0073-001;4355-PS3M-6-51-0053-001			Chemical Injection	L	2.1 to 5.0	AMB	18.0	4 / 85	SUBJECT TO MSDS	SUBJECT TO MSDS	-	0.054	-		
1", 2"	2"-632-GN-0031-11503	11503	PURGE/FLUSHING CONNECTION	2"-632-OC-0146-151093KS	4355-PS3K-6-50-0005-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF	-		
1", 2"	2"-632-GN-0033-11503	11503	PURGE/FLUSHING CONNECTION	2"-632-OC-0147-151093KS	4355-PS3K-6-50-0005-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF	-		
12"	12"-632-OC-0012-11093KS	11093KS	632-84-V-003 N3	632-84-UZV-010	4355-PS3K-6-50-0012-001;4355-PS3K-6-50-0017-001			Oil Crude	G+L	10.2	32 to 54	18.0	-29 / 85	840 to 882	3 / 1.3	69670.8 to 204026.9	83 to 233.6	0.32 to 0.9		
36"	36"-632-GP-0080-11503	11503	632-11-UZV-052	20"-632-GP-0110-31503	4355-PS3K-6-50-0012-001;4355-PS3K-6-50-0041-001			Gas Process	G	9.33	32 to 54	18.0	-29 / 150	10.24	0.011	254846.8 to 314929	25186.9 to 31196.5	11.27 to 13.96		
24"	24"-632-GP-0084-11503	11503	632-11-UZV-053	24"-632-GP-0080-11503	4355-PS3K-6-50-0013-001;4355-PS3K-6-50-0012-001			Gas Process	G	10.2	32 to 54	18.0	-29 / 150	11.3	0.012	127423.4 to 157464.5	11492.7 to 14093.9	14.3		
12"	12"-632-OC-0013-11093KS	11093KS	632-84-V-004 N3	632-84-UZV-012	4355-PS3K-6-50-0013-001;4355-PS3K-6-50-0012-001			Oil Crude	G+L	10.2	32 to 54	18.0	-29 / 85	838 to 882	3/1.3	69670.8 to 204026.9	83 to 233.5	12.3		
10"	10"-632-GP-0092-11503	11503	632-11-UZV-054	24"-632-GP-0080-11503	4355-PS3K-6-50-0014-001;4355-PS3K-6-50-0012-001			Gas Process	G	10.7	55	18.0	-29 / 150	11.4	0.012	17692 to 1643	1626 to 1643	8.8		
20"	20"-632-OC-0017-11093KS	11093KS	632-84-UZV-015	632-84-V-006 N1	4355-PS3K-6-50-0017-001			Oil Crude	G+L	1.45	29 to 50	8.0	4 / 85	70 to 82	0.0096 / 4.6 / 1.4	265208.6 to 549186.7	3352.68 to 7421.6	5.09 to 11.27		
20"	20"-632-GP-0107-11503	11503	632-84-V-006 N2	632-11-UZV-001	4355-PS3K-6-50-0017-001;4355-PS3K-6-50-0030-001			Gas Process	G	1.25	28 to 49	8.0	4 / 85	2.24	0.01 / 4.8	8600.43 to 18753.63	3889.78 to 8695.14	5.75 to 12.86		
8"	8"-632-OC-0029-31503	31503	632-84-P-001B	12"-632-OC-0040-31503	4355-PS3K-6-50-0018-001			Oil Crude	L	26	29 to 50	47.0	4 / 85	808 - 877	1.8 - 6.7	85 000 - 275 000	100 - 206	1.7		
8"	8"-632-OC-0034-31503	31503	632-84-P-001C	8"-632-OC-0040-31503	4355-PS3K-6-50-0018-001			Oil Crude	L	26	29 to 50	47.0	4 / 85	808 - 877	1.8 - 6.7	85 000 - 275 000	100 - 206	1.8		
8"	8"-632-OC-0040-31503	31503	632-84-P-001A	8"-632-OC-0038-31503	4355-PS3K-6-50-0018-001			Oil Crude	L	26	29 to 50	47.0	4 / 85	808 - 877	1.8 - 6.7	85 000 - 275 000	100 - 206	1.8		
8", 12"	12"-632-OC-0038-31503	31503	12"-632-OC-0040-31503	12"-635-OC-0018-31503	4355-PS3K-6-50-0018-001;4355-PS3BR12-6-50-0001-001			Oil Crude	L	23	29 to 50	47.0	4 / 85	815 - 853	4.7 / 1.4	106,848 - 321,920	131 - 379	0.97 to 3.55		
10"	10"-632-PW-0037-16620	16620	10"-632-PW-0036-16620	632-83-P-003A	4355-PS3K-6-50-0019-001			Produced Water	L	2.25	28 to 49	18.0	4 / 85	1175.46	4.8 / 1.4	229680	198	1.0		
10"	10"-632-PW-0041-16620	16620	10"-632-PW-0036-16620	632-83-P-003B	4355-PS3K-6-50-0019-001			Produced Water	L	2.25	28 to 49	18.0	4 / 85	1175.46	4.8 / 1.4	229680	198	1.0		
6"	6"-632-OR-0007-16620	16620	632-83-V-001 N4	632-83-P-005B	4355-PS3K-6-50-0024-001;4355-PS3K-6-50-0027-001			Oil Recovered	L	2	54	18.0	4 / 85	1172	5.8 / 1.3	98160	81.8	1.1		
1-1/2"	1 1/2"-632-CI-0038-16620	16620	632-42-UZV-019	16"-632-PW-0052-16620	4355-PS3K-6-50-0024-001;4355-PS3K-6-51-0101-001; 4355-PS3BR11-6-51-0002-001			Chemical Injection	L	1.35	AMB	8.0	4 / 85	1120-1200	10	16.8	0.014	-		
6"	6"-632-PW-0075-36620	36620	632-11-ARV-0011	8"-632-PW-0081-16620	4355-PS3K-6-50-0026-001			Produced Water	L	23.4	32 to 54	49.0	4 / 85	1172	1.3	221121.99	191.76	2.6		
12"	12"-632-PW-0080-36620	36620	632-83-P-004C	12"-632-PW-0082-36620	4355-PS3K-6-50-0026-001			Produced Water	L	23.4	32 to 54	49.0	4 / 85	1172	1.3	523737 to 737073.3	450 to 639.2	2.4		
6"	6"-632-PW-0087-36620	36620	632-11-ARV-0012	8"-632-PW-0081-16620	4355-PS3K-6-50-0026-001			Produced Water	L	23.4	32 to 54	49.0	4 / 85	1172	1.3	221121.99	191.76	2.6		
6"	6"-632-OR-0008-16620	16620	6"-632-OR-0007-16620	632-83-P-005A	4355-PS3K-6-50-0027-001			Oil Recovered	L	2	54	18.0	4 / 85	1172	5.8 / 1.3	98160	81.8	1.1		
20"	20"-632-GP-0050-13461-3HE	13461	632-11-V-001 N2	632-11-K-001	4355-PS3K-6-50-0030-001;4355-PS3K-6-50-0031-001	3HE		Gas Process	G	1.11	27 to 49	12.5	-29 / 150	1.86 to 1.97	0.011	8600.40 to 18753.56	4420.29 to 9880.40	6.33 to 14.15		
4"	4"-632-GC-0037-13461	13461	632-11-V-001 N3A	632-11-P-001B	4355-PS3K-6-50-0030-001;4355-PS3K-6-50-0033-001			Gas Condensate	L	1.15	28 to 49	18.0	-29 / 100	799 to 854	6.8	8540	10	0.30		
4"	4"-632-GC-0038-13461	13461	4"-632-GC-0037-13461	632-11-P-001A	4355-PS3K-6-50-0033-001			Gas Condensate	L	1.15	28 to 49	18.0	-29 / 100	799 to 854	6.8	8540	10	0.30		
3"	3"-632-GC-0042-13461	13461	632-11-P-001A	4"-632-GC-0002-13461	4355-PS3K-6-50-0033-001;4355-PS3K-6-50-0017-001	3PG		Gas Condensate	L	2.15	28 to 65	18.0	-29 / 100	623 to 978	0.01 / 35 / 0.44	8534	10	0.52		
14"	14"-632-GP-0061-13461-3HE	13461	632-11-V-002 N2	632-11-K-001	4355-PS3K-6-50-0034-001;4355-PS3K-6-50-0035-001	3HE		Gas Process	G	2.8	65	12.5	-29 / 150	4.2 to 4.9	0.011	8600.5 to 18650	1931.7 to 3953.8	5.7 to 11.67		
20"	20"-632-GP-0110-36620	36620	36"-632-GP-0100-16620	632-11-V-101 N1	4355-PS3K-6-50-0041-001			Gas Process	G	9.13	34 to 57	41.0	-45 / 150	10.08	0.012	87815.8 to 111193	8854 to 11160.2	13.5 to 16.94		
20"	20"-632-GP-0116-33461-3HE	33461	632-11-V-101 N2	632-11-K-100	4355-PS3K-6-50-0041-001;4355-PS3K-6-50-0042-001	3HE		Gas Process	G	8.73	34 to 57	41.0	-45 / 150	9.63	0.011	87815.7 to 111192.9	9267.6 to 11687.4	14.07 to 17.75		
16"	16"-632-GP-0131-33461-3HE	33461	632-11-V-102 N2	632-11-K-100	4355-PS3K-6-50-0044-001;4355-PS3K-6-50-0045-001	3HE		Gas Process	G	19.7	55	41.0	-45 / 150	20.83 to 23.12	0.01	87815.67 to 109880.65	4215.89 to 4752.63	10.27 to 11.57		
20"	20"-632-GP-2116-33461-3HE	33461	632-11-V-201 N2	632-11-K-200	4355-PS3K-6-50-0055-001;4355-PS3K-6-50-0056-001	3HE		Gas Process	G	8.73	34 to 57	41.0	-45 / 150	9.63	0.011	87815.7 to 111192.9	9267.6 to 11687.4	14.07 to 17.75		
16"	16"-632-GP-2131-33461-3HE	33461	632-11-V-202 N2	632-11-K-200	4355-PS3K-6-50-0058-001;4355-PS3K-6-50-0059-001	3HE		Gas Process	G	19.7	55	41.0	-45 / 150	20.83 to 23.12	0.01	87815.67 to 10 to				

NOM. PIPE SIZE	LINE NO.	MAT'L SPEC	FROM	TO	P&ID	INSUL.		MEDIUM	P H A S E	OPERATING CONDITIONS		DESIGN CONDITIONS		AT OPERATING CONDITIONS					TEST CONDITIONS	
						T Y P E	THICK NESS			PRESS bar A	TEMP. C	PRESS bar A	TEMP. C	DENSITY kg/m3	VISC cP	FLOW RATE		VEL m/s	PRESS. bar A	TEST MEDIUM
24"	24"-632-WT-0210-31432	31432	16"-632-WT-0207-31432	24"-632-WT-0215-31432	4355-PS3K-6-51-0047-001;4355-PS3K-6-51-0059-001			Water Tempered or Treated	L	11	42	22.5	4 / 85	994.7	0.63	2904524	2920	2.96		
24"	24"-632-WR-0025-17320	17320	632-21-T-001C	30"-632-WR-0074-17320	4355-PS3K-6-51-0052-001;4355-PS3K-6-51-0041-001			Water Raw (Sea water)	L	6.9	15 - 36	12.0	4 / 85	1027	0.79	3486665	3395	3.4		
3"	3"-632-WT-0218-11432	11432	632-32-T-001 N2	632-32-P-002B	4355-PS3K-6-51-0056-001;4355-PS3K-6-51-0057-001			Water Tempered or Treated	L	1.2	15-48	8.0	4 / 85	989.8	0.56-1.136	12867	13	0.85		
3"	3"-632-WT-0220-11432	11432	3"-632-WT-0218-11432	632-32-P-002A	4355-PS3K-6-51-0057-001			Water Tempered or Treated	L	1.2	15-48	8.0	4 / 85	989.8	0.56-1.136	12867	13	0.85		
3"	3"-632-DC-0329-13844	13844	3"-632-DC-0308-11503	632-70-P-001A	4355-PS3K-6-51-0062-001			Closed Drain	L	1.2	50	8.0	-45 / 85	862.2	6.97	8622	10	0.6		
3"	3"-632-DC-0308-13844	13844	632-70-V-001 N3	632-70-P-001B	4355-PS3K-6-51-0063-001;4355-PS3K-6-51-0062-001			Closed Drain	L	1.2	50	8.0	-45 / 85	862.2	6.97	8622	10	0.6		
3"	3"-632-DO-0171-17320	17320	632-39-V-001 N2	632-39-P-001B	4355-PS3K-6-51-0071-001;4355-PS3K-6-51-0076-001			Open Drain	L	ATM	AMB	4.5	4 / 85	950-1100	1.5	14300	13	0.64		
3"	3"-632-OD-0050-11441	11441	632-39-T-001 N2	632-39-P-002B	4355-PS3K-6-51-0073-001;4355-PS3K-6-51-0074-001			Oil Drain	L	ATM	AMB	6.0	4 / 85	800	12	10400	13	0.85		
3"	3"-632-OD-0048-11441	11441	3"-632-OD-0050-11441	632-39-P-002A	4355-PS3K-6-51-0074-001			Oil Drain	L	ATM	AMB	6.0	4 / 85	800	12	10400	13	0.85		
3"	3"-632-DO-0172-17320	17320	3"-632-DO-0171-17320	632-39-P-001A	4355-PS3K-6-51-0076-001			Open Drain	L	ATM	AMB	4.5	4 / 85	950-1100	1.5	14300	13	0.64		
2"	2"-632-OD-0055-11441	11441	FLUSHING CONNECTION	4"-632-OD-0045-11441	4355-PS3K-6-51-0087-001			Oil Drain	L	ATM	AMB	FW+7.5 / - 2.5 mbar	4 / 85	800	12	NNF	NNF	-		
2"	2"-632-OD-0056-11441	11441	FLUSHING CONNECTION	4"-632-OD-0046-11441	4355-PS3K-6-51-0087-001			Oil Drain	L	ATM	AMB	FW+7.5 / - 2.5 mbar	4 / 85	800	12	NNF	NNF	-		
2"	2"-632-OD-0057-11441	11441	FLUSHING CONNECTION	4"-632-OD-0047-11441	4355-PS3K-6-51-0087-001			Oil Drain	L	ATM	AMB	FW+7.5 / - 2.5 mbar	4 / 85	800	12	NNF	NNF	-		
2"	2"-632-OD-0058-11441	11441	FLUSHING CONNETION	6"-632-OD-0040-11441	4355-PS3K-6-51-0087-001			Oil Drain	L	ATM	AMB	FW+7.5 / - 2.5 mbar	4 / 85	800	12	NNF	NNF	-		
2"	2"-632-GN-0045-11432	11432	NITROGEN PURGE	632-42-A-001 TP3	4355-PS3K-6-51-0100-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF	-		
2"	2"-632-GN-0047-11432	11432	NITROGEN PURGE	632-42-A-002 TP3	4355-PS3K-6-51-0100-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF	-		
1/2"	1/2"-632-GP-0020-16620	16620	632-42-UZV-004	1/2"-632-GP-0078-11503	4355-PS3K-6-51-0100-001;4355-PS3K-6-50-0012-001			Chemical Injection	L	10.2	AMB	18.0	4 / 85	835	3.71	1.336	0.0016	-		
1/2"	1/2"-632-CI-0065-16620	16620	632-42-UZV-008	1/2"-632-OC-0012-11093KS	4355-PS3K-6-51-0100-001;4355-PS3K-6-50-0012-001			Chemical Injection	L	10.2	AMB	18.0	4 / 85	1020	SUBJECT TO MSDS	1.785	0.00175	-		
1/2"	1/2"-632-CI-0024-16620	16620	632-42-UZV-005	1/2"-632-GP-0085-11503	4355-PS3K-6-51-0100-001;4355-PS3K-6-50-0013-001			Chemical Injection	L	10.2	AMB	18.0	4 / 85	835	3.71	1.336	0.0016	-		
1/2"	1/2"-632-CI-0066-16620	16620	632-42-UZV-009	12"-632-OC-0013-11093KS	4355-PS3K-6-51-0100-001;4355-PS3K-6-50-0013-001			Chemical Injection	L	10.2	AMB	18.0	4 / 85	1020	SUBJECT TO MSDS	1.785	0.00175	-		
1/2"	1/2"-632-CI-0028-16620	16620	632-42-UZV-006	1/2"-632-GP-0090-11503	4355-PS3K-6-51-0100-001;4355-PS3K-6-50-0014-001			Chemical Injection	L	10.7	AMB	18.0	4 / 85	835	3.71	NNF	NNF	-		
1/2"	1/2"-632-CI-0067-16620	16620	632-42-UZV-010	4"-632-OC-0016-16620	4355-PS3K-6-51-0100-001;4355-PS3K-6-50-0014-001			Chemical Injection	L	10.7	AMB	18.0	4 / 85	1020	SUBJECT TO MSDS	NNF	NNF	-		
1/2"	1/2"-632-CI-0158-16620	16620	632-42-UZV-007	1/2"-632-GP-0107-11503	4355-PS3K-6-51-0100-001;4355-PS3K-6-50-0017-001			Chemical Injection	L	1.5	AMB	8.0	4 / 85	835	3.71	0.1002	0.00012	-		
1/2"	1/2"-632-CI-0261-36620	36620	632-42-UZV-011	1/2"-632-OC-0020-31503	4355-PS3K-6-51-0100-001;4355-PS3K-6-50-0017-001			Chemical Injection	L	1.3	AMB	47.0	4 / 85	1020	SUBJECT TO MSDS	0.054	5.2917E-05	-		
2"	2"-632-GN-0049-11432	11432	HOSE CONNECTION	632-42-A-003 TP3	4355-PS3K-6-51-0101-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF	-		
2"	2"-632-GN-0051-11432	11432	HOSE CONNECTION	632-42-A-004 TP3	4355-PS3K-6-51-0101-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF	-		
1/2"	1/2"-632-CI-0036-36620	36620	632-42-UZV-014	1/2"-632-OC-0038-31503	4355-PS3K-6-51-0101-001;4355-PS3K-6-50-0018-001			Chemical Injection	L	23.5	AMB	47.0	4 / 85	1120-1200	10	0.18	0.00038	-		
1/2"	1/2"-632-CI-0041-16620	16620	632-42-UZV-018	10"-632-PW-0036-16620	4355-PS3K-6-51-0101-001;4355-PS3K-6-50-0019-001			Chemical Injection	L	9	AMB	18.0	4 / 85	1120-1200	10	1.44	0.0012	-		
1/2"	1/2"-632-CI-0039-16620	16620	632-42-UZV-016	12"-632-PW-0011-16620	4355-PS3K-6-51-0101-001;4355-PS3K-6-50-0021-001			Chemical Injection	L	10.2	AMB	18.0	4 / 85	1120-1200	10	3.66	0.00305	-		
1/2"	1/2"-632-CI-0040-16620	16620	632-42-UZV-017	12"-632-PW-0022-16620	4355-PS3K-6-51-0101-001;4355-PS3K-6-50-0022-001			Chemical Injection	L	10.2	AMB	18.0	4 / 85	1120-1200	10	3.66	0.00305	-		
1/2"	1/2"-632-CI-0058-16620	16620	632-42-UZV-013	20"-632-PW-0068-16620	4355-PS3K-6-51-0101-001;4355-PS3K-6-50-0026-001			Chemical Injection	L	1.2	AMB	18.0	4 / 85	1120-1200	10	7.67	0.00639	-		
1/2"	1/2"-632-CG-0015-66620	66620	632-42-UZV-020	1/2"-632-GC-0024-63461	4355-PS3K-6-51-0102-001; 4355-PS3K-6-50-0090-001			Chemical Glycol	L	47.3	AMB	65.0	4 / 85	1115	11.47	1.91	0.00172	-		
3/4"	3/4"-632-CI-0222-13461	13461	3/4"-632-CI-0270-13461	2"-632-WT-0204-11432	4355-PS3K-6-51-0102-001;4355-PS3K-6-51-0046-001			Chemical Injection	L	5	AMB	18.0	4 / 85	SUBJECT TO MSDS	SUBJECT TO MSDS	-	0.054	-		
1/2"	1/2"-632-CI-0223-13461	13461	3/4"-632-CI-0222-13461	1/2"-632-WT-0218-11432	4355-PS3K-6-51-0102-001;4355-PS3K-6-51-0057-001			Chemical Injection	L	2.1	AMB	18.0	4 / 85	SUBJECT TO MSDS	SUBJECT TO MSDS	-	0.002	-		
18"	18"-630-WF-0002-17012	17012	630-33-P-001	630-33-S-001	4355-PS3L-3-59-0001-001			Water Fire (Fighting)	L	13.2	36	21.0	85	1026	1.2	2154600	2100	-	31.5	WATER
18"	18"-630-WF-0003-17012	17012	630-33-P-002	630-33-S-002	4355-PS3L-3-59-0002-001			Water Fire (Fighting)	L	13.2	36	21.0	85	1026	1.2	2154600	2100	-	31.5	WATER
18"	18"-630-WF-0008-17012	17012	630-33-S-003	630-33-P-003	4355-PS3L-3-59-0003-001			Water Fire (Fighting)	L	13.2	36	21.0	85	1026	1.2	2154600	2100	-	31.5	WATER
18"	18"-630-WF-0010-17012	17012	630-33-P-004	630-33-S-004	4355-PS3L-3-59-0004-001			Water Fire (Fighting)	L	13.2	36	21.0	85	1026	1.2	2154600	2100	3.6	31.5	WATER
4"	4"-630-WF-0085-17012	17012	4"-630-WF-0082-17012	630-33-P-005	4355-PS3L-3-59-0011-001	-	-	Water Fire (Fighting)	L	7.9	36	21.0	85	1026	1.2	66690	65	2.2	31.5	WATER
1-1/2"	1 1/2"-630-CI-0001-13461	13461	CI INHIB. FROM TOTE TANK	630-42-A-001 TP1	4355-PS3L-6-51-0001-001			Chemical Injection	L	ATM	AMB	FL+60 / - 8.5 mbar	4 / 85	835	2.59	7.68	0.0092	-		
1-1/2"	1 1/2"-630-GV-0001-13461	13461	630-42-A-001 TP4	VENT TO SAFE LOCATION	4355-PS3L-6-51-0001-001			Gas Vent	G	ATM	AMB	VTA	VTA	-	-	NNF	NNF	-		
1-1/2"	1 1/2"-630-CI-0003-13461	13461	CI INHIB. FROM TOTE TANK	630-42-A-002 TP1	4355-PS3L-6-51-0002-001			Chemical Injection	L	ATM	AMB	FL+60 / - 8.5 mbar	4 / 85	835	2.59	24.2	0.029	-		
2"	2"-630-GV-0002-13461	13461	630-42-A-002 TP4	VENT TO SAFE LOCATION	4355-PS3L-6-51-0002-001			Gas Vent	G	ATM	AMB	VTA	VTA	-	-	NNF	NNF	-		
1-1/2"	1 1/2"-630-CI-0007-13461	13461	CI INHIB. FROM DRUM	630-42-A-004 TP1	4355-PS3L-6-51-0004-001			Chemical Injection	L	ATM	AMB	FL+60 / - 8.5 mbar	4 / 85	1070	SUBJECT TO MSDS	0.29	0.00027083	-		
1-1/2"	1 1/2"-630-GV-0004-13461	13461	630-42-A-004 TP4	VENT TO SAFE LOCATION	4355-PS3L-6-51-0004-001			Gas Vent	G	ATM	AMB	VTA	VTA	-	-	NNF	NNF	-		

NOM. PIPE SIZE	LINE NO.	MAT'L SPEC	FROM	TO	P&ID	INSUL.		MEDIUM	P H A S E	OPERATING CONDITIONS		DESIGN CONDITIONS		AT OPERATING CONDITIONS					TEST CONDITIONS	
						T Y P E	THICK NESS			PRESS bar A	TEMP. C	PRESS bar A	TEMP. C	DENSITY kg/m3	VISC cP	FLOW RATE		VEL m/s	PRESS. bar A	TEST MEDIUM
																kg/h	m3/h			
1/2"	1/2"-630-CI-0008-13461	13461	1/2"-630-CI-0009-13461	1/2"-630-WT-0037-11432	4355-PS3L-6-51-0004-001;4355-PS3L-6-51-0063-001			Chemical Injection	L	5.2	AMB	18.0	4 / 85	1070	SUBJECT TO MSDS	0.535	0.0005	-		
1-1/2"	1 1/2"-630-CI-0010-13461	13461	SCALE INHIB. FROM TOTE TANK	630-42-A-005 TP1	4355-PS3L-6-51-0005-001			Chemical Injection	L	ATM	AMB	FL+60 / - 8.5 mbarg	4 / 85	1120-1200	10	18	0.015	-		
1-1/2"	1 1/2"-630-GV-0005-13461	13461	630-42-A-005 TP4	VENT TO SAFE LOCATION	4355-PS3L-6-51-0005-001			Gas Vent	G	ATM	AMB	VTA	VTA	-	-	NNF	NNF	-		
1-1/2"	1 1/2"-630-CI-0016-13461	13461	COALESCING AGENT FROM TOTE TANK	630-42-A-007 TP1	4355-PS3L-6-51-0007-001			Chemical Injection	L	ATM	AMB	FL+60 / - 8.5 mbarg	4 / 85	SUBJECT TO MSDS	SUBJECT TO MSDS	-	0.0074	-		
1-1/2"	1 1/2"-630-GV-0007-13461	13461	630-42-A-007 TP4	VENT TO SAFE LOCATION	4355-PS3L-6-51-0007-001			Gas Vent	G	ATM	AMB	VTA	VTA	-	-	NNF	NNF	-		
1-1/2"	1 1/2"-630-CI-0018-13461	13461	FLOCCULANT FROM TOTE TANK	630-42-A-008 TP1	4355-PS3L-6-51-0008-001			Chemical Injection	L	ATM	AMB	FL+60 / - 8.5 mbarg	4 / 85	SUBJECT TO MSDS	SUBJECT TO MSDS	-	0.0144	-		
1-1/2"	1 1/2"-630-GV-0008-13461	13461	630-42-A-008 TP4	VENT TO SAFE LOCATION	4355-PS3L-6-51-0008-001			Gas Vent	G	ATM	AMB	VTA	VTA	-	-	NNF	NNF	-		
1-1/2"	1 1/2"-630-CI-0020-13461	13461	DE-EMULSIFIER FROM TOTE TANK	630-42-A-009 TP1	4355-PS3L-6-51-0009-001			Chemical Injection	L	ATM	AMB	FL+60 / - 8.5 mbarg	4 / 85	910	54	20.02	0.022	-		
1-1/2"	1 1/2"-630-GV-0009-11503	11503	630-42-A-009 TP4	VENT TO SAFE LOCATION	4355-PS3L-6-51-0009-001			Gas Vent	G	ATM	AMB	VTA	VTA	-	-	NNF	NNF	-		
1-1/2"	1 1/2"-630-CI-0022-13461	13461	ASPHALTENE INHIB. FROM TOTE TANK	630-42-A-010 TP1	4355-PS3L-6-51-0010-001			Chemical Injection	L	ATM	AMB	FL+60 / - 8.5 mbarg	4 / 85	SUBJECT TO MSDS	SUBJECT TO MSDS	-	0.058	-		
2"	2"-630-GV-0010-13461	13461	630-42-A-010 TP4	VENT TO SAFE LOCATION	4355-PS3L-6-51-0010-001			Gas Vent	G	ATM	AMB	VTA	VTA	-	-	NNF	NNF	-		
1-1/2"	1 1/2"-630-CI-0024-13461	13461	ANTIFOAM FROM TOTE TANK	630-42-A-011 TP1	4355-PS3L-6-51-0011-001			Chemical Injection	L	ATM	AMB	FL+60 / - 8.5 mbarg	4 / 85	SUBJECT TO MSDS	SUBJECT TO MSDS	-	0.0058	-		
1-1/2"	1 1/2"-630-GV-0011-13461	13461	630-42-A-011 TP4	VENT TO SAFE LOCATION	4355-PS3L-6-51-0011-001			Gas Vent	G	ATM	AMB	VTA	VTA	-	-	NNF	NNF	-		
1-1/2"	1 1/2"-630-CI-0026-13461	13461	pH NEUTRALIZER FROM DRUM	630-42-A-012 TP1	4355-PS3L-6-51-0012-001			Chemical Injection	L	ATM	AMB	FL+60 / - 8.5 mbarg	4 / 85	SUBJECT TO MSDS	SUBJECT TO MSDS	-	0.00017083	-		
1-1/2"	1 1/2"-630-GV-0012-13461	13461	630-42-A-012 TP4	VENT TO SAFE LOCATION	4355-PS3L-6-51-0012-001			Gas Vent	G	ATM	AMB	VTA	VTA	-	-	NNF	NNF	-		
1/2"	1/2"-630-CI-0027-13461	13461	1/2"-630-CI-0028-13461	1/2"-630-WT-0037-11432	4355-PS3L-6-51-0012-001;4355-PS3L-6-51-0063-001			Chemical Injection	L	5.2	AMB	18.0	4 / 85	SUBJECT TO MSDS	SUBJECT TO MSDS	-	0.00028	-		
1-1/2"	1 1/2"-630-CG-0001-13461	13461	MEG FROM DRUM	630-42-A-014 TP1	4355-PS3L-6-51-0014-001			Chemical Glycol	L	ATM	AMB	FL+60 / - 8.5 mbarg	4 / 85	1115	SUBJECT TO MSDS	2.23	0.002	-		
1-1/2"	1 1/2"-630-GV-0014-13461	13461	630-42-A-014 TP4	VENT TO SAFE LOCATION	4355-PS3L-6-51-0014-001			Gas Vent	G	ATM	AMB	VTA	VTA	-	-	NNF	NNF	-		
1-1/2"	1 1/2"-630-CI-0072-13461	13461	BIOCIDE FROM TOTE TANK	630-42-A-018 TP1	4355-PS3L-6-51-0018-001			Chemical Injection	L	ATM	AMB	FL+60 / - 8.5 mbarg	4 / 85	SUBJECT TO MSDS	SUBJECT TO MSDS	-	0.005	-		
1-1/2"	1 1/2"-630-GV-0033-13461	13461	630-42-A-018 TP4	VENT TO SAFE LOCATION	4355-PS3L-6-51-0018-001			Gas Vent	G	ATM	AMB	VTA	VTA	-	-	NNF	NNF	-		
1/2"	1/2"-630-CI-0069-13461	13461	3/4"-630-CI-0070-13461	3/4"-630-WT-0037-11432	4355-PS3L-6-51-0018-001;4355-PS3L-6-51-0063-001			Chemical Injection	L	5.2	AMB	18.0	4 / 85	SUBJECT TO MSDS	SUBJECT TO MSDS	-	0.008	-		
1/2"	1/2"-630-CI-0071-13461	13461	1/2"-630-CI-0069-13461	1/2"-630-WT-0003-11432	4355-PS3L-6-51-0018-001;4355-PS3L-6-51-0068-001			Chemical Injection	L	1.6	AMB	18.0	4 / 85	SUBJECT TO MSDS	SUBJECT TO MSDS	-	0.002	-		
1-1/2"	1 1/2"-630-CI-0091-13461	13461	CL INHIB. FROM TOTE TANK	630-42-A-020 TP1	4355-PS3L-6-51-0019-001			Chemical Injection	L	ATM	AMB	FL+60 / - 8.5 mbarg	4 / 85	1020	SUBJECT TO MSDS	110.1	0.1079	-		
2"	2"-630-GV-0038-13461	13461	630-42-A-020 TP4	VENT TO SAFE LOCATION	4355-PS3L-6-51-0019-001			Gas Vent	G	ATM	AMB	VTA	VTA	-	-	NNF	NNF	-		
6"	6"-630-DF-0001-11432	11432	BOAT LANDING (SOUTH)	630-35-A-004 TP1	4355-PS3L-6-51-0020-001			Diesel Fuel	L	11	AMB	19.0	4 / 85	800-860	1.6-3.87	64500 to 86000	75 to 100	1.5		
6"	6"-630-DF-0002-11432	11432	BOAT LANDING (NORTH)	6"-630-DF-0001-11432	4355-PS3L-6-51-0020-001			Diesel Fuel	L	11	AMB	19.0	4 / 85	800-860	1.6-3.87	64500 to 86000	75 to 100	1.5		
8"	8"-630-VA-0027-11432	11432	630-35-T-001 N8	VENT TO SAFE LOCATION	4355-PS3L-6-51-0021-001			Vent Air & Nitrogen	G	ATM	AMB	VTA	VTA	1.5	0.02	NNF	NNF	-		
3"	3"-630-DF-0015-11432	11432	630-35-T-001 N2	630-35-P-001B	4355-PS3L-6-51-0021-001;4355-PS3L-6-51-0022-001			Diesel Fuel	L	ATM	AMB	12	4 / 85	800-860	1.6-3.87	8600	10	0.7		
3"	3"-630-DF-0020-11432	11432	3"-630-DF-0015-11432	630-35-P-001A	4355-PS3L-6-51-0022-001			Diesel Fuel	L	ATM	AMB	12	4 / 85	800-860	1.6-3.87	8600	10	0.7		
8"	8"-630-VA-0028-11432	11432	630-35-T-002 N8	VENT TO SAFE LOCATION	4355-PS3L-6-51-0026-001			Vent Air & Nitrogen	G	ATM	AMB	VTA	VTA	1.5	0.02	NNF	NNF	-		
18"	18"-630-WR-0001-17320	17320	630-20-P-001B	18"-630-WR-0002-17320	4355-PS3L-6-51-0060-001			Water Raw (Sea water)	L	12.44	36	16.0	4 / 85	1027	0.79	1905000	1905	3.5		
18"	18"-630-WR-0002-17320	17320	630-20-P-001A	630-20-A-001 TP2	4355-PS3L-6-51-0060-001;4355-PS3L-6-51-0061-001			Water Raw (Sea water)	L	12.44	36	16.0	4 / 85	1027	0.79	1905000	1905	3.5		
3"	3"-630-WR-0061-17320	17320	630-32-E-001A N8	4"-630-WR-0042-17320	4355-PS3L-6-51-0062-001;4355-PS3L-6-51-0119-001			Water Raw (Sea water)	L	5.9	42	19.5	4 / 85	1027	0.79	NNF	NNF	-		
3"	3"-630-WR-0062-17320	17320	630-32-E-001B N8	4"-630-WR-0042-17320	4355-PS3L-6-51-0062-001;4355-PS3L-6-51-0119-001			Water Raw (Sea water)	L	5.9	42	19.5	4 / 85	1027	0.79	NNF	NNF	-		
3"	3"-630-WR-0063-17320	17320	630-32-E-001C N8	4"-630-WR-0042-17320	4355-PS3L-6-51-0062-001;4355-PS3L-6-51-0119-001			Water Raw (Sea water)	L	5.9	42	19.5	4 / 85	1027	0.79	NNF	NNF	-		
8"	8"-630-WT-0037-11432	11432	630-32-V-001 N2	630-32-P-001B	4355-PS3L-6-51-0063-001;4355-PS3L-6-51-0064-001			Water Tempered or Treated	L	3.5	42	17.5	4 / 85	994.5	0.63	102434	103	0.86		
8"	8"-630-WT-0038-11432	11432	8"-630-WT-0037-11432	630-32-P-001A	4355-PS3L-6-51-0064-001			Water Tempered or Treated	L	3.5	42	17.5	4 / 85	994.5	0.63	102434	103	0.86		
6"	6"-630-WT-0039-11432	11432	630-32-P-001B	6"-630-WT-0040-11432	4355-PS3L-6-51-0064-001			Water Tempered or Treated	L	7.3	42	17.5	4 / 85	994.5	0.63	102434	103	1.53		
6"	6"-630-WT-0040-11432	11432	630-32-P-001A	TEMPERED WATER DISTR. HEADER	4355-PS3L-6-51-0064-001;4355-PS3L-6-51-0066-001			Water Tempered or Treated	L	7.3	42	19.5	4 / 85	994.5	0.63	102434	103	1.53		
3"	3"-630-WT-0003-11432	11432	630-32-T-001 N2	630-32-P-002B	4355-PS3L-6-51-0067-001;4355-PS3L-6-51-0068-001			Water Tempered or Treated	L	1.4	AMB	8.5	4 / 85	1000-1020	0.563-1.136	10200	10	0.65		
3"	3"-630-WT-0008-11432	11432	3"-630-WT-0003-11432	630-32-P-002A	4355-PS3L-6-51-0068-001			Water Tempered or Treated	L	1.4	AMB	8.5	4 / 85	1000-1020	0.563-1.136	10200	10	0.65		
4"	4"-630-WU-0001-11432	11432	BOAT UNLOADING (NORTH)	630-24-A-003 TP1	4355-PS3L-6-51-0070-001			Water Utility / Desalinated Water	L	11	4 to 48	19.0	4 / 85	990	0.56	99000	100	3.4		
4"	4"-630-WU-0002-11432	11432	BOAT UNLOADING (SOUTH)	4"-630-WU-0001-11432	4355-PS3L-6-51-0070-001			Water Utility / Desalinated Water	L	11	4 to 48	19.0	4 / 85	990	0.56	99000	100	3.4		
3"	3"-630-WP-0005-17012	17012	630-24-V-001 N2	630-24-P-001B	4355-PS3L-6-51-0074-001;4355-PS3L-6-51-0076-001			Water Potable (Hot or Cold)	L	1.01	15-48	4.5	4 / 85	1000	0.56	10000	10	0.5		
3"	3"-630-WP-0019-17012	17012	3"-630-WP-0005-17012	630-24-P-001A	4355-PS3L-6-51-0076-001			Water Potable (Hot or Cold)	L	1.01	15-48	4.5	4 / 85	1000	0.56	10000	10	0.5		

NOM. PIPE SIZE	LINE NO.	MAT'L SPEC	FROM	TO	P&ID	INSUL.		MEDIUM	P H A S E	OPERATING CONDITIONS		DESIGN CONDITIONS		AT OPERATING CONDITIONS					TEST CONDITIONS	
						T Y P E	THICK NESS			PRESS bar A	TEMP. C	PRESS bar A	TEMP. C	DENSITY kg/m3	VISC cP	FLOW RATE		VEL m/s	PRESS. bar A	TEST MEDIUM
																kg/h	m3/h			
6"	6"-630-WP-0023-17012	17012	6"-630-WP-0074-17012	630-24-P-003A	4355-PS3L-6-51-0078-001			Water Potable (Hot or Cold)	L	1.01	15-48	9.5	4 / 85	1000	0.56	35000	35	0.5		
4"	4"-630-WF-0082-17012	17012	10"-630-WR-0066-17320	630-33-P-006	4355-PS3L-6-51-0079-001;4355-PS3L-3-59-0011-001	-	-	Water Fire (Fighting)	L	7.9	36	21.0	85	1026	1.2	66690	65	2.2	31.5	WATER
2"	2"-630-DO-0222-17320	17320	FLUSHING CONNECTION	4"-630-DO-0225-17320	4355-PS3L-6-51-0102-001			Open Drain	L	ATM	AMB	4.5	4 / 85	950-1100	1.5	NNF	NNF	-		
2"	2"-630-DO-0223-17320	17320	FLUSHING CONNECTION	4"-630-DO-0226-17320	4355-PS3L-6-51-0102-001			Open Drain	L	ATM	AMB	4.5	4 / 85	950-1100	1.5	NNF	NNF	-		
2"	2"-630-DO-0224-17320	17320	FLUSHING CONNECTION	4"-630-DO-0227-17320	4355-PS3L-6-51-0102-001			Open Drain	L	ATM	AMB	4.5	4 / 85	950-1100	1.5	NNF	NNF	-		
2"	2"-630-DO-0228-17320	17320	FLUSHING CONNECTION	6"-630-DO-0033-17320	4355-PS3L-6-51-0102-001			Open Drain	L	ATM	AMB	4.5	4 / 85	950-1100	1.5	NNF	NNF	-		
3"	3"-630-DO-0150-17320	17320	630-39-V-002 N2	630-39-P-002B	4355-PS3L-6-51-0105-001;4355-PS3L-6-51-0132-001			Open Drain	L	ATM	AMB	4.5	4 / 85	950-1100	1.5	0 to 14000	13	0.8		
3"	3"-630-OD-0069-11441	11441	630-39-T-002 N2	630-39-P-005B	4355-PS3L-6-51-0107-001;4355-PS3L-6-51-0131-001			Oil Drain	L	ATM	AMB	6.0	4 / 85	800	12	10400	13	0.85		
3"	3"-630-OD-0067-11441	11441	3"-630-OD-0069-11441	630-39-P-005A	4355-PS3L-6-51-0131-001			Oil Drain	L	ATM	AMB	6.0	4 / 85	800	12	10400	13	0.85		
3"	3"-630-DO-0151-17320	17320	3"-630-DO-0150-17320	630-39-P-002A	4355-PS3L-6-51-0132-001			Open Drain	L	ATM	AMB	4.5	4 / 85	950-1100	1.5	0 to 14000	13	0.8		
3"	3"-630-OD-0087-11441	11441	3"-630-OD-0079-11441	FILLING CONN. FOR OILY WASTE	4355-PS3L-6-51-0143-001			Oil Drain	L	4	AMB	6.0	4 / 85	800	11.56	NNF	NNF	-		
3"	3"-630-OD-0088-11441	11441	3"-630-OD-0079-11441	FILLING CONN. FOR OILY WASTE	4355-PS3L-6-51-0143-001			Oil Drain	L	4	AMB	6.0	4 / 85	800	11.56	NNF	NNF	-		
3"	3"-630-OD-0089-11441	11441	3"-630-OD-0079-11441	FILLING CONN. FOR OILY WASTE	4355-PS3L-6-51-0143-001			Oil Drain	L	4	AMB	6.0	4 / 85	800	11.56	NNF	NNF	-		
1-1/2"	1 1/2"-630-CI-0078-13461	13461	CHEMICAL FROM DRUM/TOTE TANK	630-42-A-019 TP1	4355-PS3L-6-51-0168-001			Chemical Injection	L	ATM	AMB	FL+60 / - 8.5 mbarg	4 / 85	SUBJECT TO MSDS	SUBJECT TO MSDS	-	0.0027	-		
1-1/2"	1 1/2"-630-GV-0035-13461	13461	630-42-A-019 TP4	VENT TO SAFE LOCATION	4355-PS3L-6-51-0168-001			Gas Vent	G	ATM	AMB	VTA	VTA	-	-	NNF	NNF	-		
6"	6"-630-WP-0074-17012	17012	630-24-T-005 N2	630-24-P-003B	4355-PS3L-6-51-0173-001;4355-PS3L-6-51-0078-001			Water Potable (Hot or Cold)	L	1.01	15-48	9.5	4 / 85	1000	0.56	35000	35	0.5		
10"	10"-630-WR-0113-17320	17320	630-30-P-001	630-30-S-001 N1	4355-PS3L-6-51-0175-001;4355-PS3L-6-51-0177-001			Water Raw (Sea water)	L	7.4	15 - 36	13.5	4 / 85	1027	0.79	718900	700	3.5		
10"	10"-630-WR-0116-17320	17320	630-30-P-002	630-30-A-002 TP1	4355-PS3L-6-51-0176-001;4355-PS3L-6-51-0178-001			Water Raw (Sea water)	L	7.1	15 - 36	13.5	4 / 85	1027	0.79	410800	400	2.0		
12"	12"-633-GP-0002-151503-3HE	151503	633-11-V-401 N2	633-11-K-400	4355-PS3M-6-50-0001-001;4355-PS3M-6-50-0002-001	3HE		Gas Process	G	97.2	23 to 45	223.0	-45 / 160	98 to 138	0.018	33812.7 to 101105.8	254.2 to 1030.2	5.7		
8", 10", 14"	14"-633-GP-0021-251503	251503	633-11-E-401	14"-635-GP-0011-251503	4355-PS3M-6-50-0003-001;4355-PS3M-6-50-0021-001;4355-PS3BR13-6-50-0001-001			Gas Process	G	221 to 281	60 to 65	364.0	-45 / 160	240 to 260	0.03	67625.4 to 203445.8	268.5 to 818.9	14.2		
12"	12"-633-GP-2002-151503-3HE	151503	633-11-V-501 N2	633-11-K-500	4355-PS3M-6-50-0011-001;4355-PS3M-6-50-0012-001	3HE		Gas Process	G	97.2	23 to 45	223.0	-45 / 160	98 to 138	0.018	33812.7 to 101105.8	254.2 to 1030.2	5.7		
1"	1"-633-GN-0121-11503	11503	PURGING/FLUSHING CONNECTION	2"-633-OC-0376-151093KS	4355-PS3M-6-50-0025-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF	-		
2"	2"-633-GN-0122-11503	11503	PURGING/FLUSHING CONNECTION	2"-633-OC-0377-151093KS	4355-PS3M-6-50-0025-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	280	31	4.5		
14"	14"-633-GP-0121-91503	91503	633-84-PV-002 B	633-12-C-001 N1	4355-PS3M-6-50-0026-001;4355-PS3M-6-50-0052-001			Gas Process	G	99.2	20 to 44	117.0	-45 / 160	94 to 110	0.016	21719.1 to 183852.5	206.8 to 1891.8	0.8 to 7.4		
14"	14"-633-GP-0120-91503	91503	633-12-UZV-002	14"-633-GP-0121-91503	4355-PS3M-6-50-0027-001;4355-PS3M-6-50-0026-001			Gas Process	G	99.2	20 to 44	117.0	-45 / 160	94 to 110	0.016	21719.1 to 183852.5	206.8 to 1891.8	0.8 to 7.4		
12"	12"-633-GP-0133-91503-3HE	91503	633-11-V-103 N2	633-11-K-101	4355-PS3M-6-50-0031-001;4355-PS3M-6-50-0032-001	3HE		Gas Process	G	43.9	55	94.0	-47 / 135	52 to 56	0.014	87500.2 to 102898	1629.2 to 1873.6	8.9		
16"	16"-633-GP-0195-151503-3PG	151503	633-11-E-104	633-11-PV-075	4355-PS3M-6-50-0033-001, 4355-PS3M-6-50-0049-001	3PG		Gas Process	G	116 to 121	55	161.0	-45 / 160	182 to 214	0.024	260662.9 to 307767.9	1300 to 1596.6	12.9		
12"	12"-633-GP-2133-91503-3HE	91503	633-11-V-203 N2	633-11-K-201	4355-PS3M-6-50-0037-001;4355-PS3M-6-50-0038-001	3HE		Gas Process	G	43.9	55	94.0	-47 / 135	52 to 56	0.014	87500.2 to 102898	1629.2 to 1873.6	8.9		
12"	12"-633-GP-3133-91503-3HE	91503	633-11-V-303 N2	633-11-K-301	4355-PS3M-6-50-0043-001;4355-PS3M-6-50-0044-001	3HE		Gas Process	G	43.9	55	94.0	-47 / 135	52 to 56	0.014	87500.2 to 102898	1629.2 to 1873.6	8.9		
3"	3"-633-DC-0032-13844	13844	633-70-V-001 N3	633-70-P-001B	4355-PS3M-6-51-0010-001;4355-PS3M-6-51-0014-001			Closed Drain	L	1.2	50	8.0	-45 / 85	845.1	4.8	8451	10	0.6		
4"	4"-633-OD-0126-11441	11441	FLUSHING CONNECTION	4"-633-OD-0123-11441	4355-PS3M-6-51-0013-001			Oil Drain	L	ATM	AMB	FW+7.5 / - 2.5 mbar	4 / 85	800	12	NNF	NNF	-		
4"	4"-633-OD-0127-11441	11441	FLUSHING CONNECTION	4"-633-OD-0124-11441	4355-PS3M-6-51-0013-001			Oil Drain	L	ATM	AMB	FW+7.5 / - 2.5 mbar	4 / 85	800	12	NNF	NNF	-		
4"	4"-633-OD-0128-11441	11441	FLUSHING CONNECTION	4"-633-OD-0125-11441	4355-PS3M-6-51-0013-001			Oil Drain	L	ATM	AMB	FW+7.5 / - 2.5 mbar	4 / 85	800	12	NNF	NNF	-		
4"	4"-633-OD-0129-11441	11441	FLUSHING CONNECTION	6"-633-OD-0001-11441	4355-PS3M-6-51-0013-001			Oil Drain	L	ATM	AMB	FW+7.5 / - 2.5 mbar	4 / 85	800	12	NNF	NNF	-		
3"	3"-633-DC-0012-13844	13844	3"-633-DC-0032-13844	633-70-P-001A	4355-PS3M-6-51-0014-001			Closed Drain	L	1.2	50	8.0	-45 / 85	845.1	4.8	8451	10	0.6		
3"	3"-633-DO-0121-17320	17320	633-39-V-001 N2	633-39-P-001B	4355-PS3M-6-51-0015-001;4355-PS3M-6-51-0028-001			Open Drain	L	ATM	AMB	4.5	4 / 85	950-1100	1.5	0 to 14000	13	0.63		
3"	3"-633-OD-0022-11441	11441	633-39-T-001 N2	633-39-P-002B	4355-PS3M-6-51-0018-001;4355-PS3M-6-51-0021-001			Oil Drain	L	ATM	AMB	6.0	4 / 85	800	12	10400	13	0.85		
3"	3"-633-OD-0020-11441	11441	3"-633-OD-0022-11441	633-39-P-002A	4355-PS3M-6-51-0021-001			Oil Drain	L	ATM	AMB	6.0	4 / 85	800	12	10400	13	0.85		
3"	3"-633-DO-0122-17320	17320	3"-633-DO-0121-17320	633-39-P-001A	4355-PS3M-6-51-0028-001			Open Drain	L	ATM	AMB	4.5	4 / 85	950-1100	1.5	0 to 14000	13	0.63		
1-1/2"	1 1/2"-633-CG-0053-11432	11432	633-40-SP-0012	633-40-A-001 TP20	4355-PS3M-6-51-0030-001			Chemical Glycol	L	VTA	VTA	VTA	VTA	VTA	VTA	VTA	VTA	VTA		
1-1/2"	1 1/2"-633-CI-0100-13461	13461	633-40-SP-0014	633-40-A-001 TP18	4355-PS3M-6-51-0030-001			Chemical Injection	L	VTA	VTA	VTA	VTA	VTA	VTA	VTA	VTA	VTA	-	
1-1/2"	1 1/2"-633-CI-0101-13461	13461	633-40-SP-0013	633-40-A-001 TP19	4355-PS3M-6-51-0030-001			Chemical Injection	L	VTA	VTA	VTA	VTA	VTA	VTA	VTA	VTA	VTA	-	
3"	3"-633-CG-0005-93461	93461	633-40-A-001 TP12	633-12-C-001 N7	4355-PS3M-6-51-0030-001;4355-PS3M-6-50-0053-001			Chemical Glycol	L	98.7	19.7 to 43.8	117.0	-45 / 160	1099	15.95	5495	5	0.3		
4"	4"-633-CG-0277-13461	13461	633-40-V-004 N1A	633-40-P-004A	4355-PS3M-6-51-0032-001;4355-PS3M-6-51-0031-001			Chemical Glycol	L	1.21	50	8.0	4 / 85	1098	12.53	14274	13	0.4		
24"	24"-633-WR-0013-17320	17320	633-21-P-001A	30"-633-WR-0022-17320	4355-PS3M-6-51-0040-001;4355-PS3M-6-51-0042-001			Water Raw (Sea water)	L	7.8	15-36	13.5	4 / 85	1027	0.79	3029650	2950	3.0		

NOM. PIPE SIZE	LINE NO.	MAT'L SPEC	FROM	TO	P&ID	INSUL.		MEDIUM	P H A S E	OPERATING CONDITIONS		DESIGN CONDITIONS		AT OPERATING CONDITIONS					TEST CONDITIONS	
						T Y P E	THICK NESS							DENSITY	VISC	FLOW RATE		VEL		
										bar A	C	bar A	C	kg/m3	cP	kg/h	m3/h	m/s	bar A	TEST MEDIUM
24"	24"-633-WR-0014-17320	17320	633-21-P-001B	30"-633-WR-0022-17320	4355-PS3M-6-51-0040-001;4355-PS3M-6-51-0042-001			Water Raw (Sea water)	L	7.8	15-36	13.5	4 / 85	1027	0.79	3029650	2950	3.0		
24"	24"-633-WR-0019-17320	17320	633-21-T-001C	30"-633-WR-0022-17320	4355-PS3M-6-51-0041-001;4355-PS3M-6-51-0042-001			Water Raw (Sea water)	L	7.8	15-36	13.5	4 / 85	1027	0.79	3029650	2950	3.0		
18"	18"-633-WT-0218-11432	11432	30"-633-WT-0207-11432	633-32-P-001A	4355-PS3M-6-51-0054-001			Water Tempered or Treated	L	5	42	13.5	4 / 85	994.5	0.63	1451970	1460	2.65		
18"	18"-633-WT-0220-11432	11432	30"-633-WT-0215-11432	633-32-P-001B	4355-PS3M-6-51-0054-001			Water Tempered or Treated	L	5	42	13.5	4 / 85	994.5	0.63	1451970	1460	2.65		
18"	18"-633-WT-0223-11432	11432	30"-633-WT-0207-11432	633-32-P-001C	4355-PS3M-6-51-0054-001;4355-PS3M-6-51-0060-001			Water Tempered or Treated	L	5	42	13.5	4 / 85	994.5	0.63	1451970	1460	2.65		
24"	24"-633-WT-0222-31432	31432	16"-633-WT-0219-31432	24"-633-WT-0038-31432	4355-PS3M-6-51-0054-001;4355-PS3M-6-51-0060-001;4355-PS3M-6-51-0026-001			Water Tempered or Treated	L	11.5	42	22.5	4 / 85	994.7	0.63	2904524	2920	2.96		
3"	3"-633-WT-0236-11432	11432	633-32-T-001 N2	633-32-P-002B	4355-PS3M-6-51-0058-001;4355-PS3M-6-51-0059-001			Water Tempered or Treated	L	1.2	15-18	11.0	4 / 85	989.8	0.56	9898	10	0.65		
3"	3"-633-WT-0239-11432	11432	3"-633-WT-0236-11432	633-32-P-002A	4355-PS3M-6-51-0059-001			Water Tempered or Treated	L	1.2	15-18	11.0	4 / 85	989.8	0.56	9898	10	0.65		
2"	2"-633-GN-0155-11432	11432	HOSE CONNECTION	633-42-A-002 TP3	4355-PS3M-6-51-0066-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF	-		
1/2"	1/2"-633-CI-0008-96620	96620	633-42-UZV-002	14"-633-GP-0095-91503	4355-PS3M-6-51-0066-001;4355-PS3M-6-50-0026-001			Chemical Injection	L	101	AMB	117.0	4 / 85	835	3.71	2.17	0.0026	-		
1"	1"-633-CI-0010-156620	156620	633-42-UZV-007	1/2"-633-OC-0026-151093KS	4355-PS3M-6-51-0066-001;4355-PS3M-6-50-0026-001			Chemical Injection	L	101	AMB	229.0	4 / 85	SUBJECT TO MSDS	SUBJECT TO MSDS	-	0.0058	-		
1/2"	1/2"-633-CI-0019-96620	96620	633-42-UZV-006	10"-633-OC-0037-96620-2CW	4355-PS3M-6-51-0066-001;4355-PS3M-6-50-0026-001			Chemical Injection	L	11.3	AMB	117.0	4 / 85	1020	SUBJECT TO MSDS	1.53	0.0015	-		
1/2"	1/2"-633-CI-0012-96620	96620	633-42-UZV-003	1/2"-633-GP-0096-91503	4355-PS3M-6-51-0066-001;4355-PS3M-6-50-0027-001			Chemical Injection	L	101	AMB	117.0	4 / 85	835	3.71	NNF	NNF	-		
1"	1"-633-CI-0013-156620	156620	633-42-UZV-019	1/2"-633-OC-0015-151093KS	4355-PS3M-6-51-0066-001;4355-PS3M-6-50-0027-001			Chemical Injection	L	101	AMB	229.0	4 / 85	SUBJECT TO MSDS	SUBJECT TO MSDS	NNF	NNF	-		
2"	2"-633-GN-0157-11432	11432	NITROGEN PURGE	633-42-A-005 TP3	4355-PS3M-6-51-0073-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF	-		
1/2"	1/2"-633-CG-0007-96620	96620	633-42-UZV-009	6"-633-GP-0119-91503-1HE	4355-PS3M-6-51-0073-001; 4355-PS3M-6-50-0026-001			Chemical Glycol	L	101	AMB	117.0	4 / 85	1115	SUBJECT TO MSDS	41.478	0.0372	-		
1/2"	1/2"-633-CG-0009-96620	96620	633-42-UZV-010	8"-633-OC-0025-96620	4355-PS3M-6-51-0073-001; 4355-PS3M-6-50-0026-001			Chemical Glycol	L	101	AMB	117.0	4 / 85	1115	SUBJECT TO MSDS	2.0516	0.00184	-		
1/2"	1/2"-633-CG-0017-96620	96620	633-42-UZV-013	8"-633-GP-0116-91503	4355-PS3M-6-51-0073-001; 4355-PS3M-6-50-0026-001			Chemical Glycol	L	101	AMB	117.0	4 / 85	1115	SUBJECT TO MSDS	41.478	0.0372	-		
1/2"	1/2"-633-CG-0011-96620	96620	633-42-UZV-011	1/2"-633-GP-0096-91503	4355-PS3M-6-51-0073-001; 4355-PS3M-6-50-0027-001			Chemical Glycol	L	101	AMB	117.0	4 / 85	1115	SUBJECT TO MSDS	NNF	NNF	-		
1/2"	1/2"-633-CG-0014-96620	96620	633-42-UZV-012	8"-633-OC-0030-96620	4355-PS3M-6-51-0073-001; 4355-PS3M-6-50-0027-001			Chemical Glycol	L	101	AMB	117.0	4 / 85	1115	SUBJECT TO MSDS	NNF	NNF	-		
1/2"	1/2"-633-CG-0018-96620	96620	633-42-UZV-014	1/2"-633-GP-0122-91503	4355-PS3M-6-51-0073-001; 4355-PS3M-6-50-0027-001			Chemical Glycol	L	101	AMB	117	4 / 85	1115	SUBJECT TO MSDS	NNF	NNF	-		
1/2"	1/2"-633-CG-0015-96620	96620	633-42-UZV-016	2"-633-GC-0026-96620-2CW	4355-PS3M-6-51-0073-001; 4355-PS3M-6-50-0052-001			Chemical Glycol	L	99	AMB	117.0	4 / 85	1115	SUBJECT TO MSDS	1.91	0.00172	-		
1/2"	1/2"-633-CG-0091-96620	96620	633-42-A-005 TP11	14"-633-GP-0075-91503	4355-PS3M-6-51-0073-001; 4355-PS3M-6-50-0053-001			Chemical Glycol	L	104.5	AMB	117.0	4 / 85	1115	SUBJECT TO MSDS	1.09	0.00098	-		
1/2"	1/2"-633-CG-0161-156620	156620	633-42-A-005 TP13	1/2"-633-GP-0026-151503	4355-PS3M-6-51-0073-001;4355-PS3M-6-51-0037-001			Chemical Glycol	L	99	AMB	161.0	4 / 85	1115	SUBJECT TO MSDS	0.2453	0.00022			
1/2"	1/2"-633-CG-0162-96620	96620	633-42-A-005 TP14	1/2"-633-GC-0132-91503	4355-PS3M-6-51-0073-001;4355-PS3M-6-51-0037-001			Chemical Glycol	L	61.2	AMB	117.0	4 / 85	1115	SUBJECT TO MSDS	0.1338	0.00012			
1/2"	1/2"-633-CI-0134-13461	13461	3/4"-633-CI-0133-13461	1/2"-633-WT-0236-11432	4355-PS3M-6-51-0073-001;4355-PS3M-6-51-0059-001			Chemical Injection	L	2.1	AMB	18.0	4 / 85	SUBJECT TO MSDS	SUBJECT TO MSDS	-	0.002	-		
2"	2"-631-GN-0003-11503	11503	NITROGEN PURGE/FLUSHING WATER CONNECTION	2"-631-OC-0166-151093KS	4355-PS3R-6-50-0001-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF	-		
2"	2"-631-GN-0026-11503	11503	NITROGEN PURGE/FLUSHING WATER CONNECTION	2"-631-DC0125-151503	4355-PS3R-6-50-0001-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF	-		
10"	10"-631-OC-0011-151ZZZ	151ZZZ	MJ PRODUCTION FROM BHG04A	TEMPORARY PIG RECEIVER	4355-PS3R-6-50-0001-001			Oil Crude	G+L	104.2	20 to 44	229.0	-20 / 85	120 to 390	0.016 / 2 / 1.7	65518.03	563.66	3.6		
10"	10"-631-OC-0012-151093KS	151093KS	10"-631-OC-0011-151ZZZ	14"-631-OC-0002-151093KS	4355-PS3R-6-50-0001-001;4355-PS3R-6-50-0004-001			Oil Crude	G+L	104.2	20 to 44	229.0	-20 / 85	120 to 390	0.016 / 2 / 1.7	65518.03	563.66	4.7		
2"	2"-631-GN-0044-11503	11503	NITROGEN PURGE/FLUSHING	2"-631-DC-0126-151503	4355-PS3R-6-50-0002-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF	-		
2"	2"-631-GN-0046-11503	11503	NITROGEN PURGE/FLUSHING WATER CONNECTION	2"-631-OC-0169-151093KS	4355-PS3R-6-50-0002-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF	-		
8"	8"-631-OC-0029-151ZZZ	151ZZZ	MJ PRODUCTION FROM BHG09A	TEMPORARY PIG RECEIVER	4355-PS3R-6-50-0002-001			Oil Crude	G+L	104.2	20 to 44	229.0	-20 / 85	120 to 390	0.016 / 2 / 1.7	53191.18	456.13	4.5		
8"	8"-631-OC-0030-151093KS	151093KS	8"-631-OC-0029-151ZZZ	14"-631-OC-0002-151093KS	4355-PS3R-6-50-0002-001;4355-PS3R-6-50-0004-001			Oil Crude	G+L	104.2	20 to 44	229.0	-20 / 85	120 to 390	0.016 / 2 / 1.7	53191.18	456.13	6.4		
2"	2"-631-GN-0048-11503	11503	NITROGEN PURGE/FLUSHING	2"-631-DC0127-151503	4355-PS3R-6-50-0003-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF	-		
2"	2"-631-GN-0050-11503	11503	NITROGEN PURGE/FLUSHING	2"-631-OC-0170-151093KS	4355-PS3R-6-50-0003-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF	-		
10"	10"-631-OC-0141-151ZZZ	151ZZZ	MJ PRODUCTION FROM BHN09A	TEMPORARY PIG RECEIVER	4355-PS3R-6-50-0003-001			Oil Crude	G+L	104.2	20 to 44	229.0	-20 / 85	120 to 390	0.016 / 2 / 1.7	59016.85	488.93	3.1		
10"	10"-631-OC-0031-151093KS	151093KS	10"-631-OC-0141-151ZZZ	14"-631-OC-0002-151093KS	4355-PS3R-6-50-0003-001;4355-PS3R-6-50-0004-001			Oil Crude	G+L	104.2	20 to 44	229.0	-20 / 85	120 to 390	0.016 / 2 / 1.7	59016.85	488.93	4.1		
2"	2"-631-GN-0001-11503	11503	PURGING/FLUSHING CONNECTION	2"-631-OC-0004-151093KS	4355-PS3R-6-50-0004-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF	-		
1/2"	1/2"-631-CI-0005-156620	156620	631-42-A-002	14"-631-OC-0002-151093KS	4355-PS3R-6-50-0004-001; 4355-PS3R-6-51-0011-001			Chemical Injection	L	101.2	AMB	229.0	4 / 85	SUBJECT TO MSDS	SUBJECT TO MSDS	-	0.0008	-		
1/2"	1/2"-631-CI-0007-156620	156620	631-42-A-003	14"-631-OC-0002-151093KS	4355-PS3R-6-50-0004-001; 4355-PS3R-6-51-0011-001			Chemical Injection	L	101.2	AMB	229.0	4 / 85	1120-1200	10	0.24	0.0002	-		
14"	14"-631-OC-0002-151093KS	151093KS	MJ PRODUCTION MANIFOLD	14"-635-OC-0030-151093KS	4355-PS3R-6-50-0004-001;4355-PS3BR14-6-50-0001-001			Oil Crude	G+L	101	20 to 44	229.0	-50 / 85	120 to 390	0.016 / 2 / 1.7	177882	1482	7.1		
10"	10"-631-OC-0004-151093KS	151093KS	MJ TEST MANIFOLD	10"-635-OC-0031-151093KS	4355-PS3R-6-50-0004-001;4355-PS3BR14-6-50-0001-001			Oil Crude	G+L	101	20 to 44	229.0	-50 / 85	120 to 390	0.016 / 2 / 1.7	38618	322	2.7		
1/2"	1/2"-631-CI-0008-156620	156620	631-42-UZV-013	1/2"-631-OC-0004-151093KS	4355-PS3R-6-50-0004-001;4355-PS3R-6-51-0011-001															

NOM. PIPE SIZE	LINE NO.	MAT'L SPEC	FROM	TO	P&ID	INSUL.		MEDIUM	P H A S E	OPERATING CONDITIONS		DESIGN CONDITIONS		AT OPERATING CONDITIONS					TEST CONDITIONS	
						T Y P E	THICK NESS			PRESS bar A	TEMP. C	PRESS bar A	TEMP. C	DENSITY kg/m3	VISC cP	FLOW RATE		VEL m/s	PRESS. bar A	TEST MEDIUM
																kg/h	m3/h			
1/2"	1/2"-631-CI-0019-156620	156620	631-42-UZV-017	12"-631-OC-0035-151093KS	4355-PS3R-6-50-0010-001;4355-PS3BR14-6-50-0001-001			Chemical Injection	L	10.2	AMB	229.0	4 / 85	1120-1200	10	NNF	NNF	-		
1"	1"-631-GN-0005-11503	11503	NITROGEN PURGE/FLUSHING	2"-631-OC-0167-151093KS	4355-PS3R-6-50-0011-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF	-		
1"	1"-631-GN-0021-11503	11503	NITROGEN PURGE/FLUSHING	2"-631-DC-0128-151503	4355-PS3R-6-50-0011-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF	-		
12"	12"-631-OC-0014-151ZZZ	151ZZZ	ARAB PRODUCTION FROM BHD05A	TEMPORARY PIG RECEIVER	4355-PS3R-6-50-0011-001			Oil Crude	G+L	13.2	32 to 54	229.0	-20 / 85	56 to 77	0.012 / 2.9 / 1.3	90543	1885.2	8.34		
12"	12"-631-OC-0015-151093KS	151093KS	12"-631-OC-0014-151ZZZ	24"-631-OC-0006-151093KS	4355-PS3R-6-50-0011-001;4355-PS3R-6-50-0015-001			Oil Crude	G+L	13.2-21	33 to 55	229.0	-50 / 85	56 to 77	0.012 / 2.9 / 1.3	90543	1885.2	11.2		
1"	1"-631-GN-0060-11503	11503	NITROGEN PURGE	2"-631-DC-0129-151503	4355-PS3R-6-50-0012-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF	-		
1"	1"-631-GN-0062-11503	11503	NITROGEN PURGE/FLUSHING	2"-631-OC-0168-151093KS	4355-PS3R-6-50-0012-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF	-		
12"	12"-631-OC-0156-151ZZZ	151ZZZ	ARAB PRODUCTION FROM BHJ03A	TEMPORARY PIG RECEIVER	4355-PS3R-6-50-0012-001			Oil Crude	G+L	13.2	32 to 54	229.0	-20 / 85	56 to 77	0.012 / 2.9 / 1.3	164963	2743.84	12.1		
12"	12"-631-OC-0069-151093KS	151093KS	12"-631-OC-0156-151ZZZ	24"-631-OC-0006-151093KS	4355-PS3R-6-50-0012-001;4355-PS3R-6-50-0015-001			Oil Crude	G+L	13.2-21	33 to 55	229.0	-50 / 85	56 to 77	0.012 / 2.9 / 1.3	164963	2743.84	16.3		
1"	1"-631-GN-0064-11503	11503	NITROGEN PURGE	2"-631-DC-0130-151503	4355-PS3R-6-50-0013-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF	-		
1"	1"-631-GN-0066-11503	11503	NITROGEN PURGE/FLUSHING	2"-631-OC-0171-151093KS	4355-PS3R-6-50-0013-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF	-		
16"	16"-631-OC-0161-151ZZZ	151ZZZ	ARAB PRODUCTION FROM BHJ07A	TEMPORARY PIG RECEIVER	4355-PS3R-6-50-0013-001			Oil Crude	G+L	13.2	32 to 54	229.0	-20 / 85	56 to 77	0.012 / 2.9 / 1.3	173990	2820.267	7.6		
16"	16"-631-OC-0068-151093KS	151093KS	16"-631-OC-0161-151ZZZ	24"-631-OC-0006-151093KS	4355-PS3R-6-50-0013-001; 4355-PS3R-6-50-0019-001			Oil Crude	G+L	13.2-21	33 to 55	229.0	-50 / 85	56 to 77	0.012 / 2.9 / 1.3	173990	2820.267	10.4		
1"	1"-631-GN-0056-11503	11503	NITROGEN PURGE	2"-631-DC-0131-151503	4355-PS3R-6-50-0014-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF	-		
1"	1"-631-GN-0058-11503	11503	NITROGEN PURGE/FLUSHING	2"-631-OC-0172-151093KS	4355-PS3R-6-50-0014-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF	-		
12"	12"-631-OC-0151-151ZZZ	151ZZZ	ARAB PRODUCTION FROM BHM04A	TEMPORARY PIG RECEIVER	4355-PS3R-6-50-0014-001			Oil Crude	G+L	13.2	32 to 54	229.0	-20 / 85	56 to 77	0.012 / 2.9 / 1.3	107695	1969.903	8.7		
12"	12"-631-OC-0048-151093KS	151093KS	12"-631-OC-0151-151ZZZ	24"-631-OC-0006-151093KS	4355-PS3R-6-50-0014-001;4355-PS3R-6-50-0015-001			Oil Crude	G+L	13.2-21	33 to 55	229.0	-50 / 85	56 to 77	0.012 / 2.9 / 1.3	107695	1970	11.7		
2"	2"-631-GN-0020-11503	11503	HOSE CONNECTION	2"-?-OC-?-151093KS	4355-PS3R-6-50-0015-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF	-		
24"	24"-631-OC-0008-151093KS	151093KS	ARAB PRODUCTION MANIFOLD B	24"-635-OC-0033-151093KS	4355-PS3R-6-50-0015-001; 4355-PS3R-6-50-0019-001;4355- PS3BR14-6-50-0001-001			Oil Crude	G+L	13.2-21	33 to 55	229.0	-50 / 85	56 to 77	0.012 / 2.9 / 1.3	568694	8590	13.5		
24"	24"-631-OC-0006-151093KS	151093KS	ARAB PRODUCTION MANIFOLD A	24"-635-OC-0032-151093KS	4355-PS3R-6-50-0015-001;4355-PS3R-6-50-0019-001;4355- PS3BR14-6-50-0001-001			Oil Crude	G+L	13.2-21	33 to 55	229.0	-50 / 85	56 to 77	0.012 / 2.9 / 1.3	568694	8590	13.5		
12"	12"-631-OC-0035-151093KS	151093KS	ARAB TEST MANIFOLD	12"-635-OC-0034-151093KS	4355-PS3R-6-50-0015-001;4355-PS3R-6-50-0019-001;4355- PS3BR14-6-50-0001-001			Oil Crude	G+L	13.2-21	33 to 55	229.0	-50 / 85	56 to 77	0.012 / 2.7 / 0.8	239000	2093.103	12.4		
1"	1"-631-GN-0014-11503	11503	NITROGEN PURGE/FLUSHING	2"-631-OC-0173-151093KS	4355-PS3R-6-50-0016-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF	-		
1"	1"-631-GN-0019-11503	11503	NITROGEN PURGE/FLUSHING	2"-631-DC-0132-151503	4355-PS3R-6-50-0016-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF	-		
14"	14"-631-OC-0077-151ZZZ	151ZZZ	631-84-UZV-042	TEMPORARY PIG RECEIVER	4355-PS3R-6-50-0016-001			Oil Crude	G+L	13.2	32 to 54	229.0	-20 / 85	56 to 77	0.012 / 2.9 / 1.3	212873	3643.11	13.1		
14"	14"-631-OC-0067-151093KS	151093KS	14"-631-OC-0077-151ZZZ	24"-631-OC-0006-151093KS	4355-PS3R-6-50-0016-001;4355-PS3R-6-50-0019-001			Oil Crude	G+L	13.2-21	33 to 55	229.0	-50 / 85	56 to 77	0.012 / 2.9 / 1.3	212873	3643.11	17.5		
1"	1"-631-GN-0052-11503	11503	NITROGEN PURGE/FLUSHING	2"-631-DC-0133-151503	4355-PS3R-6-50-0017-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF	-		
1"	1"-631-GN-0054-11503	11503	NITROGEN PURGE/FLUSHING	2"-631-OC-0174-151093KS	4355-PS3R-6-50-0017-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF	-		
12"	12"-631-OC-0146-151ZZZ	151ZZZ	ARAB PRODUCTION FROM BHN09A	TEMPORARY PIG RECEIVER	4355-PS3R-6-50-0017-001			Oil Crude	G+L	13.2	32 to 54	229.0	-20 / 85	56 to 77	0.012 / 2.9 / 1.3	103905	1972	8.7		
12"	12"-631-OC-0050-151093KS	151093KS	12"-631-OC-0146-151ZZZ	24"-631-OC-0006-151093KS	4355-PS3R-6-50-0017-001;4355-PS3R-6-50-0015-001			Oil Crude	G+L	13.2-21	33 to 55	229.0	-50 / 85	56 to 77	0.012 / 2.9 / 1.3	103905	1972	11.7		
1"	1"-631-GN-0017-11503	11503	NITROGEN PURGE/FLUSHING	2"-631-OC-0175-151093KS	4355-PS3R-6-50-0018-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF	-		
1"	1"-631-GN-0022-11503	11503	NITROGEN PURGE/FLUSHING	2"-631-DC-0134-151503	4355-PS3R-6-50-0018-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF	-		
16"	16"-631-OC-0083-151ZZZ	151ZZZ	631-84-UZV-046	TEMPORARY PIG RECEIVER	4355-PS3R-6-50-0018-001			Oil Crude	G+L	13.2	32 to 54	229.0	-20 / 85	56 to 77	0.012 / 2.9 / 1.3	270965	5095.6	13.8		
16"	16"-631-OC-0066-151093KS	151093KS	16"-631-OC-0083-151ZZZ	24"-631-OC-0006-151093KS	4355-PS3R-6-50-0018-001;4355-PS3R-6-50-0019-001			Oil Crude	G+L	13.2-21	33 to 55	229.0	-50 / 85	56 to 77	0.012 / 2.9 / 1.3	270965	5095.6	18.7		
1/2"	1/2"-631-CI-0014-156620	156620	631-42-UZV-015	24"-631-OC-0006-151093KS	4355-PS3R-6-50-0019-001; 4355-PS3BR14-6-50-0001-001			Chemical Injection	L	10.2	AMB	229.0	4 / 85	1120-1200	10	2.4	0.002	-		
1/2"	1/2"-631-CI-0017-156620	156620	631-42-UZV-016	24"-631-OC-0008-151093KS	4355-PS3R-6-50-0019-001; 4355-PS3BR14-6-50-0001-001			Chemical Injection	L	10.2	AMB	229.0	4 / 85	1120-1200	10	2.4	0.002	-		
6"	6"-631-GP-0015-91503	91503	10"-631-GP-0002-91503	6"-631-GP-0018-91ZZZ	4355-PS3R-6-50-0021-001;4355-PS3R-6-50-0022-001			Gas Process	G	113 to 117	54	141.0	-45 / 85	177 to 210	0.023	36538	205.4	3.7		
6"	6"-631-GP-0019-91503	91503	10"-631-GP-0002-91503	6"-631-GP-0036-91ZZZ	4355-PS3R-6-50-0021-001;4355-PS3R-6-50-0023-001			Gas Process	G	113 to 117	54	141.0	-45 / 85	177 to 210	0.023	36538	205.4	3.7		
6"	6"-631-GP-0023-91503	91503	10"-631-GP-0002-91503	6"-631-GP-0041-91ZZZ	4355-PS3R-6-50-0021-001;4355-PS3R-6-50-0024-001			Gas Process	G	113 to 117	54	141.0	-45 / 85	177 to 210	0.023	36538	205.4	3.7		
10"	10"-631-GP-0027-91503	91503	10"-631-GP-0002-91503	10"-631-GP-0044-91ZZZ	4355-PS3R-6-50-0021-001;4355-PS3R-6-50-0025-001			Gas Process	G	113 to 117	54	141.0	-45 / 85	177 to 210	0.023	36538	205.4	1.4		
1"	1"-631-GN-0007-11503	11503	NITROGEN PURGE/FLUSHING	2"-631-GP-0061-91503	4355-PS3R-6-50-0022-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF	-		
6"	6"-631-GP-0018-91ZZZ	91ZZZ	TEMPORARY PIG LAUNCHER	GAS LIFT TO BHSA	4355-PS3R-6-50-0022-001															

NOM. PIPE SIZE	LINE NO.	MAT'L SPEC	FROM	TO	P&ID	INSUL.		MEDIUM	P H A S E	OPERATING CONDITIONS		DESIGN CONDITIONS		AT OPERATING CONDITIONS					TEST CONDITIONS	
						T Y P E	THICK NESS			PRESS bar A	TEMP. C	PRESS bar A	TEMP. C	DENSITY kg/m3	VISC cP	FLOW RATE		VEL m/s	PRESS. bar A	TEST MEDIUM
10"	10"-631-GP-0044-91ZZZ	91ZZZ	TEMPORARY PIG LAUNCHER	GAS LIFT TO BHSA	4355-PS3R-6-50-0025-001			Gas Process	G	113 to 117	54	141.0	-45 / 85	177 to 210	0.023	36538	205.4	1.2		
4",6"	6"-631-GC-0001-16620-1HE	16620	631-19-UZV-015	631-19-P-001A	4355-PS3R-6-51-0003-001;4355-PS3R-6-51-0004-001	1HE		Gas Condensate	L	1.1 to 14.2	-42 to10	15.5	-85 / 150	700	0.37	700	10	0.30		
6"	4"-631-GC-0002-16620-1HE	16620	6"-631-GC-0001-16620-1HE	631-19-P-001B	4355-PS3R-6-51-0004-001	1HE		Gas Condensate	L	1.1 to 14.2	-42 to10	15.5	-85 / 150	700	0.37	700	10	0.30		
4",6"	6"-631-GC-0010-16620	16620	631-19-V-002 N3	631-19-P-002A	4355-PS3R-6-51-0007-001;4355-PS3R-6-51-0008-001			Gas Condensate	L	0.5	AMB	9.0	-85 / 150	814	2.2	814	10	0.30		
4"	4"-631-GC-0011-16620	16620	6"-631-GC-0010-16620	631-19-P-002B	4355-PS3R-6-51-0008-001			Gas Condensate	L	0.5	AMB	9.0	-85 / 150	814	2.2	814	10	0.30		
2"	2"-631-GN-0092-11432	11432	NITROGEN PURGE	631-42-A-001 TP3	4355-PS3R-6-51-0010-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF			
2"	2"-631-GN-0101-11432	11432	NITROGEN PURGE	631-42-A-004 TP3	4355-PS3R-6-51-0010-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF			
1/2"	1/2"-631-CI-0016-156620	156620	631-42-UZV-005	1/2"-631-OC-0006-151093KS	4355-PS3R-6-51-0010-001;4355-PS3BR14-6-50-0001-001			Chemical Injection	L	10.2	AMB	229.0	4 / 85	910	54	4.914	0.0054	-		
1/2"	1/2"-631-CI-0018-156620	156620	631-42-UZV-006	1/2"-631-OC-0008-151093KS	4355-PS3R-6-51-0010-001;4355-PS3BR14-6-50-0001-001			Chemical Injection	L	10.2	AMB	229.0	4 / 85	910	54	4.914	0.0054	-		
1/2"	1/2"-631-CI-0051-156620	156620	631-42-UZV-007	1/2"-631-OC-0035-151093KS	4355-PS3R-6-51-0010-001;4355-PS3BR14-6-50-0001-001			Chemical Injection	L	10.7	AMB	229.0	4 / 85	910	54	NNF	NNF	-		
1/2"	1/2"-631-CG-0021-96620	96620	631-42-UZV-002	1/2"-631-GP-0032-91503	4355-PS3R-6-51-0010-001;4355-PS3R-6-51-0046-001			Chemical Glycol	L	112.55	AMB	133	4 / 85	1115	SUBJECT TO MSDS	NNF	NNF	-		
1/2"	1/2"-631-GC-0022-66620	66620	631-42-UZV-003	1/2"-631-GC-0091-61503	4355-PS3R-6-51-0010-001;4355-PS3R-6-51-0046-001			Chemical Glycol	L	60.81	AMB	71.0	4 / 85	1115	SUBJECT TO MSDS	NNF	NNF	-		
2"	2"-631-GN-0103-11432	11432	HOSE CONNECTION	631-42-A-002 TP3	4355-PS3R-6-51-0011-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF			
2"	2"-631-GN-0105-11432	11432	HOSE CONNECTION	631-42-A-003 TP3	4355-PS3R-6-51-0011-001			Nitrogen Gas	G	8.5	50 to 55	13.5	4 / 85	8.9	0.02	NNF	NNF			
1/2"	1/2"-631-CI-0010-156620	156620	631-42-UZV-019	14"-631-OC-0004-151093KS	4355-PS3R-6-51-0011-001;4355-PS3R-6-50-0004-001			Chemical Injection	L	101.2	AMB	229.0	4 / 85	1120-1200	10	NNF	NNF	-		
1/2"	1/2"-631-CI-0011-156620	156620	631-42-UZV-009	1/2"-631-OC-0006-151093KS	4355-PS3R-6-51-0011-001;4355-PS3R-6-50-0015-001			Chemical Injection	L	10.2	AMB	229.0	4 / 85	1020	SUBJECT TO MSDS	16.116	0.0158	-		
1/2"	1/2"-631-CI-0012-156620	156620	631-42-UZV-010	1/2"-631-OC-0008-151093KS	4355-PS3R-6-51-0011-001;4355-PS3R-6-50-0015-001			Chemical Injection	L	10.2	AMB	229.0	4 / 85	1020	SUBJECT TO MSDS	16.116	0.0158	-		
1/2"	1/2"-631-CI-0013-156620	156620	631-42-UZV-011	1/2"-631-OC-0035-151093KS	4355-PS3R-6-51-0011-001;4355-PS3R-6-50-0015-001			Chemical Injection	L	10.7	AMB	229.0	4 / 85	1020	SUBJECT TO MSDS	NNF	NNF	-		
3"	3"-631-DC-0032-11503	11503	631-70-V-001 N3	631-70-P-001B	4355-PS3R-6-51-0020-001;4355-PS3R-6-51-0023-001			Closed Drain	L	1.2	50	8.0	-45 / 85	972.3	1.3	9723	10	0.6		
3"	3"-631-DC-0036-11503	11503	3"-631-DC-0032-11503	631-70-P-001A	4355-PS3R-6-51-0023-001			Closed Drain	L	1.2	50	8.0	-45 / 85	972.3	1.3	9723	10	0.6		
3"	3"-631-DO-0038-17320	17320	631-39-V-001 N2	631-39-P-001B	4355-PS3R-6-51-0025-001;4355-PS3R-6-51-0028-001			Open Drain	L	ATM	AMB	4.5	4 / 85	950-1100	1.5	0 to 14000	13	0.63		
3"	3"-631-DO-0039-17320	17320	3"-631-DO-0038-17320	631-39-P-001A	4355-PS3R-6-51-0028-001			Open Drain	L	ATM	AMB	4.5	4 / 85	950-1100	1.5	0 to 14000	13	0.63		
2"	2"-646-DO-0012-17320	17320	4"-646-DO-0010-17320	BOAT HANDLING HOSE COUPLING	4355-MM106C-6-51-0004-001		—	OPEN DRAIN	L	ATM	4 / 48	16	0 / 85	736 / 1027	0.31 / 2.69	NNF	NNF	-	-	
2"	2"-646-GN-0001-11432	11432	DISMANTLING JOINT	2"-646-GN-0008-151093KS	4355-MM106C-6-50-0031-001		—	NITROGEN GAS	G	2	4 / 48	16	0 / 85	3	0.02	NNF	NNF	-	-	
2"	2"-646-GN-0002-11432	11432	DISMANTLING JOINT	2"-646-GN-0009-151093KS	4355-MM106C-6-50-0032-001		—	NITROGEN GAS	G	2	4 / 48	16	0 / 85	3	0.02	NNF	NNF	-	-	
2"	2"-646-GN-0006-11432	11432	DISMANTLING JOINT	2"-646-GN-0010-151093KS	4355-MM106C-6-50-0032-001		—	NITROGEN GAS	G	2	4 / 48	16	0 / 85	3	0.02	NNF	NNF	-	-	
2"	2"-646-GN-0003-11432	11432	DISMANTLING JOINT	2"-646-GN-0012-91503	4355-MM106C-6-50-0035-001		—	NITROGEN GAS	G	2	4 / 48	16	0 / 85	3	0.02	NNF	NNF	-	-	
2"	2"-646-GN-0016-11432	11432	DISMANTLING JOINT	2"-646-GN-0014-91503	4355-MM106C-6-50-0037-001		—	NITROGEN GAS	G	2	4 / 48	16	0 / 85	3	0.02	NNF	NNF	-	-	
2"	2"-646-GN-0005-11432	11432	DISMANTLING JOINT	2"-646-GN-0015-151503	4355-MM106C-6-50-0038-001		—	NITROGEN GAS	G	2	4 / 48	16	0 / 85	3	0.02	NNF	NNF	-	-	
2"	2"-646-GN-0007-11432	11432	DISMANTLING JOINT	2"-646-GN-0013-91503	4355-MM106C-6-50-0040-001		—	NITROGEN GAS	G	2	4 / 48	16	0 / 85	3	0.02	NNF	NNF	-	-	
2"	2"-646-GN-0027-11432	11432	HOSE COUPLING	2"-646-GN-0028-153461	4355-MM106C-6-51-0001-001		—	NITROGEN GAS	G	2	4 / 48	16	0 / 85	3	0.02	NNF	NNF	-	-	
2"	2"-646-GN-0028-153461	153461	2"-646-GN-0027-11432	DISMANTLING JOINT	4355-MM106C-6-51-0001-001		—	NITROGEN GAS	G	2	4 / 48	228	0 / 85	3	0.02	NNF	NNF	-	-	
2"	2"-646-GN-0020-11432	11432	2"-646-GN-0017-11432	MEZZANINE DECK	4355-MM106C-6-51-0004-001		—	NITROGEN GAS	G	2	4 / 48	16	0 / 85	3	0.02	NNF	NNF	-	-	
2"	2"-646-GN-0017-11432	11432	BOAT HANDLING HOSE COUPLING	UPPER DECK	4355-MM106C-6-51-0004-001		—	NITROGEN GAS	G	2	4 / 48	16	0 / 85	3	0.02	NNF	NNF	-	-	
2"	2"-646-GN-0018-11432	11432	2"-646-GN-0017-11432	ESDV DECK	4355-MM106C-6-51-0004-001		—	NITROGEN GAS	G	2	4 / 48	16	0 / 85	3	0.02	NNF	NNF	-	-	
2"	2"-646-GN-0019-11432	11432	2"-646-GN-0017-11432	LOWER DECK	4355-MM106C-6-51-0004-001		—	NITROGEN GAS	G	2	4 / 48	16	0 / 85	3	0.02	NNF	NNF	-	-	
2"	2"-646-GN-0021-11432	11432	FLUSH CONNECTION HOSE COUPLING	2"-646-DC-0005-151503	4355-MM106C-6-51-0005-001		—	NITROGEN GAS	G	2	4 / 48	16	0 / 85	3	0.02	NNF	NNF	-	-	
2"	2"-646-GN-0023-11432	11432	DISMANTLING JOINT	2"-646-GN-0024-156620	4355-MM106C-6-51-0007-001		—	NITROGEN GAS	G	2	4 / 48	16	0 / 85	3	0.02	NNF	NNF	-	-	
2"	2"-646-GN-0025-11432	11432	DISMANTLING JOINT	2"-646-GN-0026-156620	4355-MM106C-6-51-0007-001		—	NITROGEN GAS	G	2	4 / 48	16	0 / 85	3	0.02	NNF	NNF	-	-	
2"	2"-646-DC-0006-151503	151503	2"-646-DC-0005-151503	DISMANTLING JOINT	4355-MM106C-6-51-0005-001		—	CLOSED DRAIN	L	ATM	AMB	228	-50 / 85	736 / 1027	0.31 / 2.69	NNF	NNF	-	-	
2"	2"-646-AI-0016- 18011	18011	BOAT LANDING	2"-646-AI-0015-18011	4355-MM106C-6-51-0002-001		—	INSTRUMENT AIR	G	7.5 / 7.8	AMB	10.2	4 / 85	9.2 / 9.52	0.02	NNF	NNF	-	-	
3"	3"-646-GV-0025-16620	16620	6"-646-GV-0029-16620	FLAME ARRESTER	4355-MM106C-6-51-0007-001		—	VENT GAS	G	1.23	-4.2 / 7	3.5	-85 / 85	2.85	0.01	2125	746.47	-	-	
6"	6"-646-GP-0025-91503	91503	6"-646-GP-0003-91503	6"-646-GP-0026-91ZZZ	4355-MM106C-6-50-0035-001		—	GAS PROCESS- SOUR	G	101.36	48.66	140	-50 / 85	231.31	0.03	2224 / 7319	9.61 / 31.64	-	-	
6"	6"-646-GP-0026-91ZZZ	91ZZZ	6"-646-GP-0025-91503	GAS LIFT TO MMK08A	4355-MM106C-6-50-0040-001		—	GAS PROCESS- SOUR	G	101.36	48.66	140	-19 / 85	231.31	0.03	2224 / 7319	9.61 / 31.64	-	-	
8"	8"-646-GP-0003-91503	91503	8"-646-GP-0027-91ZZZ	BLIND FLANGE	4355-MM106C-6-50-0035-001		—	GAS PROCESS- SOUR	G	101.36	48.66	140	-50 / 85	231.31	0.03	6819 / 55132	29.5 / 238.25	-	-	

NOM. PIPE SIZE	LINE NO.	MAT'L SPEC	FROM	TO	P&ID	INSUL.		MEDIUM	P H A S E	OPERATING CONDITIONS		DESIGN CONDITIONS		AT OPERATING CONDITIONS					TEST CONDITIONS			
						T Y P E	THICK NESS							DENSITY	VISC	FLOW RATE		VEL	PRESS.	TEST		
																kg/m3	cP	kg/h			m3/h	m/s
										PRESS	TEMP.	PRESS	TEMP.								bar A	MEDIUM
8"	8"-646-GP-0027-91ZZZ	91ZZZ	GAS LIFT FROM PS2R	8"-646-GP-0003-91503	4355-MMI06C-6-50-0035-001		—	GAS PROCESS-SOUR	G	101.36	48.66	140	-19 / 85	231.31	0.03	6819 / 55132	29.5 / 238.25				-	-
2"	2"-646-GP-0006-151503	151503	8"-646-GP-0003-91503	MM-408 (Slot 2)	4355-MMI06C-6-50-0037-001		—	GAS PROCESS-SOUR	G	101.36	48.66	228	-50 / 85	231.31	0.03	296.5 / 3261.1	1.28 / 14.1				-	-
2"	2"-646-GP-0007-151503	151503	8"-646-GP-0003-91503	MM-404 (Slot 3)	4355-MMI06C-6-50-0037-001		—	GAS PROCESS-SOUR	G	101.36	48.66	228	-50 / 85	231.31	0.03	296.5 / 3261.1	1.28 / 14.1				-	-
2"	2"-646-GP-0008-151503	151503	8"-646-GP-0003-91503	MM-411 (Slot 4)	4355-MMI06C-6-50-0037-001		—	GAS PROCESS-SOUR	G	101.36	48.66	228	-50 / 85	231.31	0.03	296.5 / 3261.1	1.28 / 14.1				-	-
2"	2"-646-GP-0009-151503	151503	8"-646-GP-0003-91503	MM-403 (Slot 5)	4355-MMI06C-6-50-0037-001		—	GAS PROCESS-SOUR	G	101.36	48.66	228	-50 / 85	231.31	0.03	296.5 / 3261.1	1.28 / 14.1				-	-
2"	2"-646-GP-0010-151503	151503	8"-646-GP-0003-91503	MM-413 (Slot 6)	4355-MMI06C-6-50-0037-001		—	GAS PROCESS-SOUR	G	101.36	48.66	228	-50 / 85	231.31	0.03	296.5 / 3261.1	1.28 / 14.1				-	-
2"	2"-646-GP-0011-151503	151503	8"-646-GP-0003-91503	MM-402 (Slot 7)	4355-MMI06C-6-50-0037-001		—	GAS PROCESS-SOUR	G	101.36	48.66	228	-50 / 85	231.31	0.03	296.5 / 3261.1	1.28 / 14.1				-	-
2"	2"-646-GP-0012-151503	151503	8"-646-GP-0003-91503	MM-406 (Slot 8)	4355-MMI06C-6-50-0037-001		—	GAS PROCESS-SOUR	G	101.36	48.66	228	-50 / 85	231.31	0.03	296.5 / 3261.1	1.28 / 14.1				-	-
2"	2"-646-GP-0013-151503	151503	8"-646-GP-0003-91503	MM-410 (Slot 9)	4355-MMI06C-6-50-0036-001		—	GAS PROCESS-SOUR	G	101.36	48.66	228	-50 / 85	231.31	0.03	296.5 / 3261.1	1.28 / 14.1				-	-
2"	2"-646-GP-0014-151503	151503	8"-646-GP-0003-91503	MM-326 (Slot 1)	4355-MMI06C-6-50-0037-001		—	GAS PROCESS-SOUR	G	101.36	48.66	228	-50 / 85	231.31	0.03	1737 / 8450	7.51 / 36.53				-	-
2"	2"-646-GP-0015-151503	151503	8"-646-GP-0003-91503	MM-405 (Slot 10)	4355-MMI06C-6-50-0036-001		—	GAS PROCESS-SOUR	G	101.36	48.66	228	-50 / 85	231.31	0.03	296.5 / 3261.1	1.28 / 14.1				-	-
2"	2"-646-GP-0016-151503	151503	8"-646-GP-0003-91503	MM-407 (Slot 11)	4355-MMI06C-6-50-0036-001		—	GAS PROCESS-SOUR	G	101.36	48.66	228	-50 / 85	231.31	0.03	296.5 / 3261.1	1.28 / 14.1				-	-
2"	2"-646-GP-0017-151503	151503	8"-646-GP-0003-91503	MM-319 (Slot 12)	4355-MMI06C-6-50-0036-001		—	GAS PROCESS-SOUR	G	101.36	48.66	228	-50 / 85	231.31	0.03	296.5 / 3261.1	1.28 / 14.1				-	-
2"	2"-646-GP-0018-151503	151503	8"-646-GP-0003-91503	MM-400 (Slot 13)	4355-MMI06C-6-50-0036-001		—	GAS PROCESS-SOUR	G	101.36	48.66	228	-50 / 85	231.31	0.03	296.5 / 3261.1	1.28 / 14.1				-	-
2"	2"-646-GP-0019-151503	151503	8"-646-GP-0003-91503	MM-301 (Slot 14)	4355-MMI06C-6-50-0036-001		—	GAS PROCESS-SOUR	G	101.36	48.66	228	-50 / 85	231.31	0.03	1737 / 8450	7.51 / 36.53				-	-
2"	2"-646-GP-0020-151503	151503	8"-646-GP-0003-91503	MM-401 (Slot 15)	4355-MMI06C-6-50-0036-001		—	GAS PROCESS-SOUR	G	101.36	48.66	228	-50 / 85	231.31	0.03	296.5 / 3261.1	1.28 / 14.1				-	-
2"	2"-646-GP-0021-151503	151503	8"-646-GP-0003-91503	MM-412 (Slot 16)	4355-MMI06C-6-50-0036-001		—	GAS PROCESS-SOUR	G	101.36	48.66	228	-50 / 85	231.31	0.03	296.5 / 3261.1	1.28 / 14.1				-	-
6"	6"-646-PS-0001-151093KS	151093KS	Choke Valve (84-HV-001)	16"-646-PS-0036-151093KS (Production Manifold)	4355-MMI06C-6-50-0011-001		—	PROCESS LIQUID-SOUR	L	9 / 11.5	25.9 / 48.1	228	-50 / 85	42.15 / 66.56	NOTE 8	9395 / 42407	218.33 / 637.11				-	-
6"	6"-646-PS-0003-151093KS	151093KS	MM-326 (Slot 1)	Choke Valve (84-HV-001)	4355-MMI06C-6-50-0011-001		—	PROCESS LIQUID-SOUR	L	10 / 78.2	39.58 / 49.24	228	-50 / 85	92.33 / 379.35	NOTE 8	9695 / 42407	25.56 / 459.31				-	-
6"	6"-646-PS-0002-151093KS	151093KS	Choke Valve (84-HV-006)	16"-646-PS-0036-151093KS (Production Manifold)	4355-MMI06C-6-50-0012-001		—	PROCESS LIQUID-SOUR	L	9 / 11.5	43.6 / 68.35	228	-50/85	42.25 / 54.62	NOTE 9	12913 / 16465	272.14 / 305.64				-	-
6"	6"-646-PS-0043-151093KS-3PG	151093KS	MM-408 (Slot 2)	Choke Valve (84-HV-006)	4355-MMI06C-6-50-0012-001	3PG	—	PROCESS LIQUID-SOUR	L	10 / 46.62	53 / 72.4	228	-50/85	83.59 / 190.05	NOTE 9	12913 / 16465	65.2 / 196.96				-	-
6"	6"-646-PS-0042-151093KS	151093KS	Choke Valve (84-HV-011)	16"-646-PS-0036-151093KS (Production Manifold)	4355-MMI06C-6-50-0013-001		—	PROCESS LIQUID-SOUR	L	9 / 11.5	43.6 / 68.35	228	-50/85	42.25 / 54.62	NOTE 9	12913 / 16465	272.14 / 305.64				-	-
6"	6"-646-PS-0044-151093KS-3PG	151093KS	MM-404 (Slot 3)	Choke Valve (84-HV-011)	4355-MMI06C-6-50-0013-001	3PG	—	PROCESS LIQUID-SOUR	L	10 / 38.32	53 / 72.4	228	-50 / 85	83.59 / 190.05	NOTE 9	12913 / 16465	65.2 / 196.96				-	-
6"	6"-646-PS-0004-151093KS	151093KS	Choke Valve (84-HV-016)	16"-646-PS-0036-151093KS (Production Manifold)	4355-MMI06C-6-50-0014-001		—	PROCESS LIQUID-SOUR	L	9 / 11.5	30.87 / 48.02	228	-50/85	47.87 / 59.52	NOTE 7	6206 / 9517	104.3 / 198.82				-	-
6"	6"-646-PS-0045-151093KS	151093KS	MM-411 (Slot 4)	Choke Valve (84-HV-016)	4355-MMI06C-6-50-0014-001		—	PROCESS LIQUID-SOUR	L	10 / 59.8	42.22 / 51.89	228	-50/85	91.21 / 269.75	NOTE 7	6206 / 9517	35.28 / 74.82				-	-
6"	6"-646-PS-0005-151093KS	151093KS	Choke Valve (84-HV-021)	16"-646-PS-0036-151093KS (Production Manifold)	4355-MMI06C-6-50-0015-001		—	PROCESS LIQUID-SOUR	L	9 / 11.5	43.6 / 68.35	228	-50/85	42.25 / 54.62	NOTE 9	12913 / 16465	272.14 / 305.64				-	-
6"	6"-646-PS-0046-151093KS-3PG	151093KS	MM-403 (Slot 5)	Choke valve (84-HV-021)	4355-MMI06C-6-50-0015-001	3PG	—	PROCESS LIQUID-SOUR	L	10 / 34.02	53 / 72.4	228	-50 / 85	83.59 / 190.05	NOTE 9	12913 / 16465	65.2 / 196.96				-	-
6"	6"-646-PS-0006-151093KS	151093KS	Choke valve (84-HV-026)	16"-646-PS-0036-151093KS (Production Manifold)	4355-MMI06C-6-50-0016-001		—	PROCESS LIQUID-SOUR	L	9 / 11.5	43.6 / 68.35	228	-50/85	42.25 / 54.62	NOTE 9	12913 / 16465	272.14 / 305.64				-	-
6"	6"-646-PS-0047-151093KS-3PG	151093KS	MM-413 (Slot 6)	Choke valve (84-HV-026)	4355-MMI06C-6-50-0016-001	3PG	—	PROCESS LIQUID-SOUR	L	10 / 51.32	53 / 72.4	228	-50 / 85	83.59 / 190.05	NOTE 9	12913 / 16465	65.2 / 196.96				-	-
6"	6"-646-PS-0007-151093KS	151093KS	Choke valve (84-HV-031)	16"-646-PS-0036-151093KS (Production Manifold)	4355-MMI06C-6-50-0017-001		—	PROCESS LIQUID-SOUR	L	9 / 11.5	43.6 / 68.35	228	-50/85	42.25 / 54.62	NOTE 9	12913 / 16465	272.14 / 305.64				-	-
6"	6"-646-PS-0048-151093KS-3PG	151093KS	MM-402 (Slot 7)	Choke valve (84-HV-031)	4355-MMI06C-6-50-0017-001	3PG	—	PROCESS LIQUID-SOUR	L	10 / 36.71	53 / 72.4	228	-50 / 85	83.59 / 190.05	NOTE 9	12913 / 16465	65.2 / 196.96				-	-
6"	6"-646-PS-0008-151093KS	151093KS	Choke Valve (84-HV-036)	16"-646-PS-0036-151093KS (Production Manifold)	4355-MMI06C-6-50-0018-001		—	PROCESS LIQUID-SOUR	L	9 / 11.5	43.6 / 68.35	228	-50/85	42.25 / 54.62	NOTE 9	12913 / 16465	272.14 / 305.64				-	-
6"	6"-646-PS-0049-151093KS-3PG	151093KS	MM-406 (Slot 8)	Choke Valve (84-HV-036)	4355-MMI06C-6-50-0018-001	3PG	—	PROCESS LIQUID-SOUR	L	10 / 52.73	53 / 72.4	228	-50 / 85	83.59 / 190.05	NOTE 9	12913 / 16465	65.2 / 196.96				-	-
6"	6"-646-PS-0009-151093KS	151093KS	Choke Valve (84-HV-041)	16"-646-PS-0036-151093KS (Production Manifold)	4355-MMI06C-6-50-0019-001		—	PROCESS LIQUID-SOUR	L	9 / 11.5	43.6 / 68.35	228	-50/85	42.25 / 54.62	NOTE 9	12913 / 16465	272.14 / 305.64				-	-
6"	6"-646-PS-0050-151093KS-3PG	151093KS	MM-410 (Slot 9)	Choke Valve (84-HV-041)	4355-MMI06C-6-50-0019-001	3PG	—	PROCESS LIQUID-SOUR	L	10 / 59.02	53 / 72.4	228	-50 / 85	83.59 / 190.05	NOTE 9	12913 / 16465	65.2 / 196.96				-	-
6"	6"-646-PS-0010-151093KS	151093KS	Choke Valve (84-HV-046)	16"-646-PS-0036-151093KS (Production Manifold)	4355-MMI06C-6-50-0020-001		—	PROCESS LIQUID-SOUR	L	9 / 11.5	43.6 / 68.35	228	-50/85	42.25 / 54.62	NOTE 9	12913 / 16465	272.14 / 305.64				-	-
6"	6"-646-PS-0051-151093KS-3PG	151093KS	MM-405 (Slot 10)	Choke Valve (84-HV-046)	4355-MMI06C-6-50-0020-001	3PG	—	PROCESS LIQUID-SOUR	L	10 / 30.1	53 / 72.4	228	-50 / 85	83.59 / 190.05	NOTE 9	12913 / 16465	65.2 / 196.96					

NOM. PIPE SIZE	LINE NO.	MAT'L SPEC	FROM	TO	P&ID	INSUL.		MEDIUM	P H A S E	OPERATING CONDITIONS		DESIGN CONDITIONS		AT OPERATING CONDITIONS					TEST CONDITIONS		
						T Y P E	THICK NESS							DENSITY	VISC	FLOW RATE		VEL	PRESS.	TEST MEDIUM	
																kg/m3	cP				kg/h
bar A	TEMP. C	PRESS bar A	TEMP. C	kg/m3	cP	kg/h	m3/h	m/s	bar A	TEST MEDIUM											
6"	6"-646-PS-0015-151093KS	151093KS	Choke Valve (84-HV-071)	16"-646-PS-0036-151093KS (Production Manifold)	4355-MM106C-6-50-0025-001	-	-	PROCESS LIQUID- SOUR	L	9 / 11.5	43.6 / 68.35	228	-50/85	42.25 / 54.62	NOTE 9	12913 / 16465	272.14 / 305.64	-	-		
6"	6"-646-PS-0056-151093KS-3PG	151093KS	MM-401 (Slot 15)	Choke Valve (84-HV-071)	4355-MM106C-6-50-0025-001	-	3PG	PROCESS LIQUID- SOUR	L	10 / 36.23	53 / 72.4	228	-50 / 85	83.59 / 190.05	NOTE 9	12913 / 16465	65.2 / 196.96	-	-		
6"	6"-646-PS-0016-151093KS	151093KS	Choke Valve (84-HV-076)	16"-646-PS-0036-151093KS (Production Manifold)	4355-MM106C-6-50-0026-001	-	-	PROCESS LIQUID- SOUR	L	9 / 11.5	30.87 / 48.02	228	-50/85	47.87 / 59.52	NOTE 7	6206 / 9517	104.3 / 198.82	-	-		
6"	6"-646-PS-0057-151093KS	151093KS	MM-412 (Slot 16)	Choke Valve (84-HV-076)	4355-MM106C-6-50-0026-001	-	-	PROCESS LIQUID- SOUR	L	10 / 51.03	42.22 / 51.89	228	-50/85	91.21 / 269.75	NOTE 7	6206 / 9517	35.28 / 74.82	-	-		
16"	16"-646-PS-0036-151093KS	151093KS	BLIND FLANGE	16"-646-PS-0038-151ZZZH	4355-MM106C-6-50-0031-001	-	-	PROCESS LIQUID- SOUR	L	9 / 11.5	49.6 / 61.47	228	-50/85	37.47 / 54.65	CRUDE OIL: 2.56 / 3.24 CO ₂ 0.0005519	211717	4758	-	-		
16"	16"-646-PS-0038-151ZZZH	151ZZZH	16"-646-PS-0036-151093KS (Production Manifold)	ARAB PRODUCTION TO PS2R	4355-MM106C-6-50-0034-001	-	-	PROCESS LIQUID- SOUR	L	9 / 11.5	49.6 / 61.47	228	-19 / 85	37.47 / 54.65	CRUDE OIL: 2.56 / 3.24 CO ₂ 0.0005519	211717	4758	-	-		
10"	10"-OC-BH-D05A-0084-151093KS	151093KS	T 010 (L.P BULK OIL HEADER)	12"-OC-BH-D05A-X001- 151ZZZ	4355-BHD05A-6-50-0004-001	-	-	CRUDE OIL / WATER	M	14.2 - 18	26 - 71	229	-50/85	63.26	0.11	19310.0	305.2	2.34	343.5	WATER	
6"	6"-OC-BH-355-0077-151093KS	151093KS	BH-355	10"-OC-BH-D05A-0082- 151093KS (L.P	4355-BHD05A-6-50-0006-001	-	-	CRUDE OIL / WATER	M	14.2 - 18	26 - 71	229	-50/85	63.26	0.11	8577.0	135.6	3.10	343.5	WATER	
6"	6"-OC-BH-334-0078-151093KS	151093KS	BH-334	10"-OC-BH-D05A-0082- 151093KS (L.P	4355-BHD05A-6-50-0008-001	-	-	CRUDE OIL / WATER	M	14.2 - 18	26 - 71	229	-50/85	63.26	0.11	8577.0	135.6	3.10	343.5	WATER	
6"	6"-OC-BH-336-0079-151093KS	151093KS	BH-336	10"-OC-BH-D05A-0082- 151093KS (L.P	4355-BHD05A-6-50-0009-001	-	-	CRUDE OIL / WATER	M	14.2 - 18	26 - 71	229	-50/85	63.26	0.11	8577.0	135.6	3.10	343.5	WATER	
6"	6"-OC-BH-328-0080-151093KS	151093KS	BH-328	10"-OC-BH-D05A-0082- 151093KS (L.P	4355-BHD05A-6-50-0010-001	-	-	CRUDE OIL / WATER	M	14.2 - 18	26 - 71	229	-50/85	63.26	0.11	8577.0	135.6	3.10	343.5	WATER	
6"	6"-OC-BH-430-0081-151093KS	151093KS	BH-430	10"-OC-BH-D05A-0082- 151093KS (L.P	4355-BHD05A-6-50-0011-001	-	-	CRUDE OIL / WATER	M	14.2 - 18	26 - 71	229	-50/85	63.26	0.11	8577.0	135.6	3.10	343.5	WATER	
12"	12"-OC-BH-D05A-X001-151ZZZ	151ZZZ	10"-OC-BH-D05A-0084-151093	PS3R (BH094)	4355-BHD05A-6-50-0014-001	-	-	CRUDE OIL / WATER	M	14.2 - 18	26 - 71	229	-50/85	63.26	0.11	77193.0	1220.2	9.36	343.5	WATER	
2"	2"-GP-BH-D05A-0109-151503	151503	2"-GP-BH-D05A-0131-91503	2"-GP-BH-D05A-0110-151503	4355-BHD05A-6-50-0006-001	-	-	LIFT GAS	G	87 - 118.3	15 - 51	229	-50/85	257.387	0.0343	2885.3	11.2	3.4	343.5	WATER	
2"	2"-GP-BH-334-0113-151503	151503	2"-GP-BH-334-0132-91503	2"-GP-BH-334-0114-151503	4355-BHD05A-6-50-0008-001	-	-	LIFT GAS	G	87 - 118.3	15 - 51	229	-50/85	257.387	0.0343	3318.1	12.9	3.9	343.5	WATER	
2"	2"-GP-BH-336-0117-151503	151503	2"-GP-BH-336-0133-91503	2"-GP-BH-336-0118-151503	4355-BHD05A-6-50-0009-001	-	-	LIFT GAS	G	87 - 118.3	15 - 51	229	-50/85	257.387	0.0343	2741.0	10.6	3.2	343.5	WATER	
2"	2"-GP-BH-328-0121-151503	151503	2"-GP-BH-328-0134-91503	2"-GP-BH-328-0122-151503	4355-BHD05A-6-50-0010-001	-	-	LIFT GAS	G	87 - 118.3	15 - 51	229	-50/85	257.387	0.0343	2163.9	8.4	2.5	343.5	WATER	
2"	2"-GP-BH-430-0125-151503	151503	2"-GP-BH-430-0135-91503	2"-GP-BH-430-0126-151503	4355-BHD05A-6-50-0011-001	-	-	LIFT GAS	G	87 - 118.3	15 - 51	229	-50/85	257.387	0.0343	2452.5	9.5	2.8	343.5	WATER	
3"	3"-GV-BH-D05A-0223-18620	18620	6"-GV-BH-D05A-0223-18620	2"-GV-BH-D05A-0223-18620	4355-BHD05A-6-51-0002-001	-	-	VENT GAS	G	ATM	AMB	21	-85/85	-	-	-	-	-	31.5	WATER	
2"	2"-GI-BH-D05A-X001-11432	11432	0001 (PURGE CONNECTION (DJ-0064)	10"-OC-BH-D05A-0082-151503	4355-BHD05A-6-50-0012-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-	-	-	-	30.9	WATER
2"	2"-GI-BH-D05A-0052-11432	11432	0002 (PURGE CONNECTION (DJ-0064)	6"-OC-BH-D05A-0083-151503	4355-BHD05A-6-50-0012-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-	-	-	-	30.9	WATER
2"	2"-GI-BH-D05A-0054-11432	11432	0003 (PURGE CONNECTION (DJ-0064)	7"-OC-BH-D05A-0084-151093K	4355-BHD05A-6-50-0014-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-	-	-	-	30.9	WATER
2"	2"-GI-BH-D05A-0056-11432	11432	0091 (PURGE CONNECTION (DJ-0064)	2"-GV-BH-D05A-0222-156620	4355-BHD05A-6-51-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-	-	-	-	30.9	WATER
2"	2"-OD-BH-D05A-X008-11441	11441	HEADER	DJ 0041 (DRAIN)	4355-BHD05A-6-51-0002-001	-	-	CRUDE OIL/WATER	L	ATM	4/48	20.6	0/85	736 / 1027	0.31 / 2.69	-	-	-	-	30.9	WATER
1/2"	1/2"-CI-BH-D05A-X001-153461	153461	T 029	BH-332	4355-BHD05A-6-51-0001-001	-	-	GAS CORROSION INHIBITOR	L	111.3	AMB	229	0 / 85	835	5-10	0.2505	0.0003	0.0005519	343.5	WATER	
2"	2"-GI-BH-D07B-X002-11432	11432	PURGE CONNECTION (DJ-0064)	VENT HEADER	4355-BHD07B-6-51-0001-001	-	-	NITROGEN	G	3	4/48	20.6	0/85	3	0.02	-	-	-	-	30.9	WATER
2"	2"-GI-BH-D07B-X001-11432	11432	PURGE CONNECTION (DJ-0013)	2"-GV-BH-D07B-X020-156620 (VENT HEADER)	4355-BHD07B-6-51-0001-001	-	-	NITROGEN	G	3	4/48	20.6	0/85	3	0.02	-	-	-	-	30.9	WATER
1"	1"-GV-BH-D07B-X021-96620	96620	HEADER	2"-GV-BH-D07B-X021-96620	4355-BHD07B-6-51-0001-001	-	-	VENT GAS	G	100-119.3	15-51	141	-85/85	-	-	-	-	-	-	211.5	WATER
3"	3"-GV-BH-E07B-0069-18620	18620	6"-GV-BH-E07B-0069- 18620	2"-GV-BH-E07B-0069-18620	4355-BHE07B-6-51-0001-001	-	-	VENT GAS	G	ATM	AMB	21	-85/85	-	-	-	-	-	-	31.5	WATER
2"	2"-GI-BH-E07B-0021-11432	11432	Purge Connection (73-DJ- 0022)	2"-GV-BH-E07B-0067-156620	4355-BHE07B-6-51-0001-001	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	-	30.9	WATER
2"	2"-GI-BH-E07B-X001-11432	11432	Purge Connection (73-DJ- 0094)	2"-GV-BH-E07B-X010-96620	4355-BHE07B-6-51-0001-001	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	-	30.9	WATER
2"	2"-OD-BH-E07B-X001-11441	11441	2"-OD-BH-E07B-0018- 18620	2"-OD-BH-E07B-2001-11441	4355-BHE07B-6-51-0001-001	-	-	DRAIN	L	ATM	4/48	20.6	0/85	736 / 1027	0.31 / 2.69	-	-	-	-	30.9	WATER
2"	2"-GP-BH-35-0003-151503	151503	2"-GP-BH-G04A-0010- 91503	T 004	4355-BHG04A-6-50-0003-001	-	-	LIFT GAS	G	87 - 118.3	15 - 51	229	-50/100	252.1	0.03	4284.61	17	3.27	343.5	WATER	
6"	6"-OC-BH-33-0002-151093KS	151093KS	T 002	10"-OC-BH-G04A-0003- 151093KS	4355-BHG04A-6-50-0001-001	-	-	CRUDE OIL	M	109	20 - 89	229	-50/100	145.86	0.04	43381	297.4	6.79	343.5	WATER	
10"	10"-OC-BH-G04A-0003-151093KS	151093KS	HEADER	10"-OC-BH-G04A-X001-151ZZZ	4355-BHG04A-6-50-0001-002	-	-	CRUDE OIL	M	109	20 - 89	229	-50/100	125.95	0.03	53482	424.6	3.22	343.5	WATER	
8"	8"-OC-BH-G04A-0005-151ZZZ	151ZZZ	HP PRODUCTION FROM BHK04A	10"-OC-BH-G04A-0003-151093K	4355-BHG04A-6-50-0004-001	-	-	CRUDE OIL	M	109	20 - 89	229	-50/100	150.74	0.0425	55142.1	365.8	4.32	343.5	WATER	
10"	10"-OC-BH-G04A-X001-151ZZZ	151ZZZ	10"-OC-BH-G04A-0003-151093	PS3R (BH083)	4355-BHG04A-6-50-0005-001	-	-	CRUDE OIL	M	109	20 - 89	229	-50/100	125.95	0.03	53482	424.6	3.22	343.5	WATER	
3"	3"-OC-BH-35-X002-151093KS	151093KS	T 006	T 007	4355-BHG04A-6-50-0001-004	-	-	CRUDE OIL	M	109	20 - 89	229	-50/100	127.54	0.03	10102	79.2	8.21	343.5	WATER	
6"	6"-GP-BH-G04A-0006-91ZZZ	91ZZZ	Gas Lift from BH-I03A (BH098)	6"-GP-BH-G04A-0007-91503	4355-BHG04A-6-50-0002-001	-	-	LIFT GAS	G	100 - 119.3	15 - 51	141	-50/100	252.1	0.03	25231.6	100.1	1.81	211.5	WATER	
2"	2"-GP-BH-33-0002-151503	151503	2"-GP-BH-G04A-0009- 91503	T 001	4355-BHG04A-6-50-0003-001	-	-														

NOM. PIPE SIZE	LINE NO.	MAT'L SPEC	FROM	TO	P&ID	INSUL.		MEDIUM	P H A S E	OPERATING CONDITIONS		DESIGN CONDITIONS		AT OPERATING CONDITIONS					TEST CONDITIONS	
						T Y P E	THICK NESS			PRESS bar A	TEMP. C	PRESS bar A	TEMP. C	DENSITY kg/m3	VISC cP	FLOW RATE		VEL m/s	PRESS. bar A	TEST MEDIUM
2"	2"-GI-BH-G04A-X001-11432	11432	DJ 0096 (PURGE CONNECTION)	2"-GV-BH-G04A-X002-96620	4355-BHG04A-6-50-0005-001	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	25.5	WATER
2"	2"-IA-BH-G04A-X010-18011	18011	2"-IA-BH-G04A-X011-18011	AT BOAT LANDING	4355-BHG04A-6-51-0001-001	-	-	INSTRUMENT AIR	G	8.5	AMB	20.6	0 / 85	25.42	0.02	8.06	0.8	0.1	30.9	WATER
6"	6"-GV-BH-G04A-0062-16620	16620	HEADER	3"-GV-BH-G04A-0062-16620	4355-BHG04A-6-51-0002-001	-	-	VENT GAS	G	ATM	AMB	21	-85/100	-	-	-	-	-	31.5	WATER
6"	6"-GP-BH-G07A-X002-91ZZZ	91ZZZ	GAS LIFT FROM PS3R (BH100)	6"-GP-BH-G07A-X001-91503	4355-BHG07A-6-50-0001-008	-	-	GAS	G	100-119.3	15-51	141	-50/85	247	0.03	31293.7	126.7	2.23	211.5	WATER
2"	2"-GI-BH-G07A-X001-11432	11432	DJ 0065 (PURGE CONNECTION)	6"-GP-BH-G07A-X001-91503	4355-BHG07A-6-50-0001-008	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-G07A-X002-11432	11432	DJ 0067 (PURGE CONNECTION)	2"-GV-BH-G07A-X026-96620	4355-BHG07A-6-51-0001-002	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER
2"	2"-OD-BH-G07A-X002-11441	11441	HEADER	BOAT LANDING AREA	4355-BHG07A-6-51-0001-002	-	-	CRUDE OIL/ WATER	L	ATM	4/48	20.6	0/85	736 / 1027	0.31 / 2.69				30.9	WATER
6"	6"-GV-BH-G07A-X027-16620	16620	HEADER	3"-GV-BH-G07A-X027-16620	4355-BHG07A-6-51-0001-002	-	-	VENT GAS	G	ATM	AMB	21	-85/85	-	-	-	-	-	31.5	WATER
8"	8"-OC-BH-G09A-X006-151ZZZ	151ZZZ	8"-OC-BH-G09A-X003-151093KS	PS3R (BH085)	4355-BHG09A-6-50-0014-001	-	-	CRUDE OIL / WATER	M	109	20-89	229	-50/100	184.9	0.07	61994.46	335.3	4.01	343.5	WATER
2"	2"-GI-BH-G09A-X001-11432	11432	DJ 0083 (PURGE CONNECTION)	LP BULK OIL HEADER (T 004)	4355-BHG09A-6-50-0001-004	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-G09A-X002-11432	11432	DJ 0085 (PURGE CONNECTION)	1"-OC-BH-G09A-X004-151093K	4355-BHG09A-6-50-0001-005	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-G09A-X003-11432	11432	DJ 0084 (PURGE CONNECTION)	1"-OC-BH-G09A-X003-151093K	4355-BHG09A-6-50-0001-005	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-G09A-X004-11432	11432	DJ 0086 (PURGE CONNECTION)	1"-OC-BH-G09A-X003-151093K	4355-BHG09A-6-50-0014-001	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-G09A-X005-11432	11432	DJ 0088 (PURGE CONNECTION)	2"-GV-BH-G09A-X021-156620	4355-BHG09A-6-51-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-G09A-X006-11432	11432	DJ 0087 (PURGE CONNECTION)	2"-GV-BH-G09A-X020-96620	4355-BHG09A-6-51-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER
3"	3"-GV-BH-G09A-X022-16620	16620	6"-GV-BH-G09A-X022-16620	2"-GV-BH-G09A-X022-16620	4355-BHG09A-6-51-0002-001	-	-	VENT GAS	G	ATM	AMB	21	-85/85	-	-	-	-	-	31.5	WATER
14"	14"-622-PS-X010-151ZZZ	151ZZZ	T 049(12"-622-PS-1000-151503M)	TO PS3R (BH091)	4355-BHH09A-6-50-1017-001	-	-	CRUDE OIL / WATER	M	14.2-18	26-71	229	-50/85	106	0.048	194111.8	1824.4	5.42	343.5	WATER
10"	10"-OC-BH-I03A-0041-151093KS	151093KS	HEADER	12"-OC-BH-I03A-0050-151ZZZ	4355-BHI03A-6-50-0004-001	-	-	CRUDE OIL	M	14.2-18	26-71	229	-50/85	158	0.07	123488	781.7	5.99	343.5	WATER
4"	4"-OC-BH-349-0042-151093KS	151093KS	BH-349	6"-OC-BH-I03A-0039-151093KS	4355-BHI03A-6-50-0009-001	-	-	CRUDE OIL	M	14.2-18	26-71	229	-50/85	158	0.07	19810.79	125.4	6.92	343.5	WATER
4"	4"-OC-BH-344-0043-151093KS	151093KS	BH-344	6"-OC-BH-I03A-0039-151093KS	4355-BHI03A-6-50-0010-001	-	-	CRUDE OIL	M	14.2-18	26-71	229	-50/85	158	0.07	6908.67	43.7	2.41	343.5	WATER
4"	4"-OC-BH-432-0045-151093KS	151093KS	BH-432	6"-OC-BH-I03A-0039-151093KS	4355-BHI03A-6-50-0012-001	-	-	CRUDE OIL	M	14.2-18	26-71	229	-50/85	158	0.07	18992.7	120.2	6.63	343.5	WATER
12"	12"-OC-BH-I03A-0050-151ZZZ	151093KS	10"-OC-BH-I03A-0041-151093KS	PS3R (BH88)	4355-BHI03A-6-50-0014-001	-	-	CRUDE OIL	M	14.2-18	26-71	229	-50/85	158	0.07	123488	781.7	3.44	343.5	WATER
2"	2"-GP-BH-349-0060-151503	151503	2"-GP-BH-349-0056-91503	2"-GP-BH-349-0061-151503	4355-BHI03A-6-50-0009-001	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/85	252.1	0.03	2163.95	8.6	1.65	343.5	WATER
2"	2"-GP-BH-344-0064-151503	151503	2"-GP-BH-344-0055-91503	2"-GP-BH-344-0065-151503	4355-BHI03A-6-50-0010-001	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/85	252.1	0.03	3909.53	15.5	2.98	343.5	WATER
2"	2"-GP-BH-369-0068-151503	151503	2"-GP-BH-369-0058-91503	2"-GP-BH-369-0069-151503	4355-BHI03A-6-50-0011-001	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/85	252.1	0.03	3750.84	14.9	2.86	343.5	WATER
2"	2"-GP-BH-432-0072-151503	151503	2"-GP-BH-432-0057-91503	2"-GP-BH-432-0073-151503	4355-BHI03A-6-50-0012-001	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/85	252.1	0.03	3462.32	13.7	2.64	343.5	WATER
6"	6"-GP-BH-I03A-0077-91ZZZ	91ZZZ	6"-GP-BH-I03A-0059-91503	BHG04A (BH098) 6"-GP-BH-G04A-006-91ZZZ	4355-BHI03A-6-50-0015-001	-	-	LIFT GAS	G	100-119.3	15-51	141	-50/85	252	0.032	13287	52.7	9.52	211.5	WATER
2"	2"-GP-BH-211-X001-91503	91503	T 045	T 047	4355-BHI03A-6-50-0001-001	-	-	LIFT GAS	G	100-119.3	15-51	141	-50/85	252.1	0.03	4284.61	17		211.5	WATER
2"	2"-GP-BH-125-X002-91503	91503	T 048	T 050	4355-BHI03A-6-50-0006-001	-	-	LIFT GAS	G	100-119.3	15-51	141	-50/85	252.1	0.03	3822.97	15.2		211.5	WATER
2"	2"-GP-BH-202-X003-91503	91503	T 051	T 053	4355-BHI03A-6-50-0008-001	-	-	LIFT GAS	G	100-119.3	15-51	141	-50/85	252.1	0.03	3837.4	15.2		211.5	WATER
6"	6"-GV-BH-I03A-0143-16620	16620	VENT HEADER	3"-GV-BH-I03A-0143-16620	4355-BHI03A-6-51-0003-001	-	-	VENT GAS	G	ATM	AMB	21	-85/85	-	-	-	-	-	31.5	WATER
2"	2"-OD-BH-I03A-X007-11441	11441	HEADER	BOAT LOADING AREA	4355-BHI03A-6-51-0003-001	-	-	CRUDE OIL/ WATER	L	ATM	4/48	20.6	0/85	736 / 1027	0.31 / 2.69	-	-	-	30.9	WATER
2"	2"-GI-BH-I03A-X001-11432	11432	DJ 0015 (PURGE CONNECTION)	0"-OC-BH-I03A-0040-151093K	4355-BHI03A-6-50-0013-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-I03A-X002-11432	11432	DJ 0016 (PURGE CONNECTION)	0"-OC-BH-I03A-0039-151093K	4355-BHI03A-6-50-0013-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-I03A-X003-11432	11432	DJ 0017 (PURGE CONNECTION)	0"-OC-BH-I03A-0041-151093K	4355-BHI03A-6-50-0014-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-I03A-X004-11432	11432	DJ 0018 (PURGE CONNECTION)	6"-GP-BH-I03A-0059-91503	4355-BHI03A-6-50-0015-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-I03A-0029-11432	11432	DJ-0019 (PURGE CONNECTION)	2"-GI-BH-I03A-0141-156620	4355-BHI03A-6-51-0003-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-	-	-	30.9	WATER
6"	6"-GP-BH-I07A-0034-91ZZZZ	91ZZZZ	PS3R	6"-GP-BH-I07A-0033-91503	4355-BHI07A-6-50-0006-001	-	-	LIFT GAS	G	100-119.3	15-51	141	85	257.387	0.0321	24236	94.2	2.17	211.5	WATER
2"	2"-GI-BH-I07A-0023-11432	11432	DJ 0038 (PURGE CONNECTION)	6"-GP-BH-I07A-0033-91503	4355-BHI07A-6-50-0006-001	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-I07A-0025-11432	11432	DJ-0039 (PURGE CONNECTION)	2"-GI-BH-I07A-0074-156620	4355-BHI07A-6-51-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER
2"	2"-OD-BH-I07A-X002-11441	11441	HEADER	BOAT LANDING AREA	4355-BHI07A-6-51-0002-001	-	-	CRUDE OIL/WATER	L	ATM	4/48	20.6	0/85	736 / 1027	0.31 / 2.69	-	-	-	30.9	WATER
3"	3"-GV-BH-I07A-X014-16620	16620	6"-GV-BH-I07A-X014-16620	2"-GV-BH-I07A-X014-16620	4355-BHI07A-6-51-0002-001	-	-	VENT GAS	G	ATM	AMB	21	-85/85	-	-	-	-	-	31.5	WATER
3/4"	3/4"-CI-BH-I07A-X006-153461	153461	1"-CI-BH-I07A-X002-153461	BH 40 GAS LIFT	4355-BHI07A-6-51-0001-001	-	-	GAS CORROSION INHIBITOR	L	114.4	AMB	229	0 / 85	835	5/10	0.4843	0.00058	0.00047	343.5	WATER
3/4"	3/4"-CI-BH-I07A-X005-153461	153461	1"-CI-BH-I07A-X002-153461	BH 38 GAS LIFT	4355-BHI07A-6-51-0001-001	-	-	GAS CORROSION INHIBITOR	L	114.4	AMB	229	0 / 85	835	5/10	0.2171	0.00026	0.00021	343.5	WATER
3/4"	3/4"-CI-BH-I07A-X004-153461	153461	1"-CI-BH-I07A-X002-153461	BH 135 GAS LIFT	4355-BHI07A-6-51-0001-001	-	-	GAS CORROSION INHIBITOR	L	114.4	AMB	229	0 / 85	835	5/10	0.4843	0.00058	0.00047	343.5	WATER

NOM. PIPE SIZE	LINE NO.	MAT'L SPEC	FROM	TO	P&ID	INSUL.		MEDIUM	P H A S E	OPERATING CONDITIONS		DESIGN CONDITIONS		AT OPERATING CONDITIONS					TEST CONDITIONS	
						T Y P E	THICK NESS			PRESS bar A	TEMP. C	PRESS bar A	TEMP. C	DENSITY kg/m3	VISC cP	FLOW RATE		VEL m/s	PRESS. bar A	TEST MEDIUM
3/4"	3/4"-CI-BH-J07A-X003-153461	153461	1"-CI-BH-J07A-X002-153461	BH 39 GAS LIFT	4355-BHJ07A-6-51-0001-001	-	-	GAS CORROSION INHIBITOR	L	114.4	AMB	229	0 / 85	835	5/10	0.7014	0.00084	0.00068	343.5	WATER
6"	6"-OC-BH-J07A-50-0018-151093KS	151093KS	T 001	12"-OC-BH-J07A-X001-151093KS / 6"-OC-BH-J07A-151093KS	4355-BHJ07A-6-50-0001-001	-	-	CRUDE OIL / WATER	M	14.2-18	26-71	229	-50/85	131.85	0.06	27744.00	210.400	4.840	343.5	WATER
6"	6"-OC-BH-J07A-49-0017-151093KS	151093KS	T 002	12"-OC-BH-J07A-X001-151093KS / 6"-OC-BH-J07A-151093KS	4355-BHJ07A-6-50-0001-001	-	-	CRUDE OIL / WATER	M	14.2-18	26-71	229	-50/85	120.99	0.06	27696.00	228.900	5.265	343.5	WATER
6"	6"-OC-BH-71-0019-151093KS	151093KS	T 003	12"-OC-BH-J07A-X001-151093KS / 6"-OC-BH-J07A-151093KS	4355-BHJ07A-6-50-0001-002	-	-	CRUDE OIL / WATER	M	14.2-18	26-71	229	-50/85	130.96	0.06	25195.00	192.400	4.425	343.5	WATER
6"	6"-OC-BH-72-0020-151093KS	151093KS	T 004	12"-OC-BH-J07A-X001-151093KS / 6"-OC-BH-J07A-151093KS	4355-BHJ07A-6-50-0001-002	-	-	CRUDE OIL / WATER	M	14.2-18	26-71	229	-50/85	150.00	0.07	13618.00	90.800	2.088	343.5	WATER
6"	6"-OC-BH-48-0021-151093KS	151093KS	T 005	12"-OC-BH-J07A-X001-151093KS / 6"-OC-BH-J07A-151093KS	4355-BHJ07A-6-50-0001-003	-	-	CRUDE OIL / WATER	M	14.2-18	26-71	229	-50/85	124.58	0.06	22023.00	176.800	4.066	343.5	WATER
12"	12"-OC-BH-J07A-0022-151093KS	151093KS	1"-OC-BH-J07A-X001-151093	16"-OC-BH-J07A-0016-1512ZZ	4355-BHJ07A-6-50-0001-004	-	-	CRUDE OIL / WATER	M	14.2-18	26-71	229	-50/85	175.30	0.08	205330.00	1171.300	5.150	343.5	WATER
6"	6"-OC-BH-130-X003-151093KS	151093KS	T 031	12"-OC-BH-J07A-X001-151093KS (BULK HEADER)	4355-BHJ07A-6-50-0001-005	-	-	CRUDE OIL / WATER	M	14.2-18	26-71	229	-50/85	133.47	0.06	30053.00	225.200	5.179	343.5	WATER
6"	6"-OC-BH-131-0012-151093KS	151093KS	T 032	12"-OC-BH-J07A-X001-151093KS (BULK HEADER)	4355-BHJ07A-6-50-0001-005	-	-	CRUDE OIL / WATER	M	14.2-18	26-71	229	-50/85	124.20	0.06	28981.00	233.300	5.367	343.5	WATER
6"	6"-OC-BH-137-0013-151093KS	151093KS	T 033	12"-OC-BH-J07A-X001-151093KS (BULK HEADER)	4355-BHJ07A-6-50-0001-006	-	-	CRUDE OIL / WATER	M	14.2-18	26-71	229	-50/85	132.33	0.06	30019.00	226.800	5.217	343.5	WATER
16"	16"-OC-BH-J07A-0016-1512ZZ	1512ZZ	1"-OC-BH-J07A-0022-151093	PS3R (BH092)	4355-BHJ07A-6-50-0002-001	-	-	CRUDE OIL / WATER	M	14.2-18	26-71	229	-50/85	175.30	0.08	205330.00	1171.300	3.400	343.5	WATER
6"	6"-GP-BH-J07A-0024-91503	91503	8"-GP-BH-J07A-0022-91503	6"-GP-BH-J07A-X001-912ZZ	4355-BHJ07A-6-50-0001-003	-	-	LIFT GAS	G	100-119.3	15-51	141	-50/85	252.00	0.03	16591.00	65.837	1.514	211.5	WATER
10"	10"-GP-BH-J07A-0019-912ZZ	912ZZ	PS3R (BH101)	10"-GP-BH-J07A-0020-91503	4355-BHJ07A-6-50-0003-001	-	-	LIFT GAS	G	100-119.3	15-51	141	-50/85	252.00	0.03	161734.12	641.802	4.920	211.5	WATER
6"	6"-GP-BH-J07A-X001-912ZZ	912ZZ	6"-GP-BH-J07A-0024-91503	BHK05A (BH097)	4355-BHJ07A-6-50-0004-001	-	-	LIFT GAS	G	100-119.3	15-51	141	-50/85	252.00	0.03	16591.00	65.837	1.514	211.5	WATER
2"	2"-GP-BH-J07A-X007-151503	151503	T 076	T 078	4355-BHJ07A-6-50-0001-001	-	-	LIFT GAS	G	87 -118.3	15-51	229	-50/(85/100)	251.50	0.03	5193.47	20.200	2.650	343.5	WATER
2"	2"-GP-BH-J07A-X008-151503	151503	T 079	T 081	4355-BHJ07A-6-50-0001-001	-	-	LIFT GAS	G	87 -118.3	15-51	229	-50/(85/100)	251.50	0.03	4472.15	17.400	2.282	343.5	WATER
2"	2"-GP-BH-J07A-X002-151503	151503	T 053	T 055	4355-BHJ07A-6-50-0001-002	-	-	LIFT GAS	G	87 -118.3	15-51	229	-50/(85/100)	251.50	0.03	4472.15	17.400	2.282	343.5	WATER
2"	2"-GP-BH-J07A-X003-151503	151503	T 057	T 059	4355-BHJ07A-6-50-0001-002	-	-	LIFT GAS	G	87 -118.3	15-51	229	-50/(85/100)	251.50	0.03	4472.15	17.400	2.282	343.5	WATER
2"	2"-GP-BH-J07A-X004-151503	151503	T 061	T 063	4355-BHJ07A-6-50-0001-003	-	-	LIFT GAS	G	87 -118.3	15-51	229	-50/(85/100)	251.50	0.03	3895.10	15.100	1.987	343.5	WATER
2"	2"-GP-BH-J07A-X005-151503	151503	T 065	T 068	4355-BHJ07A-6-50-0001-005	-	-	LIFT GAS	G	87 -118.3	15-51	229	-50/(85/100)	251.50	0.03	3895.10	15.100	1.987	343.5	WATER
2"	2"-GP-BH-J07A-26-151503	151503	T 073	T 083	4355-BHJ07A-6-50-0001-006	-	-	LIFT GAS	G	87 -118.3	15-51	229	-50/(85/100)	251.50	0.03	5193.47	20.200	2.650	343.5	WATER
2"	2"-GI-BH-J07A-0003-11432	11432	0044 (PURGE CONNECTION)	12"-OC-BH-J07A-0022-151093KS	4355-BHJ07A-6-50-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3.00	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-J07A-0013-11432	11432	0045 (PURGE CONNECTION)	10"-GP-BH-J07A-0020-91503	4355-BHJ07A-6-50-0003-001	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3.00	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-J07A-0003-11432	11432	0046 (PURGE CONNECTION)	6"-GP-BH-J07A-0024-91503	4355-BHJ07A-6-50-0004-001	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3.00	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-J07A-0014-11432	11432	0047 (PURGE CONNECTION)	2"-GV-BH-J07A-X020-156620	4355-BHJ07A-6-51-0003-001	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3.00	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-J07A-X003-11432	11432	0062 (PURGE CONNECTION)	2"-GV-BH-J07A-X021-156620	4355-BHJ07A-6-51-0003-001	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3.00	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-J07A-X001-11432	11432	0043 (PURGE CONNECTION)	6"-OC-BH-J07A-X002-151093KS	4355-BHJ07A-6-50-0001-004	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3.00	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-J07A-X002-11432	11432	0042 (PURGE CONNECTION)	12"-OC-BH-J07A-X001-151093KS	4355-BHJ07A-6-50-0001-004	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3.00	0.02	-	-	-	30.9	WATER
2"	2"-OD-BH-J07A-X004-11441	11441	HEADER	BOAT LANDING AREA	4355-BHJ07A-6-51-0003-001	-	-	CRUDE OIL/WATER	L	ATM	4 / 48	20.6	0/85	736 / 1027	0.31 / 2.69	-	-	-	30.9	WATER
3"	3"-GV-BH-J07A-0047-16620	16620	6"-GV-BH-J07A-0049-16620	2"-GV-BH-J07A-0047-16620	4355-BHJ07A-6-51-0003-001	-	-	VENT GAS	G	ATM	AMB	21	-85/85	-	-	-	-	-	31.5	WATER
6"	6"-OC-BH-30-0011-151093KS	151093KS	BH-30 (T-001)	6"-OC-BH-K04A-X005-151093KS	4355-BHK04A-6-50-0001-001	-	-	CRUDE OIL	M	109	20-89	229	-50/100	150.74	0.0425	24329	161.4	2.84	343.5	WATER
4"	4"-OC-BH-32-X001-151093KS	151093KS	BH-32 (T-004)	4"-OC-BH-32-X009-151093KS/	4355-BHK04A-6-50-0001-001	-	-	CRUDE OIL	M	14.2-18	26-71	229	-50/85	97.128	0.0447	21496	221.3	13.23	343.5	WATER
8"	8"-OC-BH-K04A-0009-151093KS	151093KS	1"-OC-BH-K04A-X003-151093	8"-OC-BH-K04A-0010-1512ZZ	4355-BHK04A-6-50-0001-002	-	-	CRUDE OIL	M	109	20-89	229	-50/100	150.74	0.0425	33646	223.2	2.67	343.5	WATER
8"	8"-OC-BH-K04A-0010-1512ZZ	1512ZZ	8"-OC-BH-K04A-0009-151093KS	BH087	4355-BHK04A-6-50-0001-004	-	-	CRUDE OIL	M	109	20-89	229	-50/100	150.74	0.0425	33646	223.2	2.67	343.5	WATER
2"	2"-OD-BH-K04A-X022-11441	11441	HEADER	BOAT LANDING AREA	4355-BHK04A-6-51-0002-001	-	-	CRUDE OIL/WATER	L	ATM	4/48	20.6	0 / 85	736 / 1027	0.31 / 2.69	-	-	-	30.9	WATER
2"	2"-GI-BH-K04A-X018-11432	11432	-0024 (PURGE CONNECTION)	1"-OC-BH-K04A-X002-151093KS	4355-BHK04A-6-50-0001-002	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-K04A-X017-11432	11432	-0025 (PURGE CONNECTION)	1"-OC-BH-K04A-X004-151093KS	4355-BHK04A-6-50-0001-002	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-K04A-X016-11432	11432	-0026 (PURGE CONNECTION)	1"-OC-BH-K04A-X005-151093KS	4355-BHK04A-6-50-0001-002	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-K04A-X007-11432	11432	DJ-0027 (PURGE CONNECTION)	1"-OC-BH-K04A-0009-151093KS	4355-BHK04A-6-50-0001-004	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-K04A-0011-11432	11432	DJ-0028(PURGE CONNECTION)	2"-GV-BH-K04A-0035-156620 VENT HEADER	4355-BHK04A-6-51-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-K04A-X019-11432	11432	-0063 (PURGE CONNECTION)	2"-GV-BH-K04A-X020-96620 VENT HEADER	4355-BHK04A-6-51-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER
3"	3"-GV-BH-K04A-0036-16620	16620	6"-GV-BH-K04A-0036-16620	2"-GV-BH-K04A-0036-16620	4355-BHK04A-6-51-0002-001	-	-	VENT GAS	G	ATM	AMB	21	-85/85	-	-	-	-	-	31.5	WATER
2"	2"-GP-BH-30-X004-151503	151503	T-033	T-029	4355-BHK04A-6-50-0001-003	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/100	264.4	0.0331	3883	14.6861	0.2040	343.5	WATER
2"	2"-GP-BH-31-X003-151503	151503	T-030	T-024	4355-BHK04A-6-50-0001-003	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/100	264.4	0.0331	3883	14.6861	0.2040	343.5	WATER
2"	2"-GP-BH-32-X002-151503																			

NOM. PIPE SIZE	LINE NO.	MAT'L SPEC	FROM	TO	P&ID	INSUL.		MEDIUM	P H A S E	OPERATING CONDITIONS		DESIGN CONDITIONS		AT OPERATING CONDITIONS					TEST CONDITIONS	
						T Y P E	THICK NESS			PRESS bar A	TEMP. C	PRESS bar A	TEMP. C	DENSITY kg/m3	VISC cP	FLOW RATE		VEL m/s	PRESS. bar A	TEST MEDIUM
6"	6"-GP-BH-K05A-0017-91503	91503	6"-GP-BH-K05A-0017-91ZZZZ	T 015 / T 016 / T 017	4355-BHK05A-6-50-0002-001	-	-	LIFT GAS	G	100-119.3	15-51	141	-50/85	252	0.032	16591	439.6	1.16	211.5	WATER
2"	2"-GP-BH-K05A-X001-91503	91503	2"-GI-BH-K05A-0005-11432	6"-GP-BH-K05A-0017-91503	4355-BHK05A-6-50-0002-001	-	-	LIFT GAS	G	100-119.3	15-51	141	-50/85	255	0.03	-	-	-	211.5	WATER
2"	2"-GI-BH-K05A-0005-11432	11432	DJ0049 (PURGE CONNECTION)	2"-GP-BH-K05A-X001-91503	4355-BHK05A-6-50-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-K05A-0049 09-11432	11432	DJ 0006 (PURGE CONNECTION)	2"-GI-BH-K05A-0024-156620	4355-BHK05A-6-51-0001-002	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER
3"	3"-GV-BH-K05A-0025-16620	16620	6"-GV-BH-K05A-0025-16620	2"-GV-BH-K05A-0025-16620	4355-BHK05A-6-51-0001-002	-	-	VENT GAS	G	ATM	AMB	21	-85/85	-	-	-	-	-	31.5	WATER
6"	6"-GP-BH-K06B-X001-91ZZZZ	91ZZZZ	GAS LIFT FROM BHSC	6"-GP-BH-K06B-0151-91503	4355-BHK06B-6-50-0007-001	-	-	LIFT GAS	G	100-119.3	15-51	141	-50/85	257	0.032	6780.4	26.3	0.60	211.5	WATER
2"	2"-GI-BH-K06B-0061-11432	11432	DJ 0052 (PURGE CONNECTION)	*-OC-BH-K06B-0088-151093KS	4355-BHK06B-6-50-0004-001	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-K06B-0060-11432	11432	DJ 0053 (PURGE CONNECTION)	*-OC-BH-K06B-0089-151093KS	4355-BHK06B-6-50-0004-001	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-K06B-0064-11432	11432	DJ 0056 (PURGE CONNECTION)	6"-GP-BH-K06B-0151-91503	4355-BHK06B-6-50-0007-001	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-K06B-X001-11432	11432	DJ 0070 (PURGE CONNECTION)	2"-GV-BH-K06B-X005-96620	4355-BHK06B-6-51-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-K06B-0066-11432	11432	DJ 0057 (PURGE CONNECTION)	2"-GV-BH-K06B-0240-156620	4355-BHK06B-6-51-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-K06B-0063-11432	11432	DJ 0055 (PURGE CONNECTION)	*-OC-BH-K06B-0089-151093KS	4355-BHK06B-6-50-0006-001	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-K06B-0062-11432	11432	DJ 0054 (PURGE CONNECTION)	*-OC-BH-K06B-0088-151093KS	4355-BHK06B-6-50-0006-001	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER
2"	2"-OD-BH-K06B-X001-11441	11441	HEADER	BOAT LANDING AREA	4355-BHK06B-6-51-0002-001	-	-	CRUDE OIL/WATER	L	ATM	4/50	20.6	0 / 85	736 / 1027	0.31 / 2.69	-	-	-	30.9	WATER
3"	3"-GV-BH-K06B-0245-16620	16620	6"-GV-BH-K06B-0242-16620	2"-GV-BH-K06B-0241-16620	4355-BHK06B-6-51-0002-001	-	-	VENT GAS	G	ATM	AMB	21	-85/85	-	-	-	-	-	31.5	WATER
8"	8"-OC-BH-L09A-X001-151ZZZZ	151ZZZZ	6"-OC-BH-25-0069-151093KS	BH-N09A	4355-BHL09A-6-50-0002-001	-	-	CRUDE OIL	M	109	20-89	229	100	686.8	0.05	52834	76.9	0.92	343.5	WATER
2"	2"-OD-BH-L09A-X001-11441	11441	HEADER	BOAT LANDING AREA	4355-BHL09A-6-51-0002-001	-	-	CRUDE OIL/WATER	L	ATM	4/48	20.6	0/85	736 / 1027	0.31 / 2.69	-	-	-	30.9	WATER
2"	2"-GI-BH-L09A-X001-11432	11432	DJ 0059 (PURGE CONNECTION)	6"-OC-BH-25-0069-151093KS	4355-BHL09A-6-50-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-L09A-0044-11432	11432	DJ-0060 (PURGE CONNECTION)	2"-GV-BH-L09A-0189-156620	4355-BHL09A-6-51-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER
3"	3"-GV-BH-L09A-0193-16620	16620	6"-GV-BH-L09A-0193-16620	2"-GV-BH-L09A-0193-16620	4355-BHL09A-6-51-0002-001	-	-	VENT GAS	G	ATM	AMB	21	-85/85	-	-	-	-	-	31.5	WATER
12"	12"-OC-BH-M04A-0037-151ZZZZ	151ZZZZ	10"-OC-BH-M04A-0031-151093KS	PS3R (BH089)	4355-BHM04A-6-50-0015-001	-	-	CRUDE OIL / WATER	M	14.2-18	26-71	229	-50/85	947.23	0.11	95903	101.2	0.54	343.5	WATER
2"	2"-GI-BH-M04A-0078-11432	11432	DJ 0073 (PURGE CONNECTION)	10"-OC-BH-M04A-0030-151093KS	4355-BHM04A-6-50-0010-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-M04A-0079-11432	11432	DJ 0074 (PURGE CONNECTION)	6"-OC-BH-M04A-0032-151093KS	4355-BHM04A-6-50-0010-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-M04A-X001-11432	11432	DJ 0075 (PURGE CONNECTION)	2"-OC-BH-M04A-0031-151093KS	4355-BHM04A-6-50-0015-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-M04A-0027-11432	11432	DJ 0077 (PURGE CONNECTION)	2"-GV-BH-M04A-0103-156620	4355-BHM04A-6-51-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-M04A-X002-11432	11432	DJ 0076 (PURGE CONNECTION)	2"-GV-BH-M04A-X021-96620	4355-BHM04A-6-51-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-	-	-	30.9	WATER
3"	3"-GV-BH-M04A-0107-16620	16620	6"-GV-BH-M04A-0049-16620	2"-GV-BH-M04A-0107-16620	4355-BHM04A-6-51-0002-001	-	-	VENT GAS	G	ATM	AMB	21	-85/85	-	-	-	-	-	31.5	WATER
2"	2"-OD-BH-M04A-X004-11441	11441	HEADER	BOAT LOADING AREA	4355-BHM04A-6-51-0002-001	-	-	CRUDE OIL/WATER	L	ATM	4/48	20.6	0/85	736 / 1027	0.31 / 2.69	-	-	-	30.9	WATER
2"	2"-OD-BH-M05A-X007-11441	11441	6"-GV-BH-M05A-0149-16620	2"-OD-BH-M05A-X008-11441	4355-BHM05A-6-51-0001-002	-	-	CRUDE OIL/WATER	L	ATM	4/48	20.6	0/85	-	-	-	-	-	30.9	WATER
3"	3"-GV-BH-M05A-X024-16620	16620	6"-GV-BH-M05A-0149-16620	2"-GV-BH-M05A-X025-16620	4355-BHM05A-6-51-0001-002	-	-	VENT GAS	G	ATM	AMB	21	-85/85	-	-	-	-	-	31.5	WATER
8"	8"-OC-BH-314-0056-151093KS	151093KS	BH-314	T046	4355-BHN09A-6-50-0001-012	-	-	CRUDE OIL / WATER	M	14.2-18	26-71	229	-50/85	96.677	0.0845	17804	184.2	2.17	343.5	WATER
10"	10"-OC-BH-N09A-0057-151093KS	151093KS	T-003	10"-OC-BH-N09A-0059-15ZZZZ	4355-BHN09A-6-50-0001-004	-	-	CRUDE OIL / WATER	M	109	20-89	229	-50/100	686.8	0.0845	92346	134.458358	1.03	343.5	WATER
10"	10"-OC-BH-N09A-0059-151ZZZZ	151ZZZZ	10"-OC-BH-N09A-0057-151093KS	PS3R	4355-BHN09A-6-50-0002-001	-	-	CRUDE OIL / WATER	M	109	20-89	229	-50/100	129.158	0.0845	92346	714.984747	5.48	343.5	WATER
8"	8"-OC-BH-N09A-X002-151ZZZZ	151ZZZZ	HP PRODUCTION FROM BHL09A	*-OC-BH-N09A-X004-151093KS	4355-BHN09A-6-50-0003-001	-	-	CRUDE OIL / WATER	M	109	20-89	229	-50/100	686.8	0.0845	52834	76.9	0.92	343.5	WATER
12"	12"-OC-BH-N09A-0084-151093KS	151093KS	T 055/T 057	BH094	4355-BHN09A-6-50-0001-003	-	-	CRUDE OIL / WATER	M	109	20-89	229	-50/100	96.677	0.0845	116906	1209.24522	5.32	343.5	WATER
4"	4"-OC-BH-308-X008-151093KS	151093KS	BH-308	T 011	4355-BHN09A-6-50-0001-010	-	-	CRUDE OIL / WATER	M	14.2-18	26-71	229	-50/85	96.677	0.0845	17817.17	184.295851	10.17	343.5	WATER
4"	4"-OC-BH-406-X009-151093KS	151093KS	BH-406	T 016	4355-BHN09A-6-50-0001-011	-	-	CRUDE OIL / WATER	M	14.2-18	26-71	229	-50/85	96.677	0.0845	17802.35	184.142557	10.16	343.5	WATER
2"	2"-GP-BH-406-X003-151503	151503	T 053	2"-GP-BH-406-0081-151503	4355-BHN09A-6-50-0001-011	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/85	261	0.0341	3212	12.3	2.36	343.5	WATER
2"	2"-GP-BH-314-0084-151503	151503	2"-GP-BH-314-0083-91503	2"-GP-BH-314-0085-151503	4355-BHN09A-6-50-0001-012	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/85	260.893	0.0343	3212	12.3	2.36	343.5	WATER
2"	2"-GP-BH-214-X001-91503	91503	T 070	T 071	4355-BHN09A-6-50-0001-008	-	-	LIFT GAS	G	100-119.3	15-51	141	-50/85	261	0.0343	3711	14.2	2.36	211.5	WATER
2"	2"-GP-BH-308-X002-151503	151503	T 052	2"-GP-BH-308-0079-151503	4355-BHN09A-6-50-0001-010	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/85	260.778	0.0343	3212	12.3	2.36	343.5	WATER
2"	2"-OD-BH-N09A-X009-11441	11441	HEADER	TO BOAT LOADING AREA (DJ 0033)	4355-BHN09A-6-51-0002-001	-	-	CRUDE OIL/WATER	L	ATM	4/48	20.6	0/85	736 / 1027	0.31 / 2.69	-	-	-	30.9	WATER
2"	2"-GI-BH-N09A-X001-11432	11432	DJ 0030 (PURGE CONNECTION)	2"-OC-BH-N09A-0057-151093KS	4355-BHN09A-6-50-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-N09A-X002-11432	11432	DJ 0072 (PURGE CONNECTION)	2"-GV-BH-N09A-X014-96620	4355-BHN09A-6-51-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-N09A-0033-11432	11432	DJ 0031 (PURGE CONNECTION)	*-OC-BH-N09A-0056-151093KS	4355-BHN09A-6-50-0003-001	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER

NOM. PIPE SIZE	LINE NO.	MAT'L SPEC	FROM	TO	P&ID	INSUL.		MEDIUM	P H A S E	OPERATING CONDITIONS		DESIGN CONDITIONS		AT OPERATING CONDITIONS					TEST CONDITIONS	
						T Y P E	THICK NESS													
										PRESS bar A	TEMP. C	PRESS bar A	TEMP. C	DENSITY kg/m3	VISC cP	FLOW RATE		VEL m/s	PRESS. bar A	TEST MEDIUM
2"	2"-GI-BH-N09A-0034-11432	11432	DJ 0032 (PURGE CONNECTION)	2"-GV-BH-N09A-0163-156620	4355-BHN09A-6-51-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-N09A-0054-11432	11432	DJ 0069 (PURGE CONNECTION)	12"-OC-BH-N09A-0084- 151093KS	4355-BHN09A-6-50-0005-001	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER
2"	2"-GI-BH-N09A-0033-11432	11432	DJ 0031 (PURGE CONNECTION)	8"-OC-BH-N09A-X004- 151093KS	4355-BHN09A-6-50-0005-001	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER
6"	6"-GV-BH-N09A-0165-16620	16620	VENT HEADER	3"-GV-BH-N09A-0165-16620	4355-BHN09A-6-51-0002-001	-	-	VENT GAS	G	ATM	AMB	21	-85/85	-	-	-	-	-	31.5	WATER
6"	6"-GP-BH-SA-0026-91ZZZ	91ZZZ	Gas Lift from PS3R / 6"-631- GP-0018-91ZZZ	6"-GP-BH-SA-0026-91503	4355-BHSA-6-50-0002-001	-	-	GAS	G	100- 119.3	15 -51	141	-50/85	249.2	0.03	41725	167.4	3.85	211.5	WATER
2"	2"-GI-BH-SA-X001-11432	11432	73 DJ 0021 (Purge Connection)	6"-GP-BH-SA-0026-91503	4355-BHSA-6-50-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-	-	-	30.9	WATER
6"	6"-GP-BH-SC-0087-91ZZZ	91ZZZ	PS3MP01 (BH095)	6"-GP-BH-SC-0088-91503 / 6" GP-BH-SC-0089-91503	4355-BHSC-6-50-0002-001	-	-	GAS	G	100-119.3	15-51	141	-50/85	259	0.0337	21019	81.1549653	1.87	211.5	WATER
6"	6"-GP-BH-SC-0095-91ZZZ	91ZZZ	6"-GP-BH-SC-0089-91503	BHK06B	4355-BHSC-6-50-0003-001	-	-	GAS	G	100-119.3	15-51	141	-50/85	259	0.0337	6780.366	26.1790193	0.60	211.5	WATER
2"	2"-OD-BH-SC-X001 11441	11441	HEADER	OAT LANDING AREA / 73-DJ	4355-BHSC-6-51-0002-001	-	-	CRUDE OIL/WATER	L	ATM	4/48	20.6	0/85	736 / 1027	0.31 / 2.69	-	-	-	30.9	WATER
6"	6"-GV-BH-SC-0172-16620	16620	HEADER	3"-GV-BH-SC-0172-16620	4355-BHSC-6-51-0002-001	-	-	VENT GAS	G	ATM	AMB	21	-85/85	-	-	-	-	-	31.5	WATER
1"	1"-GI-BH-SC-0036-11432	11432	DJ 0034 (PURGE CONNECTION)	2-GI-BH-SC-0036-11432	4355-BHSC-6-50-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER
1"	1"-GI-BH-SC-X001-11432	11432	DJ 0035 (PURGE CONNECTION)	2"-GI-BH-SC-X001-11432	4355-BHSC-6-50-0003-001	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER
1"	1"-GI-BH-SC-0038-11432	11432	DJ 0036 (PURGE CONNECTION)	2"-GI-BH-SC-0038-11432	4355-BHSC-6-50-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0 / 85	3	0.02	-	-	-	30.9	WATER

NOM. PIPE SIZE	LINE NO.	MAT'L SPEC	FROM	TO	P&ID	INSUL.		MEDIUM	P H A S E	OPERATING CONDITIONS		DESIGN CONDITIONS		AT OPERATING CONDITIONS					TEST CONDITIONS	
						T Y P E	THICK NESS			PRESS bar A	TEMP. C	PRESS bar A	TEMP. C	DENSITY kg/m3	VISC cP	FLOW RATE		VEL m/s	PRESS. bar A	TEST MEDIUM
																kg/h	m3/h			
1-1/2"	1-1/2"-640-CG-0001-13461	13461	MEG FROM TOTE TANK	640-42-A-014 TP1	4355-PS2L-6-51-0014-001	-	-	Chemical Glycol	L	ATM	AMB	4.5	4 / 85	1100	21	NNF	NNF	-		
1"	1"-641-GC-0001-66620	66620	641-42-UZV-112	1"-641-GC-0080-61503	4355-PS2R-6-51-0011-001 4355-PS2R-6-50-0031-001	-	-	Chemical Glycol	L	49.51	AMB	92.0	4 / 85	1100	21	NNF	NNF	-		
1/2"	1/2"-641-CG-0021-156620	156620	641-42-UZV-002	1/2"-641-GP-0053-91503	4355-PS2R-6-51-0011-001 4355-PS2R-6-51-0046-001	-	-	Chemical Glycol	L	50.01	AMB	229	4 / 85	1100	21	NNF	NNF	-		
1/2"	1/2"-642-CG-0001-156620	156620	642-42-UZV-120	1/2"-642-GP-0006-96620-1HE	4355-PS2K-6-51-0102-001 4355-PS2K-6-50-0010-001	-	-	Chemical Glycol	L	101	AMB	229	4 / 85	1100	21	0.11	0.0001	0.0002		
1/2"	1/2"-642-CG-0003-156620	156620	642-42-UZV-121	3"-642-OC-0003-96620	4355-PS2K-6-51-0102-001 4355-PS2K-6-50-0010-001	-	-	Chemical Glycol	L	101	AMB	229	4 / 85	1100	21	NNF	NNF	-		
1/2"	1/2"-642-CG-0006-156620	156620	642-42-UZV-123	1/2"-642-GP-0095-96620-1HE	4355-PS2K-6-51-0102-001 4355-PS2K-6-50-0011-001	-	-	Chemical Glycol	L	101.01	AMB	229	4 / 85	1100	21	0.11	0.0001	0.0002		
1/2"	1/2"-642-CG-0009-156620	156620	642-42-UZV-124	3"-642-OC-0008-96620	4355-PS2K-6-51-0102-001 4355-PS2K-6-50-0011-001	-	-	Chemical Glycol	L	101	AMB	229	4 / 85	1100	21	NNF	NNF	-		
1/2"	1/2"-642-CG-0015-156620	156620	642-42-UZV-125	2"-642-GC-0023-96620	4355-PS2K-6-51-0102-001 4355-PS2K-6-50-0090-001	-	-	Chemical Glycol	L	113.7	AMB	229	4 / 85	1100	21	0.341	0.0003	0.0007		
1/2"	1/2"-642-CG-0064-153461	153461	642-42-A-001H TP52	642-42-UZV-146	4355-PS2K-6-51-0102-001	-	-	Chemical Glycol	L	101	AMB	229	4 / 85	1100	21	NNF	NNF	-		
1/2"	1/2"-642-CG-0065-156620	156620	642-42-UZV-145	1/2"-642-GP-0002-91503-1HE	4355-PS2K-6-51-0102-001 4355-PS2K-6-50-0010-001	-	-	Chemical Glycol	L	101	AMB	229	4 / 85	1100	21	NNF	NNF	-		
1/2"	1/2"-642-CG-0066-156620	156620	642-42-UZV-146	1/2"-642-GP-0007-91503-1HE	4355-PS2K-6-51-0102-001 4355-PS2K-6-50-0011-001	-	-	Chemical Glycol	L	101	AMB	229	4 / 85	1100	21	NNF	NNF	-		
1/2"	1/2"-642-CG-0068-156620	156620	642-42-UZV-147	1/2"-642-GC-0039-96620-2HE	4355-PS2K-6-51-0102-001 4355-PS2K-6-50-0086-001	-	-	Chemical Glycol	L	101	AMB	229	4 / 85	1100	21	0.341	0.0003	0.0007		
1/2"	1/2"-642-CG-0076-156620	156620	642-42-UZV-122	2"-642-GP-0029-91503-1HE	4355-PS2K-6-51-0102-001 4355-PS2K-6-50-0087-001	-	-	Chemical Glycol	L	98.01	AMB	229	4 / 85	1100	21	0.11	0.0001	0.0002		
1/2"	1/2"-642-CG-0077-156620	156620	642-42-UZV-126	12"-642-GP-0059-91503-1HE	4355-PS2K-6-51-0102-001 4355-PS2K-6-50-0092-001	-	-	Chemical Glycol	L	101	AMB	229	4 / 85	1100	21	0.11	0.0001	0.0002		
3"	3"-642-CG-0083-91503-3H	91503	642-40-A-001 TP6	642-12-C-002 N7	4355-PS2K-6-51-0001-001 4355-PS2K-6-50-0091-001	3H	NOTE G5	Chemical Glycol	L	113	55	143	-60 / 85	1114	11.13	VTA	VTA	-		
2"	2"-642-CG-0084-91503-2H	91503	642-40-A-001 TP12	642-12-C-001 N7	4355-PS2K-6-51-0001-001 4355-PS2K-6-50-0086-002	2H	NOTE G5	Chemical Glycol	L	100	39	117	-45 / 145	1124	17.96	VTA	VTA	-		
4"	4"-642-CG-0088-13461	13461	642-40-V-004 N1A	642-40-P-004A/S	4355-PS2K-6-51-0003-001 4355-PS2K-6-51-0002-001	-	-	Chemical Glycol	L	ATM	AMB	8	4 / 85	1098	12.5	14274	13.0000	0.4454		
1-1/2"	1-1/2"-642-CG-0094-11432	11432	GLYCOL FROM TOTE TANK	642-40-A-001 TP20	4355-PS2K-6-51-0001-001	-	-	Chemical Glycol	L	ATM	AMB	4.5	4 / 85	1098	12.5	NNF	NNF	-		
1-1/2"	1-1/2"-640-CI-0001-13461	13461	CORROSION INHIBITOR FROM TOTE TANK	640-42-A-001 TP1	4355-PS2L-6-51-0001-001	-	-	Chemical Injection	L	ATM	AMB	4.5	4 / 85	835	2.6	NNF	NNF	-		
1-1/2"	1-1/2"-640-CI-0003-13461	13461	CORROSION INHIBITOR FROM TOTE TANK	640-42-A-002 TP1	4355-PS2L-6-51-0002-001	-	-	Chemical Injection	L	ATM	AMB	4.5	4 / 85	835	2.6	NNF	NNF	-		
1-1/2"	1-1/2"-640-CI-0007-13461	13461	CORROSION INHIBITOR FROM DRUM	640-42-A-004 TP1	4355-PS2L-6-51-0004-001	-	-	Chemical Injection	L	ATM	AMB	VTC	4 / 85	1070	5.5	NNF	NNF	-		
1/2"	1/2"-640-CI-0008-13461	13461	1/2"-640-CI-0009-13461	1/2"-640-WT-0037-11432	4355-PS2L-6-51-0004-001 4355-PS2L-6-51-0063-001	-	-	Chemical Injection	L	3.1	AMB	8.01	4 / 85	1070	5.5	0.642	0.0006	0.0013		
1-1/2"	1-1/2"-640-CI-0010-13461	13461	SCALE INHIBITOR FROM TOTE TANK	640-42-A-005 TP1	4355-PS2L-6-51-0005-001	-	-	Chemical Injection	L	ATM	AMB	4.5	4 / 85	1270 - 1330	15	NNF	NNF	-		
1-1/2"	1-1/2"-640-CI-0016-13461	13461	COALESCING AGENT FROM TOTE TANK	640-42-A-007 TP1	4355-PS2L-6-51-0007-001	-	-	Chemical Injection	L	ATM	AMB	4.5	4 / 85	910	4.46	NNF	NNF	-		
1-1/2"	1-1/2"-640-CI-0018-13461	13461	FLOCCULANT FROM TOTE TANK	640-42-A-008 TP1	4355-PS2L-6-51-0008-001	-	-	Chemical Injection	L	ATM	AMB	4.5	4 / 85	1050	1100	NNF	NNF	-		
1-1/2"	1-1/2"-640-CI-0020-13461	13461	DE-EMULSIFIER FROM TOTE TANK	640-42-A-009 TP1	4355-PS2L-6-51-0009-001	-	-	Chemical Injection	L	ATM	AMB	4.5	4 / 85	910	54	NNF	NNF	-		
1-1/2"	1-1/2"-640-CI-0022-13461	13461	ASPHALTENE INHIB FROM TOTE TANK	640-42-A-010 TP1	4355-PS2L-6-51-0010-001	-	-	Chemical Injection	L	ATM	AMB	4.5	4 / 85	900	9	NNF	NNF	-		
1-1/2"	1-1/2"-640-CI-0024-13461	13461	ANTIFOAM FROM DRUM	640-42-A-011 TP1	4355-PS2L-6-51-0011-001	-	-	Chemical Injection	L	ATM	AMB	VTC	4 / 85	1000	710	NNF	NNF	-		
1-1/2"	1-1/2"-640-CI-0026-13461	13461	pH NEUTRALIZER FROM DRUM	640-42-A-012 TP1	4355-PS2L-6-51-0012-001	-	-	Chemical Injection	L	ATM	AMB	VTC	4 / 85	1170	8.073	NNF	NNF	-		
3/4"	3/4"-640-CI-0069-33461	33461	3/4"-640-CI-0070-33461	3/4"-640-WT-0037-11432	4355-PS2L-6-51-0018-001 4355-PS2L-6-51-0063-001	-	-	Chemical Injection	L	3.1	AMB	29.0	4 / 85	1100	13.6	8.8	0.0080	0.0078		
1/2"	1/2"-640-CI-0071-33461	33461	3/4"-640-CI-0069-33461	1/2"-640-WT-0003-11432	4355-PS2L-6-51-0018-001 4355-PS2L-6-51-0068-001	-	-	Chemical Injection	L	1.3	AMB	29.0	4 / 85	1100	13.6	2.2	0.0020	0.0044		
1-1/2"	1-1/2"-640-CI-0072-13461	13461	BIOCIDE FROM TOTE TANK	640-42-A-018 TP1	4355-PS2L-6-51-0018-001	-	-	Chemical Injection	L	ATM	AMB	4.5	4 / 85	1100	13.6	NNF	NNF	-		
1-1/2"	1-1/2"-640-CI-0078-13461	13461	CHEMICAL FROM DRUM /TOTE TANK	640-42-A-019 TP1	4355-PS2L-6-51-0168-001	-	-	Chemical Injection	L	ATM	AMB	4.5	4 / 85	-	-	NNF	NNF	-		
1-1/2"	1-1/2"-640-CI-0091-13461	13461	CORROSION INHIBITOR FROM TOTE TANK	640-42-A-020 TP1	4355-PS2L-6-51-0019-001	-	-	Chemical Injection	L	ATM	AMB	4.5	4 / 85	1020	20	NNF	NNF	-		
1-1/2"	1-1/2"-640-CI-0100-13461	13461	CORROSION INHIBITOR FROM DRUM	640-42-A-022 TP1	4355-PS2L-6-51-0179-001	-	-	Chemical Injection	L	ATM	AMB	VTC	4 / 85	920	9.2	NNF	NNF	-		
1-1/2"	1-1/2"-640-CI-0103-13461	13461	FeSD FROM TOTE TANK	640-42-A-021 TP1	4355-PS2L-6-51-0180-001	-	-	Chemical Injection	L	ATM	AMB	4.5	4 / 85	1210	8.2	NNF	NNF	-		
1/2"	1/2"-641-CI-0005-156620	156620	641-42-UZV-012	1/2"-641-OC-0002-151093KS	4355-PS2R-6-51-0010-001 4355-PS2R-6-50-0004-001	-	-	Chemical Injection	L	101.2	AMB	229	4 / 85	1020	20	2.91	0.0029	0.0064		
1/2"	1/2"-641-CI-0008-156620	156620	641-42-UZV-013	1/2"-641-OC-0004-151093KS	4355-PS2R-6-51-0010-001 4355-PS2R-6-50-0004-001	-	-	Chemical Injection	L	101.2	AMB	229	4 / 85	1020	20	NNF	NNF	-		
1/2"	1/2"-641-CI-0011-156620	156620	641-42-UZV-100	1/2"-641-OC-0132-151093KS	4355-PS2R-6-51-0010-001 4355-PS2R-6-50-0015-001	-	-	Chemical Injection	L	5.2	AMB	229	4 / 85	1020	20	12.91	0.0127	0.0278		
1/2"	1/2"-641-CI-0012-156620	156620	641-42-UZV-121	1/2"-641-OC-0133-151093KS	4355-PS2R-6-51-0010-001 4355-PS2R-6-50-0015-001	-	-	Chemical Injection	L	5.2	AMB	229	4 / 85	1020	20	12.91	0.0127	0.0278		
1/2"	1/2"-641-CI-0013-156620	156620	641-42-UZV-011	1/2"-641-OC-0134-151093KS	4355-PS2R-6-51-0010-001 4355-PS2R-6-50-0015-001	-	-	Chemical Injection	L	5.2	AMB	229	4 / 85	1020	20	NNF	NNF	-		
1/2"	1/2"-641-CI-0033-36620	36620	641-42-UZV-101	1/2"-641-OC-0135-31503	4355-PS2R-6-51-0010-001 4355-PS2R-6-50-0010-001	-	-	Chemical Injection	L	38.0	AMB	47	4 / 85	1020	20	1.57	0.0015	0.0033		
1"	1"-641-CI-0035-36620	36620	DOUBLE FLANGE	1"-641-OC-0135-31503	4355-PS2R-6-50-0010-001	-	-	Chemical Injection	L	38.0	AMB	47	4 / 85	1020	20	NNF	NNF	-		

NOM. PIPE SIZE	LINE NO.	MAT'L SPEC	FROM	TO	P&ID	INSUL.		MEDIUM	P H A S E	OPERATING CONDITIONS		DESIGN CONDITIONS		AT OPERATING CONDITIONS					TEST CONDITIONS		
						T Y P E	THICK NESS			PRESS bar A	TEMP. C	PRESS bar A	TEMP. C	DENSITY kg/m3	VISC cP	FLOW RATE		VEL m/s	PRESS. bar A	TEST MEDIUM	
																kg/h	m3/h				
1/2"	1/2"-641-CI-0063-156620	156620	641-42-UZV-102	1/2"-641-OC-0132-151093KS	4355-PS2R-6-51-0010-001 4355-PS2R-6-50-0019-001	-	-	Chemical Injection	L	5.2	AMB	229	4 / 85	910	54	2.032	0.0022	0.0048			
1/2"	1/2"-641-CI-0064-156620	156620	641-42-UZV-120	1/2"-641-OC-0133-151093KS	4355-PS2R-6-51-0010-001 4355-PS2R-6-50-0019-001	-	-	Chemical Injection	L	5.2	AMB	229	4 / 85	910	54	2.032	0.0022	0.0048			
1/2"	1/2"-641-CI-0065-156620	156620	641-42-UZV-007	1/2"-641-OC-0134-151093KS	4355-PS2R-6-51-0010-001 4355-PS2R-6-50-0019-001	-	-	Chemical Injection	L	5.2	AMB	229	4 / 85	910	54	NNF	NNF	-			
1/2"	1/2"-641-CI-0067-156620	156620	641-42-UZV-118	1/2"-641-OC-0002-151093KS	4355-PS2R-6-51-0011-001 4355-PS2R-6-50-0004-001	-	-	Chemical Injection	L	101.2	AMB	229	4 / 85	900	9	23.58	0.0262	0.0575			
1/2"	1/2"-641-CI-0068-156620	156620	641-42-UZV-119	14"-641-OC-0004-151093KS	4355-PS2R-6-51-0011-001 4355-PS2R-6-50-0004-001	-	-	Chemical Injection	L	101.2	AMB	229	4 / 85	900	9	NNF	NNF	-			
1/2"	1/2"-641-CI-0091-96620	96620	641-42-UZV-114	1/2"-641-GP-0033-91503	4355-PS2R-6-50-0023-001	-	-	Chemical Injection	L	82.0	AMB	143	4 / 85	920	9.2	1.06	0.0012	0.0026			
1/2"	1/2"-641-CI-0114-156620	156620	641-42-UZV-103	1/2"-641-OC-0002-151093KS	4355-PS2R-6-51-0010-001 4355-PS2R-6-50-0004-001	-	-	Chemical Injection	L	101.2	AMB	229	4 / 85	910	54	1.0541	0.0012	0.0026			
1/2"	1/2"-641-CI-0116-156620	156620	641-42-UZV-104	3/4"-641-OC-0004-151093KS	4355-PS2R-6-51-0010-001 4355-PS2R-6-50-0004-001	-	-	Chemical Injection	L	101.2	AMB	229	4 / 85	910	54	NNF	NNF	-			
3/4"	3/4"-641-CI-0200-156620	156620	DOUBLE FLANGE	24"-641-OC-0132-151093KS	4355-PS2R-6-50-0019-001	-	-	Chemical Injection	L	ATM	AMB	229	4 / 85	1270 - 1330	15	NNF	NNF	-			
3/4"	3/4"-641-CI-0201-156620	156620	DOUBLE FLANGE	24"-641-OC-0133-151093KS	4355-PS2R-6-50-0019-001	-	-	Chemical Injection	L	ATM	AMB	229	4 / 85	1270 - 1330	15	NNF	NNF	-			
3/4"	3/4"-641-CI-0202-156620	156620	DOUBLE FLANGE	3/4"-641-OC-0134-151093KS	4355-PS2R-6-50-0019-001	-	-	Chemical Injection	L	ATM	AMB	229	4 / 85	1270 - 1330	15	NNF	NNF	-			
3/4"	3/4"-641-CI-0203-156620	156620	DOUBLE FLANGE	3/4"-641-OC-0125-151093KS	4355-PS2R-6-50-0015-001	-	-	Chemical Injection	L	ATM	AMB	229	4 / 85	1270 - 1330	15	NNF	NNF	-			
3/4"	3/4"-641-CI-0204-156620	156620	DOUBLE FLANGE	1/2"-641-OC-0002-151093KS	4355-PS2R-6-50-0004-001	-	-	Chemical Injection	L	ATM	AMB	229	4 / 85	1270 - 1330	15	NNF	NNF	-			
3/4"	3/4"-641-CI-0205-156620	156620	DOUBLE FLANGE	14"-641-OC-0004-151093KS	4355-PS2R-6-50-0004-001	-	-	Chemical Injection	L	ATM	AMB	229	4 / 85	1270 - 1330	15	NNF	NNF	-			
3/4"	3/4"-641-CI-0206-156620	156620	DOUBLE FLANGE	3/4"-641-OC-0206-151093KS	4355-PS2R-6-50-0015-001	-	-	Chemical Injection	L	ATM	AMB	229	4 / 85	1270 - 1330	15	NNF	NNF	-			
1/2"	1/2"-641-CI-0207-156620	156620	641-42-UZV-010	1/2"-641-OC-0206-151093KS	4355-PS2R-6-51-0010-001 4355-PS2R-6-50-0015-001	-	-	Chemical Injection	L	5.2	AMB	229	4 / 85	1020	20	6.2	0.0061	0.0134			
1/2"	1/2"-641-CI-0208-156620	156620	641-42-UZV-005	3/4"-641-OC-0125-151093KS	4355-PS2R-6-51-0010-001 4355-PS2R-6-50-0015-001	-	-	Chemical Injection	L	5.2	AMB	229	4 / 85	910	54	2.032	0.0022	0.0048			
1/2"	1/2"-641-CI-0209-156620	156620	641-42-UZV-009	1/2"-641-OC-0125-151093KS	4355-PS2R-6-50-0015-001	-	-	Chemical Injection	L	5.2	AMB	229	4 / 85	1020	20	6.2	0.0061	0.0134			
1/2"	1/2"-641-CI-0210-156620	156620	641-42-UZV-006	24"-641-OC-0206-151093KS	4355-PS2R-6-51-0010-001 4355-PS2R-6-50-0015-001	-	-	Chemical Injection	L	5.2	AMB	229	4 / 85	910	54	2.032	0.0022	0.0048			
1/2"	1/2"-642-CI-0004-156620	156620	642-42-UZV-118	1/2"-642-OC-0050-151093KS	4355-PS2K-6-51-0102-001 4355-PS2K-6-50-0010-001	-	-	Chemical Injection	L	101.2	AMB	229	4 / 85	1000	710	1.408	0.0014	0.0031			
1/2"	1/2"-642-CI-0008-156620	156620	642-42-UZV-119	1"-642-OC-0051-151093KS	4355-PS2K-6-51-0102-001 4355-PS2K-6-50-0011-001	-	-	Chemical Injection	L	101.2	AMB	229	4 / 85	1000	710	NNF	NNF	-			
1/2"	1/2"-642-CI-0013-156620	156620	642-42-UZV-153	1/2"-642-OC-0050-151093KS	4355-PS2K-6-51-0101-001 4355-PS2K-6-50-0010-001	-	-	Chemical Injection	L	101.2	AMB	229	4 / 85	1270 - 1330	15	0.55	0.0004	0.0009			
1/2"	1/2"-642-CI-0020-16620	16620	642-42-UZV-004	7-642-GP-0080-11503	4355-PS2K-6-51-0100-001 4355-PS2K-6-50-0012-001	-	-	Chemical Injection	L	5.01	AMB	13.0	4 / 85	835	2.6	0.9992	0.0012	0.0026			
1/2"	1/2"-642-CI-0024-16620	16620	642-42-UZV-005	1/2"-642-GP-0085-11503	4355-PS2K-6-51-0100-001 4355-PS2K-6-50-0013-001	-	-	Chemical Injection	L	5.01	AMB	13.0	4 / 85	835	2.6	0.9992	0.0012	0.0026			
1/2"	1/2"-642-CI-0028-16620	16620	642-42-UZV-006	DOUBLE FLANGE	4355-PS2K-6-51-0100-001 4355-PS2K-6-50-0014-001	-	-	Chemical Injection	L	5.0	AMB	13.0	4 / 85	835	2.6	NNF	NNF	-			
1/2"	1/2"-642-CI-0029-36620	36620	642-42-UZV-011	7-642-OC-0020-31503	4355-PS2K-6-51-0100-001 4355-PS2K-6-50-0017-001	-	-	Chemical Injection	L	1.26	AMB	47	4 / 85	1020	20	1.57	0.0015	0.0033			
1"	1"-642-CI-0038-16620	16620	642-42-UZV-019	12"-642-PW-0052-16620	4355-PS2K-6-51-0110-001 4355-PS2K-6-50-0024-001	-	-	Chemical Injection	L	5.0	AMB	8	4 / 85	1050	1100	9.087	0.0087	0.0047			
1/2"	1/2"-642-CI-0039-16620	16620	642-42-UZV-016	10"-642-PW-0013-16620	4355-PS2K-6-51-0101-001 4355-PS2K-6-50-0015-001	-	-	Chemical Injection	L	9.0	AMB	18.5	4 / 85	910	4.46	1.703	0.0019	0.0041			
1/2"	1/2"-642-CI-0040-16620	16620	642-42-UZV-017	10"-642-PW-0026-16620	4355-PS2K-6-51-0101-001 4355-PS2K-6-50-0016-001	-	-	Chemical Injection	L	9.0	AMB	18.5	4 / 85	910	4.46	1.703	0.0019	0.0041			
1/2"	1/2"-642-CI-0041-16620	16620	642-42-UZV-018	8"-642-PW-0040-16620	4355-PS2K-6-51-0101-001 4355-PS2K-6-50-0019-001	-	-	Chemical Injection	L	9.0	AMB	18.5	4 / 85	910	4.46	0.664	0.0007	0.0016			
1/2"	1/2"-642-CI-0050-16620	16620	642-42-UZV-008	1/2"-642-OC-0012-11503	4355-PS2K-6-51-0100-001 4355-PS2K-6-50-0012-001	-	-	Chemical Injection	L	5.0	AMB	8.0	4 / 85	1020	20	1.43	0.0014	0.0031			
1/2"	1/2"-642-CI-0052-16620	16620	642-42-UZV-009	1/2"-642-OC-0013-11503	4355-PS2K-6-51-0100-001 4355-PS2K-6-50-0013-001	-	-	Chemical Injection	L	5.0	AMB	8.0	4 / 85	1020	20	1.43	0.0014	0.0031			
1/2"	1/2"-642-CI-0058-36620	36620	642-42-UZV-105	14"-642-PW-0068-36620	4355-PS2K-6-51-0101-001 4355-PS2K-6-50-0026-001	-	-	Chemical Injection	L	1.2	AMB	47	4 / 85	1270 - 1330	15	4.948	0.0039	0.0085			
1/2"	1/2"-642-CI-0084-16620	16620	642-42-UZV-007	7-642-GP-0107-11503	4355-PS2K-6-51-0100-001 4355-PS2K-6-50-0017-001	-	-	Chemical Injection	L	1.3	AMB	13.0	4 / 85	835	2.6	0.031	0.0004	0.0001			
2"	2"-642-CI-0086-96620	96620	642-40-A-001	2"-642-CG-0083-91503-3H	4355-PS2K-6-51-0001-001 4355-PS2K-6-50-0091-001	-	-	Chemical Injection	L	VTA	VTA	VTA	VTA	VTA	VTA	VTA	VTA	VTA	-		
1/2"	1/2"-642-CI-0166-13461	13461	CHECK VALVE	1/2"-642-WT-0204-11432	4355-PS2K-6-51-0046-001	-	-	Chemical Injection	L	ATM	AMB	8	4 / 85	1270 - 1330	15	NNF	NNF	-			
1"	1"-642-CI-0167-13461	13461	1"-645-CI-0036-13461	1/2"-642-WT-0204-11432	4355-PS2BR11-6-51-0002-001 4355-PS2K-6-51-0110-001	-	-	Chemical Injection	L	5.3	AMB	8.01	4 / 85	1070	5.5	6.42	0.0060	0.0033			
1"	1"-642-CI-0195-13461	13461	1"-645-CI-0044-13461	1/2"-642-WT-0204-11432	4355-PS2BR11-6-51-0002-001 4355-PS2K-6-51-0110-001	-	-	Chemical Injection	L	5.3	AMB	8	4 / 85	1170	8.073	3.276	0.0028	0.0015			
3/4"	3/4"-642-CI-0222-33461	33461	3/4"-642-CI-0224-33461	3/4"-642-WT-0204-11432	4355-PS2K-6-51-0110-001 4355-PS2K-6-51-0046-001	-	-	Chemical Injection	L	5.3	AMB	29.0	4 / 85	1100	13.6	88.0	0.0800	0.0780			
3/4"	3/4"-642-CI-0223-33461	33461	3/4"-642-CI-0224-33461	3"-642-WT-0218-11432	4355-PS2K-6-51-0110-001 4355-PS2K-6-51-0057-001	-	-	Chemical Injection	L	1.8	AMB	29.0	4 / 85	1100	13.6	2.2	0.0020	0.0019			
3/4"	3/4"-642-CI-0228-36620	36620	642-42-UZV-151	1/2"-642-PW-0068-36620	4355-PS2K-6-51-0110-001 4355-PS2K-6-50-0026-001	-	-	Chemical Injection	L	1.2	AMB	29.0	4 / 85	1100	13.6						

NOM. PIPE SIZE	LINE NO.	MAT'L SPEC	FROM	TO	P&ID	INSUL.		MEDIUM	P H A S E	OPERATING CONDITIONS		DESIGN CONDITIONS		AT OPERATING CONDITIONS					TEST CONDITIONS			
						T Y P E	THICK NESS							DENSITY	VISC	FLOW RATE		VEL	PRESS.	TEST		
																kg/m3	cP	kg/h			m3/h	m/s
bar A	C	bar A	C																			
1-1/2"	1-1/2"-642-CI-0269-13461	13461	TEG REGEN ANTIFOAM FROM DRUM	642-40-A-001 TP18	4355-PS2K-6-51-0001-001	-	-	Chemical Glycol	L	VTA	VTA	VTA	VTA	VTA	VTA	VTA	VTA	VTA				
1/2"	1/2"-642-CI-0291-36620	36620	642-42-UZV-112	1/2"-642-OC-0021-11503	4355-PS2K-6-51-0101-001 4355-PS2K-6-50-0017-001	-	-	Chemical Injection	L	1.5	AMB	47.0	4 / 85	1270 - 1330	15	2.275	0.0018	0.0039				
1/2"	1/2"-642-CI-0317-16620	16620	642-42-UZV-135	12"-642-PW-0011-16620	4355-PS2K-6-51-0101-001 4355-PS2K-6-50-0012-001	-	-	Chemical Injection	L	5.0	AMB	18.5	4 / 85	1210	8.2	67.80	0.0560	0.1229				
1/2"	1/2"-642-CI-0318-16620	16620	642-42-UZV-136	7-642-PW-0022-16620	4355-PS2K-6-51-0101-001 4355-PS2K-6-50-0013-001	-	-	Chemical Injection	L	5.0	AMB	18.5	4 / 85	1210	8.2	67.80	0.0560	0.1229				
1/2"	1/2"-642-CI-0319-16620	16620	642-42-UZV-137	8"-642-PW-0036-16620	4355-PS2K-6-51-0101-001 4355-PS2K-6-50-0017-001	-	-	Chemical Injection	L	1.3	AMB	18.5	4 / 85	1210	8.2	26.39	0.0218	0.0478				
1/2"	1/2"-642-CI-0322-16620	16620	642-42-UZV-140	4"-642-PW-0032-16620	4355-PS2K-6-51-0101-001 4355-PS2K-6-50-0014-001	-	-	Chemical Injection	L	5.0	AMB	18.5	4 / 85	1210	8.2	23.17	0.0191	0.0420				
3/4"	3/4"-642-CI-0330-156620	156620	642-42-UZV-154	3/4"-642-OC-0070-151093KS	4355-PS2K-6-51-0101-001 4355-PS2K-6-50-0005-001	-	-	Chemical Injection	L	5.2	AMB	229	4 / 85	1270 - 1330	15	3.101	0.0023	0.0022				
3/4"	3/4"-642-CI-0331-156620	156620	642-42-UZV-155	3/4"-642-OC-0071-151093KS	4355-PS2K-6-51-0101-001 4355-PS2K-6-50-0005-001	-	-	Chemical Injection	L	5.2	AMB	229	4 / 85	1270 - 1330	15	3.101	0.0023	0.0022				
3"	3"-641-DC-0032-13844	13844	641-70-V-001 N3	641-70-P-001B	4355-PS2R-6-51-0020-001 4355-PS2R-6-51-0023-001	-	-	Closed Drain	L	1.3	5 - 48	8	-45 / 85	1129.30 - 1145.80	1.46 - 1.47	11458	10	0.6				
3"	3"-641-DC-0036-13844	13844	3"-641-DC-0032-13844	641-70-P-001A	4355-PS2R-6-51-0023-001	-	-	Closed Drain	L	1.3	5 - 48	8	-45 / 85	1129.30 - 1145.80	1.46 - 1.47	11458	10	0.6				
2"	2"-641-DC-0040-151503	151503	2"-641-GN-0013-11503	2"-641-DC-0001-151503	4355-PS2R-6-50-0001-001	-	-	Closed Drain	L	1.2	20 - 48	229	-50 / 100	234.90	0.016 / 0.787 / 0.752	NNF	NNF	-				
2"	2"-641-DC-0054-151503	151503	2"-641-GN-0052-11503	2"-641-DC-0053-151503	4355-PS2R-6-50-0017-001	-	-	Closed Drain	L	1.2	33 - 48	229	-20 / 100	37.61	0.011 / 2.867 / 0.501	NNF	NNF	-				
2"	2"-641-DC-0063-151503	151503	2"-641-GN-0050-11503	2"-641-DC-0094-151503	4355-PS2R-6-50-0012-001	-	-	Closed Drain	L	1.2	33 - 48	229	-20 / 100	40.93	0.011 / 2.849 / 0.501	NNF	NNF	-				
2"	2"-641-DC-0064-151503	151503	2"-641-GN-0022-11503	2"-641-DC-0003-151503	4355-PS2R-6-50-0013-001	-	-	Closed Drain	L	1.2	33 - 48	229	-20 / 100	40.29	0.011 / 2.776 / 0.501	NNF	NNF	-				
2"	2"-641-DC-0065-151503	151503	2"-641-GN-0045-11503	2"-641-DC-0033-151503	4355-PS2R-6-50-0014-001	-	-	Closed Drain	L	1.2	33 - 48	229	-20 / 100	33.81	0.011 / 2.716 / 0.501	NNF	NNF	-				
2"	2"-641-DC-0066-151503	151503	2"-641-GN-0019-11503	2"-641-DC-0021-151503	4355-PS2R-6-50-0016-001	-	-	Closed Drain	L	1.2	33 - 48	229	-20 / 100	40.41	0.011 / 2.767 / 0.501	NNF	NNF	-				
3"	3"-642-DC-0308-13844	13844	642-70-V-001 N3	642-70-P-001B	4355-PS2K-6-51-0063-001 4355-PS2K-6-51-0062-001	-	-	Closed Drain	L	1.3	5 - 48	8	-45 / 85	1129.30 - 1145.80	1.46 - 1.47	11458	10	0.6				
3"	3"-642-DC-0329-13844	13844	3"-642-DC-0308-13844	642-70-P-001A	4355-PS2K-6-51-0062-001	-	-	Closed Drain	L	1.3	5 - 48	8	-45 / 85	1129.30 - 1145.80	1.46 - 1.47	11458	10	0.6				
6"	6"-640-DF-0001-11432	11432	BOAT LANDING (SOUTH)	640-35-A-004 TP1	4355-PS2L-6-51-0020-001	-	-	Diesel Fuel	L	11	AMB	19	4 / 85	800 - 860	1.60 - 3.87	86000	100	1.5				
6"	6"-640-DF-0002-11432	11432	BOAT LANDING (NORTH)	640-35-A-004 TP1	4355-PS2L-6-51-0020-001	-	-	Diesel Fuel	L	11	AMB	19	4 / 85	800 - 860	1.60 - 3.87	86000	100	1.5				
3"	3"-640-DF-0015-11432	11432	640-35-T-001 N2	640-35-P-001B	4355-PS2L-6-51-0021-001 4355-PS2L-6-51-0022-001	-	-	Diesel Fuel	L	1.70 - 2.10	AMB	12	4 / 85	800 - 860	1.60 - 3.87	8600	10	0.6				
3"	3"-640-DF-0020-11432	11432	3"-640-DF-0015-11432	640-35-P-001A	4355-PS2L-6-51-0022-001	-	-	Diesel Fuel	L	1.70 - 2.10	AMB	12	4 / 85	800 - 860	1.60 - 3.87	8600	10	0.6				
3"	3"-640-DO-0150-17320	17320	640-39-V-002 N2	640-39-P-002B	4355-PS2L-6-51-0105-001 4355-PS2L-6-51-0132-001	-	-	Open Drain	L	ATM	AMB	9.5	4 / 85	989.9 - 1023	0.563 - 1.547	13299	13	0.8				
3"	3"-640-DO-0151-17320	17320	3"-640-DO-0150-17320	640-39-P-002A	4355-PS2L-6-51-0132-001	-	-	Open Drain	L	ATM	AMB	9.5	4 / 85	989.9 - 1023	0.563 - 1.547	13299	13	0.8				
2"	2"-640-DO-0222-17320	17320	FLUSHING CONNECTION	4"-640-DO-0225-17320	4355-PS2L-6-51-0102-001	-	-	Open Drain	L	ATM	AMB	4.5	4 / 85	989.9 - 1023	0.563 - 1.547	NNF	NNF	-				
2"	2"-640-DO-0223-17320	17320	FLUSHING CONNECTION	4"-640-DO-0226-17320	4355-PS2L-6-51-0102-001	-	-	Open Drain	L	ATM	AMB	4.5	4 / 85	989.9 - 1023	0.563 - 1.547	NNF	NNF	-				
2"	2"-640-DO-0224-17320	17320	FLUSHING CONNECTION	4"-640-DO-0227-17320	4355-PS2L-6-51-0102-001	-	-	Open Drain	L	ATM	AMB	4.5	4 / 85	989.9 - 1023	0.563 - 1.547	NNF	NNF	-				
2"	2"-640-DO-0228-17320	17320	FLUSHING CONNECTION	OPEN DRAIN MAIN HEADER	4355-PS2L-6-51-0102-001	-	-	Open Drain	L	ATM	AMB	4.5	4 / 85	989.9 - 1023	0.563 - 1.547	NNF	NNF	-				
3"	3"-641-DO-0038-17320	17320	641-39-V-001 N2	641-39-P-001B	4355-PS2R-6-51-0025-001 4355-PS2R-6-51-0028-001	-	-	Open Drain	L	ATM	AMB	9.5	4 / 85	989.9 - 1023	0.563 - 1.547	13299	13	0.8				
3"	3"-641-DO-0039-17320	17320	3"-641-DO-0038-17320	641-39-P-001A	4355-PS2R-6-51-0028-001	-	-	Open Drain	L	ATM	AMB	9.5	4 / 85	989.9 - 1023	0.563 - 1.547	13299	13	0.8				
3"	3"-642-DO-0171-17320	17320	642-39-V-001 N2	642-39-P-001B	4355-PS2K-6-51-0071-001 4355-PS2K-6-51-0076-001	-	-	Open Drain	L	ATM	AMB	9.5	4 / 85	989.9 - 1023	0.563 - 1.547	13299	13	0.8				
3"	3"-642-DO-0172-17320	17320	3"-642-DO-0171-17320	642-39-P-001A	4355-PS2K-6-51-0076-001	-	-	Open Drain	L	ATM	AMB	9.5	4 / 85	989.9 - 1023	0.563 - 1.547	13299	13	0.8				
6"	6"-641-GC-0001-16620-1HE	16620	641-19-V-001 N4	641-19-P-001A	4355-PS2R-6-51-0002-001 4355-PS2R-6-51-0003-001	1HE	NOTE GS	Gas Condensate	G	1.28	10	15.01	-85/150	646	0.25	13926	22	0.3				
4"	4"-641-GC-0002-16620-1HE	16620	6"-641-GC-0001-16620-1HE	641-19-P-001B	4355-PS2R-6-51-0003-001	1HE	NOTE GS	Gas Condensate	G	1.28	10	15.01	-85/150	646	0.25	13926	11	0.4				
6"	6"-641-GC-0003-91ZZZ	91ZZZ	6" PS107	641-06-Z-002 N8	4355-PS2R-6-50-0031-001	-	-	Gas Condensate	G+L	49.20 - 49.50	15 - 36	92	-45 / 85	440.67 - 549.66	0.013 / 0.121 - 15.778 / -	9500	1.1235 - 21.5577	0.3				
6"	6"-641-GC-0010-16620	16620	641-19-V-002 N3	641-19-P-002A	4355-PS2R-6-51-0006-001 4355-PS2R-6-51-0007-001	-	-	Gas Condensate	L	1.25	15 - 36	8.01	-29 / 150	989	0.71	21758	22	0.3				
4"	4"-641-GC-0011-16620	16620	6"-641-GC-0010-16620	641-19-P-002B	4355-PS2R-6-51-0007-001	-	-	Gas Condensate	L	1.25	15 - 36	8.01	-29 / 150	989	0.71	10879	11	0.4				
6"	6"-641-GC-0080-61503	61503	6"-641-GC-0003-91ZZZ	6"-645-GC-0036-61503	4355-PS2R-6-50-0031-001 4355-PS2BR12-6-50-0002-001	-	-	Gas Condensate	G+L	49.20 - 49.50	15 - 36	92	-45 / 85	440.67 - 549.66	0.013 / 0.121 - 15.778 / -	9500	1.1235 - 21.5577	0.3				
3"	3"-642-GC-0035-16620	16620	642-11-V-001 N3A	642-11-P-001B	4355-PS2K-6-50-0030-001 4355-PS2K-6-50-0033-001	-	-	Gas Condensate	L	1.14	28.96 - 49.40	8	-29 / 85	843.68 - 860.39	4.344973 - 6.707245	8603.9	10	0.6				
3"	3"-642-GC-0038-16620	16620	3"-642-GC-0035-16620	642-11-P-001A	4355-PS2K-6-50-0033-001	-	-	Gas Condensate	L	1.14	28.96 - 49.41	10.5	-29 / 85	843.68 - 860.39	4.344973 - 6.707245	8603.9	10	0.6				
2"	2"-641-GN-0001-151503	151503	NITROGEN CONNECTION																			

NOM. PIPE SIZE	LINE NO.	MAT'L SPEC	FROM	TO	P&ID	INSUL.		MEDIUM	P H A S E	OPERATING CONDITIONS		DESIGN CONDITIONS		AT OPERATING CONDITIONS					TEST CONDITIONS	
						T Y P E	THICK NESS			PRESS bar A	TEMP. C	PRESS bar A	TEMP. C	DENSITY kg/m3	VISC cP	FLOW RATE		VEL m/s	PRESS. bar A	TEST MEDIUM
2"	2"-641-GN-0016-151503	151503	NITROGEN CONNECTION	2"-641-OC-0158-151093KS	4355-PS2R-6-50-0016-001	-	-	Nitrogen Gas	G	8.5	50 - 55	13.5	4 / 85	8.75 - 8.89	0.01956 - 0.01977	NNF	NNF	-		
2"	2"-641-GN-0017-11503	11503	NITROGEN CONNECTION	2"-641-DC-0067-151503	4355-PS2R-6-50-0031-001	-	-	Nitrogen Gas	G	8.5	50 - 55	13.5	4 / 85	8.75 - 8.89	0.01956 - 0.01977	NNF	NNF	-		
2"	2"-641-GN-0018-61503	61503	NITROGEN CONNECTION	6"-641-GC-0080-61503	4355-PS2R-6-50-0031-001	-	-	Nitrogen Gas	G	8.5	50 - 55	13.5	4 / 85	8.75 - 8.89	0.01956 - 0.01977	NNF	NNF	-		
2"	2"-641-GN-0020-151503	151503	NITROGEN CONNECTION	12"-641-OC-0134-151093KS	4355-PS2R-6-50-0015-001	-	-	Nitrogen Gas	G	8.5	50 - 55	13.5	4 / 85	8.75 - 8.89	0.01956 - 0.01977	NNF	NNF	-		
2"	2"-641-GN-0021-11503	11503	NITROGEN CONNECTION	2"-641-GP-0047-91503	4355-PS2R-6-50-0023-001	-	-	Nitrogen Gas	G	8.5	50 - 55	13.5	4 / 85	8.75 - 8.89	0.01956 - 0.01977	NNF	NNF	-		
2"	2"-641-GN-0025-151503	151503	NITROGEN CONNECTION	2"-641-OC-0141-151093KS	4355-PS2R-6-50-0013-001	-	-	Nitrogen Gas	G	8.5	50 - 55	13.5	4 / 85	8.75 - 8.89	0.01956 - 0.01977	NNF	NNF	-		
2"	2"-641-GN-0026-151503	151503	NITROGEN CONNECTION	2"-641-OC-0156-151093KS	4355-PS2R-6-50-0002-001	-	-	Nitrogen Gas	G	8.5	50 - 55	13.5	4 / 85	8.75 - 8.89	0.01956 - 0.01977	NNF	NNF	-		
2"	2"-641-GN-0028-11503	11503	NITROGEN CONNECTION	2"-641-DC-0041-151503	4355-PS2R-6-50-0002-001	-	-	Nitrogen Gas	G	8.5	50 - 55	13.5	4 / 85	8.75 - 8.89	0.01956 - 0.01977	NNF	NNF	-		
2"	2"-641-GN-0040-11432	11432	NITROGEN CONNECTION	2"-641-OC-0167-31503	4355-PS2R-6-50-0010-001	-	-	Nitrogen Gas	G	8.5	50 - 55	13.5	4 / 85	8.75 - 8.89	0.01956 - 0.01977	NNF	NNF	-		
2"	2"-641-GN-0043-151503	151503	NITROGEN CONNECTION	2"-641-OC-0140-151093KS	4355-PS2R-6-50-0012-001	-	-	Nitrogen Gas	G	8.5	50 - 55	13.5	4 / 85	8.75 - 8.89	0.01956 - 0.01977	NNF	NNF	-		
2"	2"-641-GN-0047-151503	151503	NITROGEN CONNECTION	2"-641-OC-0157-151093KS	4355-PS2R-6-50-0014-001	-	-	Nitrogen Gas	G	8.5	50 - 55	13.5	4 / 85	8.75 - 8.89	0.01956 - 0.01977	NNF	NNF	-		
2"	2"-641-GN-0054-151503	151503	NITROGEN CONNECTION	2"-641-OC-0159-151093KS	4355-PS2R-6-50-0017-001	-	-	Nitrogen Gas	G	8.5	50 - 55	13.5	4 / 85	8.75 - 8.89	0.01956 - 0.01977	NNF	NNF	-		
2"	2"-641-GN-0056-91503	91503	NITROGEN CONNECTION	8"-641-GP-0019-91503	4355-PS2R-6-50-0020-001	-	-	Nitrogen Gas	G	8.5	50 - 55	13.5	4 / 85	8.75 - 8.89	0.01956 - 0.01977	NNF	NNF	-		
2"	2"-641-GN-0058-11503	11503	NITROGEN CONNECTION	2"-641-GC-0026-61503	4355-PS2R-6-50-0031-001	-	-	Nitrogen Gas	G	8.5	50 - 55	13.5	4 / 85	8.75 - 8.89	0.01956 - 0.01977	NNF	NNF	-		
2"	2"-641-GN-0092-11432	11432	HOSE CONNECTION	641-42-A-001A TP3	4355-PS2R-6-51-0010-001	-	-	Nitrogen Gas	G	8.5	50 - 55	13.5	4 / 85	8.75 - 8.89	0.01956 - 0.01977	NNF	NNF	-		
2"	2"-641-GN-0200-151503	151503	NITROGEN CONNECTION	24"-641-OC-0133-151093KS	4355-PS2R-6-50-0015-001	-	-	Nitrogen Gas	G	8.5	50 - 55	13.5	4 / 85	8.75 - 8.89	0.01956 - 0.01977	NNF	NNF	-		
2"	2"-642-GN-0031-151503	151503	PURGING/FLUSHING CONNECTION	2"-642-OC-0052-151093KS	4355-PS2K-6-50-0005-001	-	-	Nitrogen Gas	G	8.5	50 - 55	13.5	4 / 85	8.75 - 8.89	0.01956 - 0.01977	NNF	NNF	-		
2"	2"-642-GN-0033-151503	151503	PURGING/FLUSHING CONNECTION	2"-642-OC-0053-151093KS	4355-PS2K-6-50-0005-001	-	-	Nitrogen Gas	G	8.5	50 - 55	13.5	4 / 85	8.75 - 8.89	0.01956 - 0.01977	NNF	NNF	-		
2"	2"-642-GN-0045-11432	11432	HOSE CONNECTION	642-42-A-001A TP3	4355-PS2K-6-51-0100-001	-	-	Nitrogen Gas	G	8.5	50 - 55	13.5	4 / 85	8.75 - 8.89	0.01956 - 0.01977	NNF	NNF	-		
12"	12"-641-GP-0002-91503	91503	12"-645-GP-0006-91503	LIFT GAS MANIFOLD HEADER	4355-PS2BR12-6-50-0001-001 4355-PS2R-6-50-0021-001	-	-	Gas Process	G	106.30 - 107.20	51	143	-45 / 85	246.03 - 257.12	0.027 - 0.028	221474.5	889.1	3.4		
8"	8"-641-GP-0015-91503	91503	12"-641-GP-0002-91503	8"-641-GP-0018-91ZZZ	4355-PS2R-6-50-0021-001 4355-PS2R-6-50-0022-001	-	-	Gas Process	G	106.30 - 107.10	51	143	-45 / 85	244.7	0.2667	51964	211.4	1.8		
8"	8"-641-GP-0018-91ZZZ	91ZZZ	8"-641-GP-0015-91503	8" MM090	4355-PS2R-6-50-0022-001	-	-	Gas Process	G	107.30 - 108.10	51	143	-45 / 85	244.7	0.2667	51964	211.4	1.8		
8"	8"-641-GP-0019-91503	91503	12"-641-GP-0002-91503	8"-641-GP-0025-91ZZZ	4355-PS2R-6-50-0021-001 4355-PS2R-6-50-0020-001	-	-	Gas Process	G	107.40 - 108.20	51	143	-45 / 85	245	0.267	44776	182	1.6		
8"	8"-641-GP-0025-91ZZZ	91ZZZ	8"-641-GP-0019-91503	8" MM091	4355-PS2R-6-50-0020-001	-	-	Gas Process	G	107.40 - 108.20	51	143	-45 / 85	245	0.267	44776	182	1.6		
8"	8"-641-GP-0033-91503	91503	8"-645-GP-0034-91503	8"-641-GP-0037-91ZZZ	4355-PS2BR12-6-50-0002-001 4355-PS2R-6-50-0023-001	-	-	Gas Process	G+L	82	17 - 29	143	-45 / 85	105.73 - 131.91	0.015 - 0.016 / 0.071 -	NNF	NNF	-		
8"	8"-641-GP-0037-91ZZZ	91ZZZ	641-06-Z-003 N8	8" PS205	4355-PS2R-6-50-0023-001	-	-	Gas Process	G+L	82	17 - 29	143	-45 / 85	105.73 - 131.91	0.015 - 0.016 / 0.071 -	55329 - 63275	445.1772 - 525.1080	4.5		
12"	12"-642-GP-0034-96620-3HE	96620	642-11-V-104 N2	642-11-K-101	4355-PS2K-6-50-0051-001 4355-PS2K-6-50-0052-001	3HE	NOTE G5	Gas Process	G	51.8	65	106	-45 / 150	72.86 - 74.69	0.014	111114	1369.0000 - 1509.9748	5.7		
14"	14"-642-GP-0050-13461-3HE	13461	642-11-V-001 N2	642-11-K-001	4355-PS2K-6-50-0030-001 4355-PS2K-6-50-0031-001	3HE	NOTE G5	Gas Process	G	1.1	28.90 - 49.40	8	-29 / 85	1.93 - 1.96	0.0089 - 0.0093	5717	1502.8697 - 2936.5423	8.2		
6"	6"-642-GP-0055-16620-3PG	16620	642-11-K-001	42"-642-GP-0161-16620	4355-PS2K-6-50-0031-001 4355-PS2K-6-50-0041-001	3PG	NOTE G5	Gas Process	G	4.5	97.23 - 114.23	8	-29 / 150	6.55 - 6.72	0.0112 - 0.0115	5717	445.9004 - 851.2408	13.0		
12"	12"-642-GP-0062-96620-3H	96620	642-11-K-101	12"-642-GP-0062-96620-3PG	4355-PS2K-6-50-0052-001 4355-PS2K-6-50-0053-001	3H	NOTE G5	Gas Process	G	113.8	125.70 - 126	143	-45 / 150	135.26 - 135.26	0.020	111114	742.0000 - 822.5293	3.1		
42"	42"-642-GP-0080-11503	11503	642-84-V-003 N2	42"-642-GP-0161-16620	4355-PS2K-6-50-0012-001 4355-PS2K-6-50-0041-001	-	-	Gas Process	G	4.20 - 4.30	30 - 51	8	-29 / 85	5.14 - 5.33	0.011	260735	38388.0000 - 50388.0000	15.7		
30"	30"-642-GP-0085-11503	11503	642-84-V-004 N2	42"-642-GP-0080-11503	4355-PS2K-6-50-0013-001	-	-	Gas Process	G	5	31 - 52	8	-29 / 85	6.06 - 6.19	0.011	130368	16642.0000 - 21328.0000	0.8		
12"	12"-642-GP-0092-11503	11503	642-11-UZV-054	42"-642-GP-0080-11503	4355-PS2K-6-50-0014-001 4355-PS2K-6-50-0012-001	-	-	Gas Process	G	5.5	33 - 55	8	-29 / 85	5.95	0.012	NNF	NNF	-		
14"	14"-642-GP-0107-11503	11503	642-84-V-006 N2	642-11-V-001 N1	4355-PS2K-6-50-0017-001 4355-PS2K-6-50-0030-001	-	-	Gas Process	G	1.3	29 - 50	8	-29 / 85	2.19 - 2.23	0.009	5718	1323.0000 - 2584.0000	7.2		
30"	30"-642-GP-0116-13461-3HE	13461	642-11-V-101 N2	642-11-K-100	4355-PS2K-6-50-0041-001 4355-PS2K-6-50-0042-001	3HE	NOTE G5	Gas Process	G	3.70 - 3.80	31 - 52	16	-45 / 120	4.54 - 4.71	0.011 - 0.011	133226	22007.0000 - 29156.6267	17.8		
24"	24"-642-GP-0118-36620-3PG	36620	24"-642-GP-0114-16620-3PG	642-11-E-102 N1	4355-PS2K-6-50-0042-001 4355-PS2K-6-50-0043-001	3PG	NOTE G5	Gas Process	G	8.9	88.50 - 108.60	22	-45 / 150	9.27 - 9.33	0.013 - 0.013	133226	14279.31	13.6		
24"	24"-642-GP-0131-36620-3HE	36620	642-11-V-102 N2	642-11-K-100	4355-PS2K-6-50-0044-001 4355-PS2K-6-50-0045-001	3HE	NOTE G5	Gas Process	G	7.7	64.60 - 64.60	22	-45 / 150	8.54 - 9.25	0.012 - 0.012	133226	12075.0000 - 14451.2136	13.8		
16"	16"-642-GP-0141-66620-3PG	66620	16"-642-GP-0204-36620-3PG	24"-642-GP-0191-66620-3PG	4355-PS2K-6-50-0045-001 4355-PS2K-6-50-0046-001	3PG	NOTE G5	Gas Process	G	20	128.50 - 132.90	74	-45 / 150	18.71 - 20.60	0.014 - 0.015	133226	5510.0000 - 6485.3809	13.9		
12"	12"-642-GP-0144-96620	96620	642-11-E-105 N2B	642-12-C-002 N1	4355-PS2K-6-50-0053-001 4355-PS2K-6-50-0090-001	-	-	Gas Process	G											

NOM. PIPE SIZE	LINE NO.	MAT'L SPEC	FROM	TO	P&ID	INSUL.		MEDIUM	P H A S E	OPERATING CONDITIONS		DESIGN CONDITIONS		AT OPERATING CONDITIONS					TEST CONDITIONS	
						T Y P E	THICK NESS			PRESS bar A	TEMP. C	PRESS bar A	TEMP. C	DENSITY kg/m3	VISC cP	FLOW RATE		VEL m/s	PRESS. bar A	TEST MEDIUM
																kg/h	m3/h			
24"	24"-642-GP-2131-36620-3HE	36620	642-11-V-202 N2	642-11-K-200	4355-PS2K-6-50-0059-001 4355-PS2K-6-50-0060-001	3HE	NOTE G5	Gas Process	G	7.7	64.60 - 64.60	22	-45 / 150	8.54 - 9.25	0.012	133226	12075.0000 14451.2136	13.8		
16"	16"-642-GP-2141-66620-3PG	66620	16"-642-GP-2204-36620-3PG	24"-642-GP-0191-66620-3PG	4355-PS2K-6-50-0060-001 4355-PS2K-6-50-0046-001	3PG	NOTE G5	Gas Process	G	20	128.50 - 132.90	74	-45 / 150	18.71 - 20.60	0.014 - 0.015	133226	5510.0000 - 6485.3809	13.9		
10"	10"-642-GP-2144-96620	96620	642-11-E-205 N2B	10"-642-GP-0144-96620	4355-PS2K-6-50-0068-001 4355-PS2K-6-50-0053-001	-	-	Gas Process	G	112.80 - 113.60	50	143	-45 / 150	263.40 - 263.40	0.028 - 0.030	111114	379.0000 - 424.7732	2.3		
16"	16"-642-GP-2409-66620-3HE	66620	642-11-V-203 N2	642-11-K-201	4355-PS2K-6-50-0063-001 4355-PS2K-6-50-0064-001	3HE	NOTE G5	Gas Process	G	18.7	65 - 65	74	-45 / 150	21.92 - 23.99	0.012	129957	4702.0000 - 5449.0861	11.7		
14"	14"-642-GP-2415-96620-3H	96620	14"-642-GP-2285-66620-3H	642-11-E-204 N1	4355-PS2K-6-50-0064-001 4355-PS2K-6-50-0065-001	3H	NOTE G5	Gas Process	G	53	138 - 143	106	-45 / 160	51.95 - 58.19	0.016	129957	1984.0000 - 2245.6460	6.3		
1-1/2"	1-1/2"-640-GV-0001-13461	13461	640-42-A-001 TP4	VENT TO SAFE LOCATION	4355-PS2L-6-51-0001-001	-	-	Gas Vent	G	ATM	AMB	4.5	4 / 85	VTA	VTA	VTA	VTA	-		
2"	2"-640-GV-0002-13461	13461	640-42-A-002 TP4	VENT TO SAFE LOCATION	4355-PS2L-6-51-0002-001	-	-	Gas Vent	G	ATM	AMB	4.5	4 / 85	VTA	VTA	VTA	VTA	-		
1-1/2"	1-1/2"-640-GV-0004-13461	13461	640-42-A-004 TP4	VENT TO SAFE LOCATION	4355-PS2L-6-51-0004-001	-	-	Gas Vent	G	ATM	AMB	4.5	4 / 85	VTA	VTA	VTA	VTA	-		
1-1/2"	1-1/2"-640-GV-0005-13461	13461	640-42-A-005 TP4	VENT TO SAFE LOCATION	4355-PS2L-6-51-0005-001	-	-	Gas Vent	G	ATM	AMB	4.5	4 / 85	VTA	VTA	VTA	VTA	-		
1-1/2"	1-1/2"-640-GV-0007-13461	13461	640-42-A-007 TP4	VENT TO SAFE LOCATION	4355-PS2L-6-51-0007-001	-	-	Gas Vent	G	ATM	AMB	4.5	4 / 85	VTA	VTA	VTA	VTA	-		
1-1/2"	1-1/2"-640-GV-0008-13461	13461	640-42-A-008 TP4	VENT TO SAFE LOCATION	4355-PS2L-6-51-0008-001	-	-	Gas Vent	G	ATM	AMB	4.5	4 / 85	VTA	VTA	VTA	VTA	-		
1-1/2"	1-1/2"-640-GV-0009-13461	13461	640-42-A-009 TP4	VENT TO SAFE LOCATION	4355-PS2L-6-51-0009-001	-	-	Gas Vent	G	ATM	AMB	4.5	4 / 85	VTA	VTA	VTA	VTA	-		
1-1/2"	1-1/2"-640-GV-0010-13461	13461	640-42-A-010 TP4	VENT TO SAFE LOCATION	4355-PS2L-6-51-0010-001	-	-	Gas Vent	G	ATM	AMB	4.5	4 / 85	VTA	VTA	VTA	VTA	-		
1-1/2"	1-1/2"-640-GV-0011-13461	13461	640-42-A-011 TP4	VENT TO SAFE LOCATION	4355-PS2L-6-51-0011-001	-	-	Gas Vent	G	ATM	AMB	4.5	4 / 85	VTA	VTA	VTA	VTA	-		
1-1/2"	1-1/2"-640-GV-0012-13461	13461	640-42-A-012 TP4	VENT TO SAFE LOCATION	4355-PS2L-6-51-0012-001	-	-	Gas Vent	G	ATM	AMB	4.5	4 / 85	VTA	VTA	VTA	VTA	-		
1-1/2"	1-1/2"-640-GV-0014-13461	13461	640-42-A-014 TP4	VENT TO SAFE LOCATION	4355-PS2L-6-51-0014-001	-	-	Gas Vent	G	ATM	AMB	4.5	4 / 85	VTA	VTA	VTA	VTA	-		
1-1/2"	1-1/2"-640-GV-0033-13461	13461	640-42-A-018 TP4	VENT TO SAFE LOCATION	4355-PS2L-6-51-0018-001	-	-	Gas Vent	G	ATM	AMB	4.5	4 / 85	VTA	VTA	VTA	VTA	-		
1-1/2"	1-1/2"-640-GV-0035-13461	13461	640-42-A-019 TP4	VENT TO SAFE LOCATION	4355-PS2L-6-51-0168-001	-	-	Gas Vent	G	ATM	AMB	4.5	4 / 85	VTA	VTA	VTA	VTA	-		
2"	2"-640-GV-0038-13461	13461	640-42-A-020 TP4	VENT TO SAFE LOCATION	4355-PS2L-6-51-0019-001	-	-	Gas Vent	G	ATM	AMB	4.5	4 / 85	VTA	VTA	VTA	VTA	-		
1-1/2"	1-1/2"-640-GV-0039-13461	13461	640-42-A-021 TP4	VENT TO SAFE LOCATION	4355-PS2L-6-51-0180-001	-	-	Gas Vent	G	ATM	AMB	4.5	4 / 85	VTA	VTA	VTA	VTA	-		
1-1/2"	1-1/2"-640-GV-0040-13461	13461	640-42-A-022 TP4	VENT TO SAFE LOCATION	4355-PS2L-6-51-0179-001	-	-	Gas Vent	G	ATM	AMB	4.5	4 / 85	VTA	VTA	VTA	VTA	-		
14"	14"-641-OC-0002-151093KS	151093KS	MJ MANIFOLD HEADER	14"-645-OC-0030-151093KS	4355-PS2R-6-50-0004-001 4355-PS2BR12-6-50-0001-001	-	-	Oil Crude	G+L	101.2	20 - 35	229	-48 / 85	244.37 - 308.24	0.016 / 0.728 1.092 / 1.226	130144	297.7451 - 469.4851	1.3		
14"	14"-641-OC-0004-151093KS	151093KS	MJ TEST MANIFOLD HEADER	14"-645-OC-0031-151093KS	4355-PS2R-6-50-0004-001 4355-PS2BR12-6-50-0001-001	-	-	Oil Crude	G+L	101.2	20 - 35	229	-48 / 85	244.37 - 308.24	0.016 / 0.728 1.092 / 1.226	NNF	NNF	-		
8"	8"-641-OC-0012-151093KS	151093KS	8"-641-OC-0017-151ZZZH	14"-641-OC-0002-151093KS	4355-PS2R-6-50-0001-001 4355-PS2R-6-50-0004-001	-	-	Oil Crude	G+L	103.3	20 - 35	229	-48 / 85	234.9	0.016 / 0.787 / 0.752	50933	220.4	1.9		
12"	12"-641-OC-0014-151ZZZH	151ZZZH	12" MM079	18"-641-OC-0015-151093KS	4355-PS2R-6-50-0011-001	-	-	Oil Crude	G+L	7.5	33 - 55	229	-20 / 110	39.11	0.011 / 2.786 / 0.501	180451	6657	25.3		
18"	18"-641-OC-0015-151093KS	151093KS	12"-641-OC-0014-151ZZZH	24"-641-OC-0132-151093KS	4355-PS2R-6-50-0011-001 4355-PS2R-6-50-0019-001	-	-	Oil Crude	G+L	7.5	33 - 55	229	-48 / 85	39.11	0.011 / 2.786 / 0.501	180451	6657	11.3		
8"	8"-641-OC-0017-151ZZZH	151ZZZH	8" MM085	8"-641-OC-0012-151093KS	4355-PS2R-6-50-0001-001	-	-	Oil Crude	G+L	103.3	20 - 35	229	-20 / 110	234.9	0.016 / 0.787 / 0.752	50933	220.4	1.9		
8"	8"-641-OC-0018-151ZZZH	151ZZZH	8" MM087	8"-641-OC-0030-151093KS	4355-PS2R-6-50-0002-001	-	-	Oil Crude	G+L	103.5	20 - 35	229	-20 / 110	324.2	0.016 / 0.901 / 0.501	84015	263.5	2.3		
8"	8"-641-OC-0030-151093KS	151093KS	8"-641-OC-0018-151ZZZH	14"-641-OC-0002-151093KS	4355-PS2R-6-50-0002-001 4355-PS2R-6-50-0004-001	-	-	Oil Crude	G+L	103.5	20 - 35	229	-48 / 85	324.2	0.016 / 0.901 / 0.752	84015	263.5	2.3		
20"	20"-641-OC-0048-151093KS	151093KS	16"-641-OC-0111-151ZZZH	24"-641-OC-0132-151093KS	4355-PS2R-6-50-0014-001 4355-PS2R-6-50-0019-001	-	-	Oil Crude	G+L	7.4	33 - 55	229	-48 / 85	33.81	0.011 / 2.716 / 0.501	207807	9000	12.3		
16"	16"-641-OC-0050-151093KS	151093KS	16"-641-OC-0151-151ZZZH	24"-641-OC-0125-151093KS	4355-PS2R-6-50-0017-001 4355-PS2R-6-50-0015-001	-	-	Oil Crude	G+L	7.4	33 - 55	229	-48 / 85	37.61	0.011 / 2.867 / 0.501	161537	6225	13.3		
14"	14"-641-OC-0067-151093KS	151093KS	14"-641-OC-0080-151ZZZH	24"-641-OC-0132-151093KS	4355-PS2R-6-50-0016-001 4355-PS2R-6-50-0019-001	-	-	Oil Crude	G+L	7.6	33 - 55	229	-48 / 85	40.41	0.011 / 2.767 / 0.501	108495	3958	11.1		
12"	12"-641-OC-0068-151093KS	151093KS	12"-641-OC-0075-151ZZZH	24"-641-OC-0125-151093KS	4355-PS2R-6-50-0013-001 4355-PS2R-6-50-0015-001	-	-	Oil Crude	G+L	7.4	33 - 55	229	-48 / 85	40.29	0.011 / 2.776 / 0.501	107109	3823	14.6		
12"	12"-641-OC-0069-151093KS	151093KS	12"-641-OC-0106-151ZZZH	24"-641-OC-0132-151093KS	4355-PS2R-6-50-0012-001 4355-PS2R-6-50-0015-001	-	-	Oil Crude	G+L	7.5	33 - 55	229	-48 / 85	40.93	0.011 / 2.849 / 0.501	78572	2733	10.4		
12"	12"-641-OC-0075-151ZZZH	151ZZZH	12" MM078	12"-641-OC-0068-151093KS	4355-PS2R-6-50-0013-001	-	-	Oil Crude	G+L	7.4	33 - 55	229	-20 / 110	40.29	0.011 / 2.776 / 0.501	107109	3823	14.6		
14"	14"-641-OC-0080-151ZZZH	151ZZZH	14" MM077	14"-641-OC-0067-151093KS	4355-PS2R-6-50-0016-001	-	-	Oil Crude	G+L	7.6	33 - 55	229	-20 / 110	40.41	0.011 / 2.767 / 0.501	108495	3958	11.1		
10"	10"-641-OC-0103-91ZZZ	91ZZZ	641-06-Z-001 N8	10" PS206	4355-PS2R-6-50-0010-001	-	-	Oil Crude	L	13.3	29 - 50	FV / 47	4 / 85	833.19 - 848.68	2.695 - 4.279 / 0.840 -	185789	90.0000 - 220.0000	1.2		
12"	12"-641-OC-0106-151ZZZH	151ZZZH	12" MM080	12"-641-OC-0069-151093KS	4355-PS2R-6-50-0012-001	-	-	Oil Crude	G+L	7.5	33 - 55	229	-20 / 110	40.93	0.011 / 2.849 / 0.501	78572	2733	10.4		
16"	16"-641-OC-0111-151ZZZH	151ZZZH	16" MM076	20"-641-OC-0048-151093KS	4355-PS2R-6-50-0014-001	-	-	Oil Crude	G+L	7.4	33 - 55	229	-20 / 110	33.81	0.011 / 2.716 / 0.501	207807	9000	19.3		
10"	10"-641-OC-0128-151093KS	151093KS	10"-645-OC-0037-151093KS	14"-641-OC-0002-151093KS	4355-PS2BR13-6-50-0001-001 4355-PS2R-6-50-0004-001	-	-	Oil Crude	G+L	101.2	20 - 35	229	-48 / 85	244.37 - 308.24	0.016 / 0.728 1.092 / 1.226	40203	166.52	0.9		
10"	10"-641-OC-0129-151093KS	151093KS	10"-645-OC-																	

NOM. PIPE SIZE	LINE NO.	MAT'L SPEC	FROM	TO	P&ID	INSUL.		MEDIUM	P H A S E	OPERATING CONDITIONS		DESIGN CONDITIONS		AT OPERATING CONDITIONS					TEST CONDITIONS	
						T Y P E	THICK NESS							DENSITY	VISC	FLOW RATE		VEL	PRESS.	TEST
										bar A	TEMP. C	bar A	TEMP. C	kg/m3	cP	kg/h	m3/h	m/s	bar A	MEDIUM
20"	20"-641-OC-0143-151093KS	151093KS	20"-645-OC-0009-151093KS	24"-645-OC-0035-151093KS	4355-PS2BR13-6-50-0001-001 4355-PS2R-6-50-0015-001	-	-	Oil Crude	G+L	5.2	33 - 55	229	-48 / 85	22.68 - 36.58 / 2.927 -	0.011 - 0.012	161214	7108	9.7		
20"	20"-641-OC-0144-151093KS	151093KS	20"-645-OC-0011-151093KS	24"-645-OC-0039-151093KS	4355-PS2BR13-6-50-0001-001 4355-PS2R-6-50-0015-001	-	-	Oil Crude	G+L	5.2	33 - 55	229	-48 / 85	22.68 - 36.58 / 2.927 -	0.011 - 0.012	161214	7108	9.7		
16"	16"-641-OC-0151-151ZZZH	151ZZZH	16" MM075	16"-641-OC-0050-151093KS	4355-PS2R-6-50-0017-001	-	-	Oil Crude	G+L	7.4	33 - 55	229	-20 / 110	37.61 / 0.501 -	0.011 / 2.867	161537	6225	13.3		
12"	12"-642-OC-0012-11503	11503	642-84-V-003 N3	642-84-UZV-015	4355-PS2K-6-50-0012-001 4355-PS2K-6-50-0017-001	-	-	Oil Crude	G+L	1.5	29 - 49	8	-29 / 85	122.92 - 138.20 / 0.501 -	0.009 / 2.627	230478	736.0000 - 1725.0000	6.57		
6"	6"-642-OC-0013-11503	11503	642-84-V-004 N3	8"-642-OC-0015-11503	4355-PS2K-6-50-0013-001	-	-	Oil Crude	L	5	31 - 52	8	-29 / 85	864.37 - 881.93 / 0.821 -	2.155 - 3.385	115241	54.0000 - 131.0000	2		
12"	12"-642-OC-0020-31503	31503	642-84-UZV-016	8"-642-OC-0042-31503	4355-PS2K-6-50-0017-001 4355-PS2K-6-50-0018-001	-	-	Oil Crude	L	2.1	29 - 50	47	4 / 85	843.00 - 870.10 / 0.821 -	4.4 - 5.87	2,08,621	80.1 - 240.0000	0.9		
6"	6"-642-OC-0029-31503	31503	642-84-P-001B	10"-642-OC-0111-31503	4355-PS2K-6-50-0018-001	-	-	Oil Crude	L	21	29.20 - 50	47	4 / 85	843.00 - 870.10 / 0.821 -	4.4 - 5.87	1,04,311	80.1 - 120.0000	1.8		
6"	6"-642-OC-0034-31503	31503	642-84-P-001C	10"-642-OC-0111-31503	4355-PS2K-6-50-0018-001	-	-	Oil Crude	L	21	29.20 - 50	47	4 / 85	843.00 - 870.10 / 0.821 -	4.4 - 5.87	1,04,311	80.1 - 120.0000	1.8		
6"	6"-642-OC-0040-31503	31503	642-84-P-001A	10"-642-OC-0111-31503	4355-PS2K-6-50-0018-001	-	-	Oil Crude	L	21	29.20 - 50	47	4 / 85	843.00 - 870.10 / 0.821 -	4.4 - 5.87	2,08,621	80.1 - 240.0000	1.8		
36"	36"-642-OC-0088-11093KS	11093KS	642-84-UZV-009	642-84-V-003 N1	4355-PS2K-6-50-0012-001	-	-	Oil Crude	G+L	5.2	31 - 52	8	-29 / 85	24.06 - 36.89 / 0.818 -	0.011 / 2.089	669784	16272.3024 - 20944.0738	8.9		
36"	36"-642-OC-0089-11093KS	11093KS	642-84-UZV-011	642-84-V-004 N1	4355-PS2K-6-50-0013-001	-	-	Oil Crude	G+L	5.2	31 - 52	8	-29 / 85	24.06 - 36.89 / 0.818 -	0.011 / 2.089	669784	16272.3024 - 20944.0738	8.9		
10"	10"-642-OC-0111-31503	31503	6"-642-OC-0040-31503	10"-645-OC-0052-31503	4355-PS2K-6-50-0018-001 4355-PS2BR12-6-50-0001-001	-	-	Oil Crude	L	38	29.20 - 50	47	4 / 85	833.19 - 848.68 / 0.821 -	2.695 / 0.840	185789	80.100 - 240.0000	1.3		
4"	4"-640-OD-0067-17320	17320	4"-640-OD-0069-17320	640-39-P-005A	4355-PS2L-6-51-0131-001	-	-	Oil Drain	L	2.90 - 5.70	AMB	10	4 / 85	800 - 1000 / 11.560 - - / 150	10000	10.0000 - 10.0000	0.3			
4"	4"-640-OD-0069-17320	17320	640-39-T-002 N2	640-39-P-005B	4355-PS2L-6-51-0107-001 4355-PS2L-6-51-0131-001	-	-	Oil Drain	L	2.90 - 5.70	AMB	10	4 / 85	800 - 1000 / 11.560 - - / 150	10000	10.0000 - 10.0000	0.3			
3"	3"-640-OD-0087-17320	17320	3"-640-OD-0079-17320	640-39-DJ-0015	4355-PS2L-6-51-0143-001	-	-	Oil Drain	L	ATM	AMB	4.5	4 / 85	800 - 1000 / 11.560 - - / 150	NNF	NNF	-			
3"	3"-640-OD-0088-17320	17320	3"-640-OD-0079-17320	640-39-DJ-0016	4355-PS2L-6-51-0143-001	-	-	Oil Drain	L	ATM	AMB	4.5	4 / 85	800 - 1000 / 11.560 - - / 150	NNF	NNF	-			
3"	3"-640-OD-0089-17320	17320	3"-640-OD-0079-17320	640-39-DJ-0017	4355-PS2L-6-51-0143-001	-	-	Oil Drain	L	ATM	AMB	4.5	4 / 85	800 - 1000 / 11.560 - - / 150	NNF	NNF	-			
4"	4"-642-OD-0048-17320	17320	4"-642-OD-0050-17320	642-39-P-002A	4355-PS2K-6-51-0074-001	-	-	Oil Drain	L	1.61 - 6.14	AMB	10	4 / 85	800 - 1000 / 11.560 - - / 150	10000	10.0000 - 10.0000	0.3			
4"	4"-642-OD-0050-17320	17320	642-39-T-001 N2	642-39-P-002B	4355-PS2K-6-51-0073-001 4355-PS2K-6-51-0074-001	-	-	Oil Drain	L	1.61 - 6.14	AMB	10	4 / 85	800 - 1000 / 11.560 - - / 150	10000	10.0000 - 10.0000	0.3			
8"	8"-642-OR-0007-16620	16620	642-83-V-001 N25	642-83-P-005B	4355-PS2K-6-50-0024-001 4355-PS2K-6-50-0027-001	-	-	Oil Recovered	L	1.2	31 - 53	18.50	4 / 85	1153.87 - 1173.08 / 4.388 -	2.514 - 0.823	109044	58.0000 - 94.5000	0.8		
8"	8"-642-OR-0008-16620	16620	8"-642-OR-0007-16620	642-83-P-005A	4355-PS2K-6-50-0027-001	-	-	Oil Recovered	L	1.2	31 - 53	18.50	4 / 85	1153.87 - 1173.08 / 4.673 -	2.967 - 0.823	109044	58.0000 - 94.5000	0.8		
2"	2"-642-OR-0032-16620	16620	2"-642-OR-0500-16620	642-83-P-007A	4355-PS2K-6-50-0024-002	-	-	Oil Recovered	L	1.15	31 - 53	8	4 / 85	VTA	VTA	VTA	VTA	-		
2"	2"-642-OR-0033-16620	16620	642-83-P-007A	2"-642-OR-0031-16620	4355-PS2K-6-50-0024-002	-	-	Oil Recovered	L	VTA	31 - 53	8	4 / 85	VTA	VTA	VTA	VTA	-		
2"	2"-642-OR-0500-16620	16620	642-83-V-001 N4	642-83-P-007B	4355-PS2K-6-50-0024-001 4355-PS2K-6-50-0024-002	-	-	Oil Recovered	L	1.15	31 - 53	8	4 / 85	VTA	VTA	VTA	VTA	-		
2"	2"-642-OR-0503-16620	16620	642-83-P-007B	2"-642-OR-0031-16620	4355-PS2K-6-50-0024-002	-	-	Oil Recovered	L	VTA	31 - 53	8	4 / 85	VTA	VTA	VTA	VTA	-		
12"	12"-642-PW-0012-16620	16620	12"-642-PW-0011-16620	642-83-P-001A	4355-PS2K-6-50-0015-001	-	-	Produced Water	L	6.1	31 - 52	18.50	4 / 85	1153.24 - 1172.62 / 3.385 -	2.155 - 0.821	438756	242.0000 - 374.0000	1.4		
12"	12"-642-PW-0016-16620	16620	12"-642-PW-0011-16620	642-83-P-001B	4355-PS2K-6-50-0015-001	-	-	Produced Water	L	6.1	31 - 52	18.50	4 / 85	1153.24 - 1172.62 / 3.385 -	2.155 - 0.821	438756	242.0000 - 374.0000	1.4		
12"	12"-642-PW-0023-16620	16620	12"-642-PW-0022-16620	642-83-P-002A	4355-PS2K-6-50-0016-001	-	-	Produced Water	L	6.1	31 - 52	18.50	4 / 85	1153.24 - 1172.62 / 3.385 -	2.155 / 0.821	438756	242.0000 - 374.0000	1.4		
12"	12"-642-PW-0027-16620	16620	12"-642-PW-0022-16620	642-83-P-002B	4355-PS2K-6-50-0016-001	-	-	Produced Water	L	6.1	31 - 52	18.50	4 / 85	1153.24 - 1172.62 / 3.385 -	2.155 / 0.821	438756	242.0000 - 374.0000	1.4		
6"	6"-642-PW-0037-16620	16620	8"-642-PW-0036-16620	642-83-P-003A	4355-PS2K-6-50-0019-001	-	-	Produced Water	L	2.3	30 - 50	18.5	4 / 85	1155.68 - 1174.65 / 4.363 -	2.740 - 0.861	84782	44.7000 - 72.8000	1.1		
6"	6"-642-PW-0041-16620	16620	8"-642-PW-0036-16620	642-83-P-003B	4355-PS2K-6-50-0019-001	-	-	Produced Water	L	2.3	30 - 50	18.5	4 / 85	1155.68 - 1174.65 / 4.363 -	2.740 - 0.861	84782	44.7000 - 72.8000	1.1		
8"	8"-642-PW-0069-16620	16620	642-83-P-006A	3"-642-PW-0070-16620	4355-PS2K-6-50-0024-001	-	-	Produced Water	L	VTA	VTA	VTA	VTA	VTA	VTA	VTA	VTA	-		
8"	8"-642-PW-0074-36620	36620	642-83-P-004A	12"-642-PW-0082-36620	4355-PS2K-6-50-0026-001	-	-	Produced Water	L	17.6	31 - 53	29	4 / 85	1153.84 - 1173.27 / 4.388 -	0.819 - 1.334	303239 - 453973	259.0000 - 389.5000	3.3		
8"	8"-642-PW-0080-36620	36620	642-83-P-004C	12"-642-PW-0082-36620	4355-PS2K-6-50-0026-001	-	-	Produced Water	L	17.6	31 - 53	29	4 / 85	1153.84 - 1173.27 / 4.388 -	0.819 - 1.334	303239 - 453973	259.0000 - 389.5000	3.3		
6"	6"-642-PW-0151-16620	16620	6"-642-PW-0036-16620	642-83-P-003C	4355-PS2K-6-50-0019-001	-	-	Produced Water	L	2.3	30 - 50	18.5	4 / 85	1155.68 - 1174.65 / 4.363 -	2.740 - 0.861	52204 - 84782	44.7000 - 72.8000	1.1		
10"	10"-642-PW-0154-16620	16620	10"-642-PW-0156-16620	642-83-P-006B	4355-PS2K-6-50-0024-001	-	-	Produced Water	L	1.15	31 - 53	8	4 / 85	VTA	VTA	VTA	VTA	-		
10"	10"-642-PW-0156-16620	16620	642-83-V-001 N23	642-83-P-006A	4355-PS2K-6-50-0024-001	-	-	Produced Water	L	1.15	31 - 53	8	4 / 85	VTA	VTA	VTA	VTA	-		
8"	8"-642-PW-0300-16620	16620	642-83-P-006B	8"-642-PW-0069-16620	4355-PS2K-6-50-0024-001	-	-	Produced Water	L	VTA	VTA	VTA	VTA	VTA	VTA	VTA	VTA	-		
8"	8"-640-VA-0027-11432	11432	640-35-T-001 N8	VENT TO SAFE LOCATION	4355-PS2L-6-51-0021-001	-	-	Vent Air & Nitrogen	G	ATM	AMB	4.5	4 / 85							

NOM. PIPE SIZE	LINE NO.	MAT'L SPEC	FROM	TO	P&ID	INSUL.		MEDIUM	P H A S E	OPERATING CONDITIONS		DESIGN CONDITIONS		AT OPERATING CONDITIONS					TEST CONDITIONS	
						T Y P E	THICK NESS			PRESS	TEMP.	PRESS	TEMP.	DENSITY	VISC	FLOW RATE		VEL	PRESS.	TEST
																bar A	C			
4"	4"-640-WF-0085-17012	17012	4"-640-WF-0082-17012	640-33-P-005	4355-PS2L-3-59-0010-001	-	-	Water Fire (Fighting)	L	9.6	15 - 36	19	4 / 85	1026	1.2	66690	65	2.2		
3"	3"-640-WP-0005-17012	17012	640-24-V-001 N2A	640-24-P-001B	4355-PS2L-6-51-0074-001 4355-PS2L-6-51-0076-001	-	-	Water Potable (Hot or Cold)	L	ATM	15 - 48	17	4 / 85	1000	0.563	13000	13	0.8		
3"	3"-640-WP-0019-17012	17012	3"-640-WP-0005-17012	640-24-P-001A	4355-PS2L-6-51-0076-001	-	-	Water Potable (Hot or Cold)	L	ATM	15 - 48	17	4 / 85	1000	0.563	13000	13	0.8		
6"	6"-640-WP-0023-17012	17012	6"-640-WP-0074-17012	640-24-P-003A	4355-PS2L-6-51-0078-001	-	-	Water Potable (Hot or Cold)	L	ATM	AMB	9.5	4 / 85	1000	0.563	50000	50	0.8		
6"	6"-640-WP-0074-17012	17012	640-24-T-005 N2	640-24-P-003B	4355-PS2L-6-51-0173-001 4355-PS2L-6-51-0078-001	-	-	Water Potable (Hot or Cold)	L	ATM	AMB	9.5	4 / 85	1000	0.563	50000	50	0.8		
18"	18"-640-WR-0001-17320	17320	640-20-P-001B	18"-640-WR-0002-17320	4355-PS2L-6-51-0060-001	-	-	Water Raw (Sea water)	L	11.5	15 - 36	19	4 / 85	999 - 1027	0.704 - 0.790	1689415	1645	2.8		
18"	18"-640-WR-0002-17320	17320	640-20-P-001A	640-20-A-001 TP2	4355-PS2L-6-51-0060-001 4355-PS2L-6-51-0061-001	-	-	Water Raw (Sea water)	L	11.5	15 - 36	19	4 / 85	999 - 1027	0.704 - 0.790	1689415	1645	2.8		
3"	3"-640-WR-0061-17320	17320	640-32-E-001A N8	4"-640-WR-0042-17320	4355-PS2L-6-51-0119-001 4355-PS2L-6-51-0062-001	-	-	Water Raw (Sea water)	L	2.5	15 - 42	19	4 / 85	1025	0.670	NNF	NNF	-		
3"	3"-640-WR-0062-17320	17320	640-32-E-001B N8	4"-640-WR-0042-17320	4355-PS2L-6-51-0119-001 4355-PS2L-6-51-0062-001	-	-	Water Raw (Sea water)	L	2.5	15 - 42	19	4 / 85	1025	0.670	NNF	NNF	-		
10"	10"-640-WR-0113-17320	17320	640-30-P-001	640-30-A-001 TP1	4355-PS2L-6-51-0175-001 4355-PS2L-6-51-0177-001	-	-	Water Raw (Sea water)	L	10.8	15 - 36	19	4 / 85	999 - 1027	0.704 - 0.790	718900	700	3.8		
10"	10"-640-WR-0116-17320	17320	640-30-P-002	640-30-A-002 TP1	4355-PS2L-6-51-0176-001 4355-PS2L-6-51-0178-001	-	-	Water Raw (Sea water)	L	11.8	15 - 36	19	4 / 85	999 - 1027	0.704 - 0.790	349180	340	1.9		
24"	24"-642-WR-0019-17320	17320	642-21-P-001A	36"-642-WR-0074-17320	4355-PS2K-6-51-0040-001 4355-PS2K-6-51-0041-001	-	-	Water Raw (Sea water)	L	7.8	15 - 36	14.5	4 / 85	999 - 1027	0.704 - 0.790	3262779	3177	3.0		
24"	24"-642-WR-0020-17320	17320	642-21-P-001B	36"-642-WR-0074-17320	4355-PS2K-6-51-0041-001 4355-PS2K-6-51-0042-001	-	-	Water Raw (Sea water)	L	7.8	15 - 36	14.5	4 / 85	999 - 1027	0.704 - 0.790	3262779	3177	3.0		
24"	24"-642-WR-0025-17320	17320	642-21-P-001C	36"-642-WR-0074-17320	4355-PS2K-6-51-0052-001 4355-PS2K-6-51-0041-001	-	-	Water Raw (Sea water)	L	7.8	15 - 36	14.5	4 / 85	999 - 1027	0.704 - 0.790	3262779	3177	3.0		
24"	24"-642-WR-0112-17320	17320	642-21-P-001D	36"-642-WR-0074-17320	4355-PS2K-6-51-0052-001 4355-PS2K-6-51-0041-001	-	-	Water Raw (Sea water)	L	7.8	15 - 36	14.5	4 / 85	999 - 1027	0.704 - 0.790	3262779	3177	3.0		
3"	3"-640-WT-0003-11432	11432	640-32-T-001 N2	640-32-P-002B	4355-PS2L-6-51-0067-001 4355-PS2L-6-51-0068-001	-	-	Water Tempered or Treated	L	1.31	AMB	7.5	4 / 85	1000 - 1015	0.563 - 1.136	10150	10	0.6		
3"	3"-640-WT-0008-11432	11432	3"-640-WT-0003-11432	640-32-P-002A	4355-PS2L-6-51-0068-001	-	-	Water Tempered or Treated	L	1.31	AMB	7.5	4 / 85	1000 - 1015	0.563 - 1.136	10150	10	0.6		
8"	8"-640-WT-0037-11432	11432	640-32-V-001 N2	640-32-P-001B	4355-PS2L-6-51-0063-001 4355-PS2L-6-51-0064-001	-	-	Water Tempered or Treated	L	3.1	42	7.5	4 / 85	994.5	0.627	133779	134.5	1.2		
8"	8"-640-WT-0038-11432	11432	8"-640-WT-0037-11432	640-32-P-001A	4355-PS2L-6-51-0064-001	-	-	Water Tempered or Treated	L	3.1	42	7.5	4 / 85	994.5	0.627	133779	134.5	1.2		
6"	6"-640-WT-0040-11432	11432	640-32-P-001A	TEMPERED WATER CIRCULATION PUMPS 640-	4355-PS2L-6-51-0064-001 4355-PS2L-6-51-0066-001	-	-	Water Tempered or Treated	L	9.7	42	17.0	4 / 85	994.5	0.627	133779	134.5	2.0		
18", 30"	30"-642-WT-0204-11432	11432	642-32-V-001 N2	PUMPS 32-P-001A/B	4355-PS2K-6-51-0046-001 4355-PS2K-6-51-0047-001	-	-	Water Tempered or Treated	L	5.2	42	18.5	4 / 85	994.5	0.627	3729375	3750	6.3		
18"	18"-642-WT-0205-11432	11432	30"-642-WT-0204-11432	642-32-P-001A	4355-PS2K-6-51-0047-001	-	-	Water Tempered or Treated	L	5.2	42	18.5	4 / 85	994.5	0.627	1864688	1875	3.2		
18"	18"-642-WT-0206-11432	11432	30"-642-WT-0204-11432	642-32-P-001B	4355-PS2K-6-51-0047-001	-	-	Water Tempered or Treated	L	5.2	42	18.5	4 / 85	994.5	0.627	1864688	1875	3.2		
30"	30"-642-WT-0210-11432	11432	16"-642-WT-0207-11432	TEMPERED WATER DISTRIBUTION HEADER	4355-PS2K-6-51-0047-001 4355-PS2K-6-51-0059-001	-	-	Water Tempered or Treated	L	10.2	42	18.5	4 / 85	994.7	0.627	3729375	3749	2.3		
3"	3"-642-WT-0218-11432	11432	642-32-T-001 N2	642-32-P-002B	4355-PS2K-6-51-0056-001 4355-PS2K-6-51-0057-001	-	-	Water Tempered or Treated	L	0.8	AMB	8.5	4 / 85	989.8 - 1015	0.563 - 1.136	13195	13	0.8		
3"	3"-642-WT-0220-11432	11432	3"-642-WT-0218-11432	642-32-P-002A	4355-PS2K-6-51-0057-001	-	-	Water Tempered or Treated	L	0.8	AMB	8.5	4 / 85	989.8 - 1015	0.563 - 1.136	13195	13	0.8		
4"	4"-640-WU-0001-11432	11432	BOAT UNLOADING (NORTH)	640-24-A-003 TP1	4355-PS2L-6-51-0070-001	-	-	Water Utility / Desalinated Water	L	11	AMB	19	4 / 85	1000	- / 0.563	100000	100	3.4		
4"	4"-640-WU-0002-11432	11432	BOAT UNLOADING (SOUTH)	6"-640-WU-0001-11432	4355-PS2L-6-51-0070-001	-	-	Water Utility / Desalinated Water	L	11	AMB	19	4 / 85	1000	- / 0.563	100000	100	3.4		
6"	6"-OC-MM-307-0050-151093KS	151093KS	MM-307	8"-OC-MM-G08B-0051-151093KS / 6"-OC-MM-G08B-0051-151093KS	4355-MMG08B-6-50-0003-001	-	-	CRUDE OIL	M	12-18	26-71	229	-50/85	205.047	0.706	16981.53				
8"	8"-OC-MM-G08B-0054-151ZZZ	151ZZZ	FROM MMF05A	8"-OC-MM-G08B-0055-151093KS	4355-MMG08B-6-50-0004-001	-	-	CRUDE OIL	M	12-18	26-71	229	-50/85	153.45	0.69	31510.74				
2"	2"-GP-MM-G08B-X001-91503	91503	2"-GP-MM-52-01-9151 (T 044)	2"-GP-MM-G08-06-15151 (T 045)	4355-MMG08B-6-50-0001-003	-	-	GAS	G	100-119.3	15-51	141	-50/85	260.02	0.033	5231.947				
2"	2"-GP-MM-G08B-0054-151503	151503	2"-GP-MM-307-0053-91503	2"-GP-MM-G08B-0055-151503	4355-MMG08B-6-50-0003-001	-	-	GAS	G	87-118.3	15-51	229	20/85	257.78	0.043	2749.745				
2"	2"-GI-MM-G08B-0007-11432	11432	DJ 0077 (PURGE CONNECTION)	2"-OC-MM-G08B-0051-151093KS	4355-MMG08B-6-50-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-	-	-		
2"	2"-GI-MM-G08B-0008-11432	11432	DJ 0078 (PURGE CONNECTION)	2"-OC-MM-G08B-0052-151093KS	4355-MMG08B-6-50-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-	-	-		
2"	2"-GI-MM-G08B-0009-11432	11432	DJ 0076 (PURGE CONNECTION)	2"-OC-MM-G08B-0056-151093KS	4355-MMG08B-6-50-0004-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-	-	-		
1"	2"-GI-MM-G08B-X001-11432	11432	DJ 0089 (PURGE CONNECTION)	6"-OC-MM-G08B-X001-151093KS	4355-MMG08B-6-50-0005-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-	-	-		
2"	2"-GI-MM-G08B-0015-11432	11432	DJ 0079 (PURGE CONNECTION)	3"-GV-MM-G08B-0170-156620	4355-MMG08B-6-51-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-	-	-		
2"	2"-GI-MM-G08B-0010-11432	11432	DJ 0080 (PURGE CONNECTION)	2"-GV-MM-G08B-0099-96620	4355-MMG08B-6-51-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-	-	-		
3"	3"-GV-MM-G08B-0101-16620	16620	6"-GV-MM-G08B-0103-16620	2"-GV-MM-G08B-0102-16620	4355-MMG08B-6-51-0002-001	-	-	VENT GAS	G	ATM	AMB	3.5	-85/85	-	-	-	-	-		
2"	2"-OD-MM-G08B-X001-17320	17320	HEADER	BOAT LOADING AREA (IQ-0081)	4355-MMG08B-6-51-0002-002	-	-	CRUDE OIL / WATER	L	ATM	4/48	21	0/85	736 / 1027	0.31 / 2.69	-	-	-		
6"	6"-OC-MM-53-X001-151093KS	151093KS	MM-53 (T 001)	8"-OC-MM-G07A-X009-151093KS/	4355-MMG07A-6-50-0001-001	-	-	CRUDE OIL	M	14.2-18	26-71	229	-50/85	83.466	0.74	7028.78				
6"	6"-OC-MM-54S-X002-151093KS	151093KS	MM-54S (T 004)	8"-OC-MM-G07A-X009-151093KS/	4355-MMG07A-6-50-0001-002	-	-	CRUDE OIL	M	14.2-18	26-71	229	-50/85	188.36	0.68	21177.02				
6"	6"-OC-MM-54L-X003-151093KS	151093KS	MM-54L (T 037)	8"-OC-MM-G07A-X009-151093KS/	4355-MMG07A-6-50-0001-002	-	-	CRUDE OIL	M	14.2-18	26-71	229	-50/85	188.36	0.68	21177.02				
6"	6"-OC-MM-109-X006-151093KS	151093KS	MM-109 (T 007)	8"-OC-MM-G07A-X009-151093KS/	4355-MMG07A-6-50-0001-004	-	-	CRUDE OIL	M	14.2-18	26-71	229	-50/85	101.253	0.73	8500.35				
16"	16"-OC-MM-G07A-X008-151093KS	151093KS	8"-OC-MM-G07-08-15151 (T 017)	16"-OC-MM-G07A-X016-151ZZZ	4355-MMG07A-6-50-0001-005	-	-	CRUDE OIL												

NOM. PIPE SIZE	LINE NO.	MAT'L SPEC	FROM	TO	P&ID	INSUL.		MEDIUM	P H A S E	OPERATING CONDITIONS		DESIGN CONDITIONS		AT OPERATING CONDITIONS					TEST CONDITIONS		
						T Y P E	THICK NESS			PRESS bar A	TEMP. C	PRESS bar A	TEMP. C	DENSITY kg/m3	VISC cP	FLOW RATE		VEL m/s	PRESS. bar A	TEST MEDIUM	
																kg/h	m3/h				
4"	4"-OC-MM-G07A-X010-151093KS	151093KS	MM-90 (T 025)	4"-OC-MM-G07-16-15151 (T 026)	4355-MMG07A-6-50-0001-007	-	-	CRUDE OIL	M	14.2-18	26-71	229	-50/85	197.22	0.69	13498.53					
6"	6"-OC-MM-302-X012-151093KS	151093KS	MM-302	8"-OC-MM-G07A-X009-151093KS/6"-OC-MM-G07A-151093KS	4355-MMG07A-6-50-0001-010	-	-	CRUDE OIL	M	14.2-18	26-71	229	-50/85	89.75	1.09	10647.56					
6"	6"-OC-MM-303-X013-151093KS	151093KS	MM-303	8"-OC-MM-G07A-X009-151093KS/6"-OC-MM-G07A-151093KS	4355-MMG07A-6-50-0001-011	-	-	CRUDE OIL	M	14.2-18	26-71	229	-50/85	114.57	0.69	14037.66					
6"	6"-OC-MM-304-X014-151093KS	151093KS	MM-304	8"-OC-MM-G07A-X009-151093KS/6"-OC-MM-G07A-151093KS	4355-MMG07A-6-50-0001-012	-	-	CRUDE OIL	M	14.2-18	26-71	229	-50/85	97.74	0.7	10999.69					
16"	16"-OC-MM-G07A-X016-151ZZZ	151ZZZ	16"-OC-MM-G07A-X008-151093KS	16"-641-OC-0151-151ZZZH	4355-MMG07A-6-50-0002-002	-	-	CRUDE OIL	M	14.2-18	26-71	229	-50/85	73	0.73	180939.50					
2"	2"-GP-MM-53-X019-151503	151503	2"-GP-MM-G07-06-9151 (T 060)	2"-GP-MM-G07-06-15151 (T 061)	4355-MMG07A-6-50-0001-001	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/85	253.47	0.030	2229.523					
2"	2"-GP-MM-55-X020-91503	91503	2"-GP-MM-G07-02-9151 (T 063)	2"-GP-MM-G07-02-15151 (T 064)	4355-MMG07A-6-50-0001-002	-	-	LIFT GAS	G	100-119.3	15-51	141	-50/85	257.07	0.033	3805.052					
4"	4"-GP-MM-54-X001-151503	151503	4"-GP-MM-54-X002-91503	MM-54 (T 035)	4355-MMG07A-6-50-0001-002	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/85	256.73	0.034	6837.204					
2"	2"-GP-MM-62-X021-151503	151503	2"-GP-MM-G07-17-9151 (T 066)	2"-GP-MM-G07-17-15151 (T 067)	4355-MMG07A-6-50-0001-003	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/100	252.86	0.033	2229.523					
2"	2"-GP-MM-65-X022-151503	151503	2"-GP-MM-G07-19-9151 (T 068)	2"-GP-MM-G07-19-15151 (T 069)	4355-MMG07A-6-50-0001-003	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/100	252.86	0.033	2229.523					
2"	2"-GP-MM-56-X023-91503	91503	2"-GP-MM-G07-10-9151 (T 072)	2"-GP-MM-G07-10-15151 (T 073)	4355-MMG07A-6-50-0001-004	-	-	LIFT GAS	G	100-119.3	15-51	141	-50/85	256.73	0.033	4013.141					
2"	2"-GP-MM-109-X024-151503	151503	2"-GP-MM-G07-14-9151 (T 075)	2"-GP-MM-G07-14-15151 (T 076)	4355-MMG07A-6-50-0001-004	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/85	253.57	0.034	2229.523					
2"	2"-GP-MM-99-X026-91503	91503	2"-GP-MM-G07-20-9151 (T 080)	MM-99 (T 081)	4355-MMG07A-6-50-0001-008	-	-	LIFT GAS	G	100-119.3	15-51	141	-50/85	252.572	0.033	2303.84					
2"	2"-GP-MM-302-X008-151503	151503	2"-GP-MM-302-X004-91503	2"-GP-MM-302-X009-151503	4355-MMG07A-6-50-0001-010	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/85	249.99	0.033	2229.99					
2"	2"-GP-MM-303-X011-151503	151503	2"-GP-MM-303-X005-91503	2"-GP-MM-303-X012-151503	4355-MMG07A-6-50-0001-011	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/85	250.33	0.033	2318.704					
2"	2"-GI-MM-G07A-X002-11432	11432	DJ 0071 (PURGE CONNECTION)	8"-OC-MM-G07A-X009-151093KS	4355-MMG07A-6-50-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-					
2"	2"-GI-MM-G07A-X005-11432	11432	DJ 0070 (PURGE CONNECTION)	6"-OC-MM-G07A-X007-151093KS	4355-MMG07A-6-50-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-					
2"	2"-GI-MM-G07A-X003-11432	11432	DJ 0072 (PURGE CONNECTION)	2"-OC-MM-G07A-X015-151093KS	4355-MMG07A-6-50-0002-002	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-					
2"	2"-GI-MM-G07A-X006-11432	11432	DJ 0073 (PURGE CONNECTION)	2"-GV-MM-G07A-X046-156620	4355-MMG07A-6-51-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-					
2"	2"-GI-MM-G07A-X007-11432	11432	DJ 0074 (PURGE CONNECTION)	2"-GV-MM-G07A-X047-96620	4355-MMG07A-6-51-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-					
3"	3"-GV-MM-G07A-X051-16620	16620	6"-GV-MM-G07A-X050-16620	2"-GV-MM-G07A-X052-16620	4355-MMG07A-6-51-0002-001	-	-	VENT GAS	G	ATM	AMB	21	-85/85	-	-	-					
2"	2"-OD-MM-G07A-X008-17320	17320	HEADER	TO BOAT LANDING AREA (DJ 0075)	4355-MMG07A-6-51-0002-001	-	-	CRUDE OIL / WATER	L	ATM	4/48	21	0/85	736 / 1027	0.31 / 2.69	-					
4"	4"-OC-MM-F05A-0017-151093KS	151093KS	4"-OC-MM-32-02-15151 (T 009)	4"-OC-MM-300-X003-151093KS/4"-OC-MM-300-TO MMG08B	4355-MMF05A-6-50-0003-001	-	-	CRUDE OIL	M	12-18	26-71	229	-50/85	185	0.67	32506.00					
8"	8"-OC-MM-F05A-0020-151ZZZ	151ZZZ	8"-OC-MM-F05A-X006-151093KS	TO MMG08B	4355-MMF05A-6-50-0004-001	-	-	CRUDE OIL	M	12-18	26-71	229	-50/85	203	0.67	32506.00					
2"	2"-GI-MM-F05A-0001-11432	11432	DJ 0039 (PURGE CONNECTION)	2"-OC-MM-F05A-0022-151093KS	4355-MMF05A-6-50-0004-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-					
2"	2"-GI-MM-F05A-X001-11432	11432	DJ 0040 (PURGE CONNECTION)	2"-GV-MM-F05A-X010-96620	4355-MMF05A-6-51-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-					
2"	2"-GI-MM-F05A-0002-11432	11432	DJ 0041 (PURGE CONNECTION)	2"-GV-MM-F05A-0066-156620	4355-MMF05A-6-51-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-					
2"	3"-GV-MM-F05A-0070-16620	16620	6"-GV-MM-F05A-0069-16620	2"-GV-MM-F05A-0070-16620	4355-MMF05A-6-51-0002-001	-	-	VENT GAS	G	ATM	AMB	3.5	-85/85	-	-	-					
2"	2"-GV-MM-F05A-0070-16620	16620	3"-GV-MM-F05A-0070-16620	VENT TO ATMOSPHERE	4355-MMF05A-6-51-0002-001	-	-	VENT GAS	G	ATM	AMB	3.5	-85/85	-	-	-					
2"	2"-OD-MM-F05A-X001-17320	17320	HEADER	BOAT LANDING AREA	4355-MMF05A-6-51-0002-001	-	-	CRUDE OIL / WATER	L	ATM	4/48	21	0/85	736 / 1027	0.31 / 2.69	-					
6"	6"-OC-MM-27-0058-151093KS	151093KS	6"-OC-MM-27-01-15151 (T 003)	6"-OC-MM-H08A-0059-151ZZZ	4355-MMH08A-6-50-0001-001	-	-	CRUDE OIL	M	109	20-89	229	-50/85	850	0.665	#VALUE!					
6"	6"-OC-MM-H08A-0059-151ZZZ	151ZZZ	6"-OC-MM-27-0058-151093KS	MMJ09B	4355-MMH08A-6-50-0002-001	-	-	CRUDE OIL	M	109	20-89	229	-50/85	850	0.665	#VALUE!					
2"	2"-GI-MM-H08A-0011-11432	11432	PURGE CONNECTION (DJ 0043)	6"-OC-MM-27-0058-151093KS	4355-MMH08A-6-50-0002-001	-	-	NITROGEN	G	3	4/48	20.6	0/85	3	0.02	-					
2"	2"-GI-MM-H08A-X001-11432	11432	PURGE CONNECTION (DJ 0044)	3"-GV-MM-H08A-X003-96620	4355-MMH08A-6-51-0002-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-					
2"	2"-GI-MM-H08A-0012-11432	11432	PURGE CONNECTION (DJ 0045)	2"-GV-MM-H08A-0107-156620	4355-MMH08A-6-51-0002-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-					
3"	3"-GV-MM-H08A-0110-16620	16620	6"-GV-MM-H08A-0112-16620	2"-GV-MM-H08A-0113-16620	4355-MMH08A-6-51-0002-001	-	-	VENT GAS	G	ATM	AMB	3.5	-85/85	-	-	-					
2"	2"-OD-MM-H08A-X001-17320	17320	HEADER	BOAT LANDING AREA (DJ 0046)	4355-MMH08A-6-51-0002-001	-	-	OIL / WATER	L	ATM	4/48	20.6	0 / 85	736/1027	0.31/2.69	-					
12"	12"-OC-MM-I05A-0064-151093KS	151093KS	LP PRODUCTION MANIFOLD	12"-OC-MM-I05A-0073-151ZZZ	4355-MMI05A-6-50-0002-001	-	-	CRUDE OIL	M	12-18	26-71	229	-50/85	177	0.85	132712					
6"	6"-OC-MM-316-0069-151093KS	151093KS	MM-316	12"-OC-MM-I05A-0064-151093KS (LP PRODUCTION)	4355-MMI05A-6-50-0003-001	-	-	CRUDE OIL	M	12-18	26-71	229	-50/85	255	0.934	47216					
6"	6"-OC-MM-313-0071-151093KS	151093KS	MM-313	12"-OC-MM-I05A-0064-151093KS (LP PRODUCTION)	4355-MMI05A-6-50-0004-001	-	-	CRUDE OIL	M	12-18	26-71	229	-50/85	244	0.683	13222					
6"	6"-OC-MM-315-0072-151093KS	151093KS	MM-315	12"-OC-MM-I05A-0064-151093KS (LP PRODUCTION)	4355-MMI05A-6-50-0005-001	-	-	CRUDE OIL	M	12-18	26-71	229	-50/85	264	0.934	40662					
12"	12"-OC-MM-I05A-0073-151ZZZ	151ZZZ	12"-OC-MM-I05A-0064-151093KS	LP PRODUCTION FLUID TO PS2R	4355-MMI05A-6-50-0006-001	-	-	CRUDE OIL	M	12-18	26-71	229	-50/85	78	0.81	204233					
8"	8"-OC-MM-I05A-0076-151ZZZ	151ZZZ	LP PRODUCTION FROM MMJ04B	8"-OC-MM-I05A-0077-151093KS	4355-MMI05A-6-50-0007-001	-	-	CRUDE OIL	M	12-18	26-71	229	-50/85	615	0.713	18877					
1"	1"-GI-MM-I05A-0013-11432	11432	DJ 0062 (PURGE CONNECTION)	2"-OC-MM-I05A-0066-151093KS	4355-MMI05A-6-50-0002-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-					
1"	1"-GI-MM-I05A-0014-11432	11432	DJ 0063 (PURGE CONNECTION)	2"-OC-MM-I05A-0067-151093KS	4355-MMI05A-6-50-0002-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-					

NOM. PIPE SIZE	LINE NO.	MAT'L SPEC	FROM	TO	P&ID	INSUL.		MEDIUM	P H A S E	OPERATING CONDITIONS		DESIGN CONDITIONS		AT OPERATING CONDITIONS					TEST CONDITIONS			
						T Y P E	THICK NESS			PRESS bar A	TEMP. C	PRESS bar A	TEMP. C	DENSITY kg/m3	VISC cP	FLOW RATE		VEL m/s	PRESS. bar A	TEST MEDIUM		
																kg/h	m3/h					
2"	2"-GI-MM-I05A-0015-11432	11432	DJ 0065 (PURGE CONNECTION)	12"-OC-MM-I05A-0064-151093KS	4355-MMI05A-6-50-0006-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-I05A-0016-11432	11432	DJ 0066 (PURGE CONNECTION)	8"-OC-MM-I05A-0075-151ZZZ	4355-MMI05A-6-50-0007-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-I05A-0017-11432	11432	DJ 0067 (PURGE CONNECTION)	2"-GV-MM-I05A-0130-156620	4355-MMI05A-6-51-0002-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-I05A-X001-11432	11432	DJ 0068 (PURGE CONNECTION)	2"-GV-MM-I05A-X028-96620	4355-MMI05A-6-51-0002-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
2"	2"-GP-MM-63-X086-91503	91503	T-058	T-059	4355-MMI05A-6-50-0001-002	-	-	LIFT GAS	G	87-118.3	15-51	141	-50/85	268.3	0.042	5499.49						
2"	2"-GP-MM-67-X087-151503	151503	T-060	T-061	4355-MMI05A-6-50-0001-003	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/85	268.3	0.042	5499.49						
2"	2"-GP-MM-85-X088-151503	151503	T-062	T-063	4355-MMI05A-6-50-0001-004	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/85	268.3	0.042	5499.49						
2"	2"-GP-MM-89-X089-151503	151503	T-064	T-065	4355-MMI05A-6-50-0001-007	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/85	268.3	0.042	5499.49						
2"	2"-GP-MM-314-X090-151503	151503	T-066	T-067	4355-MMI05A-6-50-0001-009	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/85	268.4	0.042	2229.52						
2"	2"-GP-MM-409-X091-151503	151503	T-068	T-069	4355-MMI05A-6-50-0001-010	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/85	268.4	0.042	2229.52						
2"	2"-GP-MM-61-X092-91503	91503	T-070	T-009	4355-MMI05A-6-50-0001-011	-	-	LIFT GAS	G	87-118.3	15-51	141	-50/85	268.4	0.042	2229.52						
2"	2"-GP-MM-61-X093-91503	91503	T-071	T-008	4355-MMI05A-6-50-0001-012	-	-	LIFT GAS	G	87-118.3	15-51	141	-50/85	268.4	0.042	2229.52						
2"	2"-GP-MM-I05A-0066-151503	151503	2"-GP-MM-I05A-0063-91503	2"-GP-MM-I05A-0067-151503	4355-MMI05A-6-50-0003-001	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/85	264.8	0.031	7312.8						
2"	2"-GP-MM-I05A-0078-151503	151503	2"-GP-MM-I05A-0064-91503	2"-GP-MM-I05A-0079-151503	4355-MMI05A-6-50-0004-001	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/85	268.3	0.031	2229.5						
2"	2"-GP-MM-I05A-0083-151503	151503	2"-GP-MM-I05A-0065-91503	2"-GP-MM-I05A-0084-151503	4355-MMI05A-6-50-0005-001	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/85	264.7	0.031	6302.1						
2"	2"-GP-MM-I05A-0083-151503	151503	2"-GP-MM-I05A-0065-91503	2"-GP-MM-I05A-0084-151503	4355-MMI05A-6-50-0005-001	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/85	264.7	0.031	6302.1						
3"	3"-GV-MM-I05A-0132-16620	16620	6"-GV-MM-I05A-0134-16620	2"-GV-MM-I05A-0133-16620	4355-MMI05A-6-51-0002-001	-	-	VENT GAS	G	ATM	AMB	3.5	-85/85	-	-	-						
2"	2"-OD-MM-I05A-X003-17320	17320	HEADER	DRAIN (DJ 0069)	4355-MMI05A-6-51-0002-001	-	-	OIL / WATER	L	ATM	4/48	20.6	0 / 85	736/1027	0.31/2.69	-						
6"	6"-OC-MM-21-0080-151093KS	151093KS	MM-21 (T 001)	6"-OC-MM-21-05-15101A (T 002)	4355-MMI06B-6-50-0001-001	-	-	CRUDE OIL	M	12-18	26-71	229	-50/85	188.53	0.68	42643						
12"	12"-OC-MM-I06B-0081-151093KS	151093KS	16"-OC-MM-21-01-15101A (T 008)	12"-OC-MM-I06B-0083-151ZZZ	4355-MMI06B-6-50-0001-002	-	-	CRUDE OIL	M	12-18	26-71	229	-50/85	125.5	0.69	114066						
12"	12"-OC-MM-I06B-0083-151ZZZ	151ZZZ	12"-OC-MM-I06B-0081-151093KS	TO PS2R	4355-MMI06B-6-50-0002-001	-	-	CRUDE OIL	M	12-18	26-71	229	-50/85	125.5	0.69	114066						
2"	2"-GI-MM-I06B-0018-11432	11432	PURGE CONNECTION (DJ 0090)	2"-OC-MM-I06B-0085-151093KS	4355-MMI06B-6-50-0002-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-I06B-0019-11432	11432	PURGE CONNECTION (DJ 0006)	2"-GV-MM-I06B-0140-96620	4355-MMI06B-6-51-0002-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-I06B-0020-11432	11432	PURGE CONNECTION (DJ 0091)	2"-GV-MM-I06B-0147-156620	4355-MMI06B-6-51-0002-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
3"	3"-GP-MM-21-X001-151503	151503	3"-GP-MM-21-01-9151 (T 010)	2"-GP-MM-I06B-X010-151503	4355-MMI06B-6-50-0001-001	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/85	259.72	0.033	7431.743						
3"	3"-GP-MM-23-X002-151503	151503	3"-GP-MM-23-01-9151 (T 015)	MM-23 (T 014)	4355-MMI06B-6-50-0001-002	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/85	260.332	0.033	8620.822						
3"	3"-GP-MM-22-X003-151503	151503	3"-GP-MM-22-01-9151 (T 011)	MM-22 (T 012)	4355-MMI06B-6-50-0001-003	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/85	262.699	0.033	3567.237						
3"	3"-GV-MM-I06B-0143-16620	16620	6"-GV-MM-I06B-0142-16620	2"-GV-MM-I06B-0144-16620	4355-MMI06B-6-51-0002-001	-	-	VENT GAS	G	ATM	AMB	3.5	-85/85	-	-	-						
2"	2"-OD-MM-I06B-X001-17320	17320	HEADER	TO BOAT LANDING AREA (DJ 0092)	4355-MMI06B-6-51-0002-001	-	-	OIL / WATER	L	ATM	4/48	20.6	0 / 85	736/1027	0.31/2.69	-						
2"	2"-OD-MM-I07B-X001-11441	11441	2"-OD-MM-I07B-0108-16620	BOAT LANDING AREA	4355-MMI07B-6-51-0002-001	-	-	CRUDE OIL / WATER	L	ATM	4/48	21	0/85	736 / 1027	0.31 / 2.69	-						
3"	3"-GV-MM-I07B-0242-16620	16620	6"-GV-MM-I07B-0241-16620	2"-GV-MM-I07B-0243-16620	4355-MMI07B-6-51-0002-001	-	-	VENT GAS	G	ATM	AMB	3.5	-85/85	-	-	-						
2"	2"-GI-MM-I07B-0051-11432	11432	DJ 0085 (PURGE CONNECTION)	2"-GV-MM-I07B-0238-156620	4355-MMI07B-6-51-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-						
3"	3"-GP-MM-33-X001-151503	151503	3"-GP-MM-33-X004-91503	MM-33 (T 011)	4355-MMI07A-6-50-0001-001	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/85	260.07	0.033	3923.960						
2"	2"-OD-MM-I07C-X002-17320	17320	DRIP TRAY (T 007)	2"-OD-MM-I07C-X005-11441	4533-MMI07C-6-50-0001-003	-	-	OIL / WATER	L	ATM	4/48	20.6	0 / 85	736/1027	0.31/2.69	-						
6"	6"-GV-MM-I07C-X036-16620	16620	HEADER	3"-GV-MM-I07C-X036-16620	4355-MMI07C-6-51-0001-001	-	-	VENT GAS	G	ATM	AMB	3.5	-85/85	-	-	-						
3"	3"-GP-MM-I07C-X002-91503	91503	T-067	T-068	4355-MMI07C-6-50-0001-001	-	-	LIFT GAS	G	87-118.3	15-51	141	-50/85	267.65	0.03	5648.13						
3"	3"-GP-MM-I07C-X004-151503	151503	T-069	T-070	4355-MMI07C-6-50-0001-002	-	-	LIFT GAS	G	100-119.3	15-51	229	-50/85	268.35	0.03	2229.52						
3"	3"-GP-MM-I07C-X005-151503	151503	T-071	T-072	4355-MMI07C-6-50-0001-004	-	-	LIFT GAS	G	100-119.3	15-51	229	-50/85	268.34	0.03	2229.52						
2"	2"-GP-MM-I07C-X006-151503	151503	T-073	T-074	4355-MMI07C-6-50-0001-005	-	-	LIFT GAS	G	100-119.3	15-51	229	-50/85	244.96	0.03	2229.52						
2"	2"-GP-MM-I07C-X003-151503	151503	T-075	T-076	4355-MMI07C-6-50-0001-006	-	-	LIFT GAS	G	100-119.3	15-51	229	-50/85	267.19	0.03	5144.70						
3"	3"-GP-MM-I07C-X005-151503	151503	T-081	T-082	4355-MMI07C-6-50-0001-009	-	-	LIFT GAS	G	100-119.3	15-51	229	-50/85	268.19	0.03	2344.57						
2"	2"-GP-MM-I07C-X008-151503	151503	T-083	T-084	4355-MMI07C-6-50-0001-010	-	-	LIFT GAS	G	100-119.3	15-51	229	-50/85	268.04	0.03	2229.52						
2"	2"-GP-MM-I07C-X009-151503	151503	T-085	T-086	4355-MMI07C-6-50-0001-011	-	-	LIFT GAS	G	100-119.3	15-51	229	-50/85	268.19	0.03	5144.70						
2"	2"-GP-MM-I07C-X006-151503	151503	T-087	T-088	4355-MMI07C-6-50-0001-015	-	-	LIFT GAS	G	100-119.3	15-51	229	-50/85	267.19	0.03	2962.00						
2"	2"-GP-MM-I07C-X007-91503	91503	T-089	T-090	4355-MMI07C-6-50-0001-016	-	-	LIFT GAS	G	87-118.3	15-51	141	-50/85	267.19	0.03	4083.74						

NOM. PIPE SIZE	LINE NO.	MAT'L SPEC	FROM	TO	P&ID	INSUL.		MEDIUM	P H A S E	OPERATING CONDITIONS		DESIGN CONDITIONS		AT OPERATING CONDITIONS					TEST CONDITIONS			
						T Y P E	THICK NESS			PRESS bar A	TEMP. C	PRESS bar A	TEMP. C	DENSITY kg/m3	VISC cP	FLOW RATE		VEL m/s	PRESS. bar A	TEST MEDIUM		
2"	2"-GP-MM-I07C-X010-151503	151503	T-091	T-092	4355-MM107C-6-50-0001-017	-	-	LIFT GAS	G	100-119.3	15-51	229	-50/85	267.49	0.03	2229.52						
2"	2"-GI-MM-I07C-X001-11432	11432	PURGE CONNECTION (DJ 0053)	8"-GP-MM-I07C-X002-91503	4355-MM107C-6-50-0002-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-I07C-X002-11432	11432	PURGE CONNECTION (DJ 0055)	3"-GV-MM-I07C-X032-96620	4355-MM107C-6-51-0001-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-I07C-X003-11432	11432	PURGE CONNECTION (DJ 0054)	3"-GV-MM-I07C-X033-156620	4355-MM107C-6-51-0001-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
2"	2"-OD-MM-J04B-X001-11441	11441	HEADER	BOAT LOADING AREA	4355-MMJ04B-6-51-0002-001	-	-	OIL / WATER	L	ATM	4/48	20.6	0 / 85	736/1027	0.31/2.69	-						
2"	2"-GV-MM-J04B-0156-156620	156620	1"-GV-MM-28-X002-156620	2"-GV-MM-J04B-0163-156620	4355-MMJ04B-6-50-0001-001	-	-	VENT GAS	G	97-118.3	15-51	229	-85/85	-	-	-						
3"	3"-GV-MM-J04B-0166-16620	16620	6"-GV-MM-J04B-0167-16620	2"-GV-MM-J04B-0168-16620	4355-MMJ04B-6-51-0002-001	-	-	VENT GAS	G	ATM	AMB	21	-85/85	-	-	-						
2"	2"-GI-MM-J04B-0022-11432	11432	PURGE CONNECTION (DJ 0020)	2"-OC-MM-J04B-0103-151093KS	4355-MMJ04B-6-50-0002-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-J04B-0023-11432	11432	PURGE CONNECTION (DJ 0019)	2"-OC-MM-J04B-0102-151093KS	4355-MMJ04B-6-50-0002-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-J04B-0024-11432	11432	PURGE CONNECTION (DJ 0021)	2"-OC-MM-J04B-0107-151093KS	4355-MMJ04B-6-50-0003-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-J04B-0026-11432	11432	PURGE CONNECTION (DJ 0024)	2"-GV-MM-J04B-0162-156620	4355-MMJ04B-6-51-0002-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-J04B-0036-11432	11432	PURGE CONNECTION (DJ 0025)	3"-GV-MM-J04B-0170-96620	4355-MMJ04B-6-51-0002-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
6"	6"-OC-MM-325-0095-151093KS	151093KS	MM-325 (T 001)	6"-OC-MM-J04B-0097-151093KS / 6"-OC-MM-J04B-151093KS	4355-MMJ04B-6-50-0001-001	-	-	CRUDE OIL	M	12-18	26-71	229	-50/85	237.3	0.73	26893.47						
6"	6"-OC-MM-325-0096-151093KS	151093KS	MM-28 (T 006)	6"-OC-MM-J04B-0097-151093KS / 6"-OC-MM-J04B-151093KS	4355-MMJ04B-6-50-0001-001	-	-	CRUDE OIL	M	12-18	26-71	229	-50/85	237.3	0.73	26893.47						
8"	8"-OC-MM-J04B-0105-151093KS	151093KS	6"-OC-MM-J04B-0097-151093KS	8"-OC-MM-J04B-0106-1512ZZ	4355-MMJ04B-6-50-0003-001	-	-	CRUDE OIL	M	12-18	26-71	229	-50/85	168.425	0.725	35534.56						
2"	8"-OC-MM-J04B-0106-1512ZZ	1512ZZ	8"-OC-MM-J04B-0105-151093KS	TO MM105A	4355-MMJ04B-6-50-0003-001	-	-	CRUDE OIL	M	12-18	26-71	229	-50/85	168.425	0.725	35534.56						
2"	2"-OD-MM-J06B-X001-11441	11441	2"-OD-MM-J06B-X010-16620	BOAT LANDING AREA	4355-MMJ06B-6-51-0001-001	-	-	CRUDE OIL / WATER	L	ATM	4/48	21	0/85	736 / 1027	0.31 / 2.69	-						
3"	3"-GV-MM-J06B-0174-16620	16620	6"-GV-MM-J06B-0174-16620	2"-GV-MM-J06B-0175-16620	4355-MMJ06B-6-51-0001-001	-	-	VENT GAS	G	ATM	AMB	3.5	-85/85	-	-	-						
2"	2"-GI-MM-J06B-X002-11432	11432	DJ 0082 (PURGE CONNECTION)	10"-OC-MM-M-7A-X002-151093KS	4355-MMJ06B-6-51-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-M07A-0027-11432	11432	DJ 0083 (PURGE CONNECTION)	6"-OC-MM-M07A-X003-151093KS	4355-MMJ06B-6-51-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-						
2"	2"-GP-MM-J06B-X001-91503	91503	2"-GP-MM-J06-01-9151 (T 032)	2"-GP-MM-J06-01-15151 (T 033)	4355-MMJ06B-6-50-0002-001	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/85	371.78	0.050	4013.141						
2"	2"-OD-MM-J07B-X001-17320	17320	HEADER	BOAT LANDING AREA	4355-MMJ07B-6-51-0002-001	-	-	OIL / WATER	L	ATM	4/48	20.6	0 / 85	736/1027	0.31/2.69	-						
3"	3"-GV-MM-J07B-0184-16620	16620	6"-GV-MM-J07B-0183-16620	2"-GV-MM-J07B-0185-16620	4355-MMJ07B-6-51-0002-001	-	-	VENT GAS	G	ATM	AMB	3.5	-85/85	-	-	-						
2"	2"-GI-MM-J07B-0120-11432	11432	PURGE CONNECTION (DJ 0047)	14"-OC-MM-J07B-0117-151093KS	4355-MMJ07B-6-50-0002-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-J07B-0030-11432	11432	PURGE CONNECTION (DJ 0049)	2"-OC-MM-J07B-0126-151093KS	4355-MMJ07B-6-50-0004-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-J07B-0031-11432	11432	PURGE CONNECTION (DJ 0050)	3"-GV-MM-J07B-X004-96620	4355-MMJ07B-6-51-0002-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-J07B-0032-11432	11432	PURGE CONNECTION (DJ 0051)	2"-GV-MM-J07B-0180-156620	4355-MMJ07B-6-51-0002-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
4"	4"-GP-MM-13-0099-151503	151503	4"-GP-MM-J07B-0102-91503	2"-GP-MM-13-03-15151 (T 003)	4355-MMJ07B-6-50-0001-001	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/85	247.56	0.04	6688.57						
4"	4"-GP-MM-14-0100-151503	151503	4"-GP-MM-14-0103-91503	2"-GP-MM-14-02-15151 (T 010)	4355-MMJ07B-6-50-0001-002	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/85	249.38	0.05	5202.22						
14"	14"-OC-MM-J07B-0117-151093KS	151093KS	6"-OC-MM-J07B-0115-151093KS	14"-OC-MM-J07B-0118-1512ZZ	4355-MMJ07B-6-50-0002-001	-	-	CRUDE OIL	M	12-18	26-71	229	-50/85	234.28	0.737	121954.10						
14"	14"-OC-MM-J07B-0118-1512ZZ	1512ZZ	14"-OC-MM-J07B-0117-151093KS	TO PS2R	4355-MMJ07B-6-50-0002-001	-	-	CRUDE OIL	M	12-18	26-71	229	-50/85	234.28	0.737	121954.10						
10"	10"-OC-MM-J07B-0124-1512ZZ	1512ZZ	FROM MMJ09B	10"-OC-MM-J07B-0125-151093KS	4355-MMJ07B-6-50-0004-001	-	-	CRUDE OIL	M	12-18	26-71	229	-50/85	255.242	0.734	63974.73						
2"	2"-OD-MM-J09B-X001-17320	17320	2"-OD-MM-J09B-0191-16620	BOAT LANDING AREA	4355-MMJ09B-6-51-0002-001	-	-	OIL / WATER	L	ATM	4/48	20.6	0 / 85	736/1027	0.31/2.69	-						
2"	2"-GI-MM-J09B-0032-11432	11432	DJ 0029 (PURGE CONNECTION)	2"-OC-MM-J09B-0032-151093KS	4355-MMJ09B-6-50-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-J09B-0033-11432	11432	DJ 0030 (PURGE CONNECTION)	2"-OC-MM-J09B-0140-151093KS	4355-MMJ09B-6-50-0003-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-J09B-0034-11432	11432	DJ 0031 (PURGE CONNECTION)	2"-OC-MM-J09B-0144-151093KS	4355-MMJ09B-6-50-0004-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-J09B-0035-11432	11432	DJ 0032 (PURGE CONNECTION)	2"-OC-MM-J09B-0147-151093KS	4355-MMJ09B-6-50-0005-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-J09B-0036-11432	11432	DJ 0024 (PURGE CONNECTION)	2"-GV-MM-J09B-0193-156620	4355-MMJ09B-6-51-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-						
1"	1"-GI-MM-J09B-X002-11432	11432	DJ 0026 (PURGE CONNECTION)	2"-OC-MM-J09B-X015-151093KS	4355-MMJ09B-6-50-0001-004	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-						
1"	1"-GI-MM-J09B-X003-11432	11432	DJ 0027 (PURGE CONNECTION)	2"-OC-MM-J09B-X016-151093KS	4355-MMJ09B-6-50-0001-004	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-						
1"	1"-GI-MM-J09B-X006-11432	11432	DJ 0034 (PURGE CONNECTION)	2"-OC-MM-J09B-X018-151093KS	4355-MMJ09B-6-50-0006-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-						
1"	1"-GI-MM-J09B-X007-11432	11432	DJ 0035 (PURGE CONNECTION)	2"-OC-MM-J09B-X019-151093KS	4355-MMJ09B-6-50-0006-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-J09B-X001-11432	11432	DJ 0025 (PURGE CONNECTION)	3"-GV-MM-J09B-0188-96620	4355-MMJ09B-6-51-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-						
2"	2"-GV-MM-J09B-0187-156620	156620	1"-GV-MM-41-X001-156620	2"-GV-MM-J09B-0194-156620	4355-MMJ09B-6-50-0001-001	-	-	VENT GAS	G	87-110	15-49	229	-85/85	-	-	-						
3"	3"-GV-MM-J09B-0197-16620	16620	6"-GV-MM-J09B-0196-16620	2"-GV-MM-J09B-0198-156620	4355-MMJ09B-6-51-0002-001	-	-	VENT GAS	G	ATM	AMB	3.5	-85/85	-	-	-						

NOM. PIPE SIZE	LINE NO.	MAT'L SPEC	FROM	TO	P&ID	INSUL.		MEDIUM	P H A S E	OPERATING CONDITIONS		DESIGN CONDITIONS		AT OPERATING CONDITIONS					TEST CONDITIONS			
						T Y P E	THICK NESS			PRESS bar A	TEMP. C	PRESS bar A	TEMP. C	DENSITY kg/m3	VISC cP	FLOW RATE		VEL m/s	PRESS. bar A	TEST MEDIUM		
																kg/h	m3/h					
2"	2"-GP-MM-41-X003-151503	151503	2"-GP-MM-41-X001-91503	MM-41 (T 018)	4355-MMJ09B-6-50-0001-003	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/85	270	0.03	6376.4						
2"	2"-GP-MM-80-X007-151503	151503	4"-GP-MM-J09B-01-9151 (T 029)	MM-80 (T 003)	4355-MMJ09B-6-50-0001-003	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/85	261	0.03	3938.8						
6"	6"-OC-MM-41-0130-151093KS	151093KS	MM-41 SS (T 016)	8"-OC-MM-J09B-0131-151093KS	4355-MMJ09B-6-50-0001-001	-	-	CRUDE OIL	M	14.2-18	26-71	229	-50/85	182	0.713	39596						
10"	10"-OC-MM-J09B-0133-151093KS	151093KS	6"-OC-MM-J09B-X005-151093KS	10"-OC-MM-J09B-0134-151093KS	4355-MMJ09B-6-50-0002-001	-	-	CRUDE OIL	M	14.2-18	26-71	229	-50/85	176	0.73	64026						
10"	10"-OC-MM-J09B-0134-151ZZZ	151ZZZ	10"-OC-MM-J09B-0133-151093KS	TO MMJ07B	4355-MMJ09B-6-50-0002-001	-	-	CRUDE OIL	M	14.2-18	26-71	229	-50/85	176	0.73	64026						
8"	8"-OC-MM-J09B-0137-151ZZZ	151ZZZ	FROM MMK08A	8"-OC-MM-J09B-0138-151093KS	4355-MMJ09B-6-50-0003-001	-	-	CRUDE OIL	M	109	20-89	229	-50/100	176	0.73	64026						
6"	6"-OC-MM-J09B-0141-151ZZZ	151ZZZ	FROM MMH08A	6"-OC-MM-J09B-0142-151093KS	4355-MMJ09B-6-50-0004-001	-	-	CRUDE OIL	M	109	20-89	229	-50/100	176	0.73	64026						
8"	8"-OC-MM-J09B-X010-151093KS	151093KS	HEADER	8"-OC-MM-J09B-0145-151093KS	4355-MMJ09B-6-50-0006-001	-	-	CRUDE OIL	M	109	20-89	229	-50/100	176	0.73	64026						
8"	8"-OC-MM-J09B-0145-151ZZZ	151ZZZ	8"-OC-MM-J09B-X010-151093KS	TO PS2R	4355-MMJ09B-6-50-0005-001	-	-	CRUDE OIL	M	109	20-89	229	-50/100	176	0.73	64026						
2"	2"-OD-MM-K08A-X001-17320	17320	2"-OD-MM-K08A-0091-16620	HEADER	4355-MMK08A-6-51-0002-001	-	-	OIL / WATER	L	ATM	4/48	21	0 / 85	736/1027	0.31/2.69	-						
2"	2"-GI-MM-K08A-0038-11432	11432	PURGE CONNECTION (DJ 0013)	2"-OC-MM-K08A-0161-151093KS	4355-MMK08A-6-50-0003-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-K08A-0037-11432	11432	PURGE CONNECTION (DJ 0011)	2"-OC-MM-K08A-0162-151093KS	4355-MMK08A-6-50-0003-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-K08A-0040-11432	11432	PURGE CONNECTION (DJ 0014)	2"-OC-MM-K08A-X001-151093KS	4355-MMK08A-6-50-0004-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-K08A-0041-11432	11432	PURGE CONNECTION (DJ 0015)	2"-GI-MM-K08A-0040-91503	4355-MMK08A-6-50-0005-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-K08A-X003-11432	11432	PURGE CONNECTION (DJ 0017)	2"-GV-MM-K08A-X009-96620	4355-MMK08A-6-51-0002-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-K08A-0042-11432	11432	PURGE CONNECTION (DJ 0016)	2"-GV-MM-K08A-0209-156620	4355-MMK08A-6-51-0002-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
3"	3"-GP-MM-327-0108-151503	151503	3"-GP-MM-327-X001-91503	2"-GP-MM-327-0106-151503	4355-MMK08A-6-50-0002-001	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/85	267.05	0.032	4607.68						
6"	6"-GP-MM-K08A-0112-91ZZZ	91ZZZ	FROM MMIO6C	6"-GP-MM-K08A-0113-91503	4355-MMK08A-6-50-0005-001	-	-	LIFT GAS	G	100-119.3	15-51	141	-50/85	266.63	0.032	7283.11						
3"	3"-GP-MM-30-X002-151503	151503	3"-GP-MM-30-X001-91503	3"-GP-MM-30-02-9150 (T 001)	4355-MMK08A-6-50-0001-001	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/85	267.05	0.032	2675.43						
6"	6"-OC-MM-30C-0150-151093KS	151093KS	MM-30C (T-006)	6"-OC-MM-K08A-0164-151ZZZ	4355-MMK08A-6-50-0001-001	-	-	CRUDE OIL	M	109	20-89	229	-50/100	404.65	1.14	49014.71						
6"	6"-OC-MM-327-0152-151093KS	151093KS	MM-327-RDX	8"-OC-MM-K08A-0153-151093KS / 6"-OC-MM-K08A-151ZZZ	4355-MMK08A-6-50-0002-001	-	-	CRUDE OIL	M	12-18	26-71	229	-50/85	221.69	0.738	28465.13						
6"	6"-OC-MM-K08A-0164-151ZZZ	151ZZZ	6"-OC-MM-30C-0150-151093KS	TO MMJ06B	4355-MMK08A-6-50-0004-001	-	-	CRUDE OIL	M	109	20-89	229	-50/100	404.65	1.14	49014.71						
2"	2"-OD-MM-L06A-X001-17320	17320	2"-OD-MM-L06A-0100-16620	HEADER	4355-MML06A-6-51-0002-001	-	-	OIL / WATER	L	ATM	4/48	20.6	0 / 85	736/1027	0.31/2.69	-						
2"	2"-GI-MM-L06A-0043-11432	11432	PURGE CONNECTION (DJ 0001)	2"-OC-MM-L06A-0175-151093KS	4355-MML06A-6-50-0002-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-L06A-0044-11432	11432	PURGE CONNECTION (DJ 0002)	2"-OC-MM-L06A-0179-151093KS	4355-MML06A-6-50-0003-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-L06A-0045-11432	11432	PURGE CONNECTION (DJ 0003)	2"-OC-MM-L06A-0182-151093KS	4355-MML06A-6-50-0004-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-L06A-0046-11432	11432	PURGE CONNECTION (DJ 0004)	2"-OC-MM-L06A-0186-151093KS	4355-MML06A-6-50-0005-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-L06A-X001-11432	11432	PURGE CONNECTION (DJ 0005)	2"-GV-MM-L06A-0221-156620	4355-MML06A-6-51-0002-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-L06A-X002-11432	11432	PURGE CONNECTION (DJ 0007)	6"-OC-MM-L06A-X001-151093KS	4355-MML06A-6-50-0001-002	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-L06A-X003-11432	11432	PURGE CONNECTION (DJ 0008)	6"-OC-MM-L06A-X003-151093KS	4355-MML06A-6-50-0001-002	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-L06A-X004-11432	11432	PURGE CONNECTION (DJ 0009)	6"-OC-MM-L06A-X004-151093KS	4355-MML06A-6-50-0001-003	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-L06A-X005-11432	11432	PURGE CONNECTION (DJ 0010)	6"-OC-MM-L06A-X006-151093KS	4355-MML06A-6-50-0001-003	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-L06A-X006-11432	11432	PURGE CONNECTION (DJ 0062)	2"-GV-MM-L06A-X008-96620	4355-MML06A-6-51-0002-001	-	-	NITROGEN GAS	G	3	4/48	20.6	0/85	3	0.02	-						
3"	3"-GV-MM-L06A-0224-16620	16620	6"-GV-MM-L06A-0223-16620	2"-GV-MM-L06A-0225-156620	4533-MML06A-6-51-0002-001	-	-	VENT GAS	G	ATM	AMB	3.5	-85/85	-	-	-						
2"	2"-GP-MM-26-X002-151503	151503	3"-GP-MM-26-X001-91503	MM-26 (T 011)	4355-MML06A-6-50-0001-001	-	-	LIFT GAS	G	100-119.3	15-51	229	-50/85	270.5	0.042	4682.00						
12"	12"-OC-MM-L06A-0172-151093KS	151093KS	6"-OC-MM-L06A-X004-151093KS	12"-OC-MM-L06A-0173-151ZZZ	4355-MML06A-6-50-0002-001	-	-	CRUDE OIL	M	12-18	26-71	229	-50/85	252.6617	0.719	88632.52						
12"	12"-OC-MM-L06A-0173-151ZZZ	151ZZZ	12"-OC-MM-L06A-0172-151093KS	TO PS2R	4355-MML06A-6-50-0002-001	-	-	CRUDE OIL	M	12-18	26-71	229	-50/85	252.6617	0.719	88632.52						
8"	8"-OC-MM-L06A-0176-151093KS	151093KS	6"-OC-MM-L06A-X001-151093KS	8"-OC-MM-L06A-0177-151ZZZ	4355-MML06A-6-50-0003-001	-	-	CRUDE OIL	M	109	20-89	229	-50/100	245.63	1.129	28788.36						
8"	8"-OC-MM-L06A-0177-151ZZZ	151ZZZ	8"-OC-MM-L06A-0176-151093KS	TO PS2R	4355-MML06A-6-50-0003-001	-	-	CRUDE OIL	M	109	20-89	229	-50/100	245.63	1.129	28788.36						
10"	10"-OC-MM-L06A-0181-151ZZZ	151ZZZ	FROM MMM07A	10"-OC-MM-L06A-0180-151093KS	4355-MML06A-6-50-0004-001	-	-	CRUDE OIL	M	12-18	26-71	229	-50/85	136.64	0.70	59596.12						
6"	6"-OC-MM-L06A-0185-151ZZZ	151ZZZ	FROM MMM07A	6"-OC-MM-L06A-0184-151093KS	4355-MML06A-6-50-0005-001	-	-	CRUDE OIL	M	109	20-89	229	-50/100	291.27	1.133	50843.40						
2"	2"-OD-MM-M07A-X009-17320	17320	HEADER	BOAT LANDING AREA	4355-MMM07A-6-51-0002-001	-	-	CRUDE OIL / WATER	L	ATM	4/48	3.5	0/85	736 / 1027	0.31 / 2.69	-						
3"	3"-GV-MM-M07A-X021-16620	16620	6"-GV-MM-M07A-X020-16620	2"-GV-MM-M07A-X022-16620	4355-MMM07A-6-51-0002-001	-	-	VENT GAS	G	ATM	AMB	3.5	-85/85	-	-	-						
2"	2"-GI-MM-M07A-X001-11432	11432	DJ 0057 (PURGE CONNECTION)	10"-OC-MM-M-7A-X002-151093KS	4355-MMM07A-6-50-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-M07A-X002-11432	11432	DJ 0058 (PURGE CONNECTION)	6"-OC-MM-M07A-X003-151093KS	4355-MMF05A-6-50-0003-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-						

NOM. PIPE SIZE	LINE NO.	MAT'L SPEC	FROM	TO	P&ID	INSUL.		MEDIUM	P H A S E	OPERATING CONDITIONS		DESIGN CONDITIONS		AT OPERATING CONDITIONS					TEST CONDITIONS			
						T Y P E	THICK NESS							DENSITY	VISC	FLOW RATE		VEL				
																PRESS	TEMP.		PRESS	TEMP.	kg/m3	cP
										bar A	C	bar A	C									
2"	2"-GI-MM-M07A-X003-11432	11432	DJ 0059 (PURGE CONNECTION)	2"-GV-MM-M07A-X015-96620	4355-MMM07A-6-51-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-						
2"	2"-GI-MM-M07A-X004-11432	11432	DJ 0060 (PURGE CONNECTION)	2"-GV-MM-M07A-X016-156620	4355-MMM07A-6-51-0002-001	-	-	NITROGEN	G	3	4 / 48	20.6	0/85	3	0.02	-						
2"	2"-GP-MM-M07A-X001-151503	151503	2"-GP-MM-M07A-02-9151 (T 028)	2"-GP-MM-M07A-02-15151 (T 029)	4355-MMM07A-6-50-0001-001	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/85	263.82	0.042	3567.237						
2"	2"-GP-MM-M07A-X002-91503	91503	2"-GP-MM-37-03-9151 (T 024)	2"-GP-MM-37-03-15151 (T 025)	4355-MMM07A-6-50-0001-002	-	-	LIFT GAS	G	100-119.3	15-51	141	-50/85	263.82	0.042	3567.237						
2"	2"-GP-MM-M07A-X003-91503	91503	2"-GP-MM-38-01-9151 (T 026)	2"-GP-MM-38-01-15151 (T 027)	4355-MMM07A-6-50-0001-003	-	-	LIFT GAS	G	100-119.3	15-51	141	-50/85	263.82	0.033	2972.697						
2"	2"-GP-MM-110-X004-151503	151503	T 013	MM-110	4355-MMM07A-6-50-0001-001	-	-	LIFT GAS	G	87-118.3	15-51	229	-50/85	263.82	0.042	3567.237						
6"	6"-OC-MM-38-X005-151093KS	151093KS	MM-38 SS (T 021)	10"-OC-MM-M07A-X002-151093KS	4355-MMM07A-6-50-0001-003	-	-	CRUDE OIL	M	12-18	26-71	229	-50/85	254.87	0.7015	18200.88						
6"	6"-OC-MM-38-X006-151093KS	151093KS	MM-38 LS	6"-OC-MM-X003-151093KS	4355-MMM07A-6-50-0001-003	-	-	CRUDE OIL	M	109	20-89	229	-50/100	332.9	1.126	17896.57						
6"	6"-OC-MM-M07A-X003-151093KS	151093KS	6"-OC-MM-34-03-15151 (T 007)	6"-OC-MM-M07A-X004-1512ZZ	4355-MMM07A-6-50-0001-004	-	-	CRUDE OIL	M	109	20-89	229	-50/100	303.62	1.098	22129.36						
10"	10"-OC-MM-M07A-X002-151093KS	151093KS	6"-OC-MM-34-06-15151 (T 006)	10"-OC-MM-M07A-X003-1512ZZ	4355-MMM07A-6-50-0001-004	-	-	CRUDE OIL	M	12-18	26-71	229	-50/85	172.6421	0.72	62662.37						
6"	6"-629-GC-X001-91ZZZ	91ZZZ	FROM PS2R	PIG LAUNCHER 06-Z-X02	4355-PS1F-6-50-0002-001	-	-	GAS CONDENSATE	M	49.2	4-48	142	-45/85	459.8	0.1	12107.90	26.30	0.48				
8"	8"-629-GP-X002-91ZZZ	91ZZZ	FROM PS2R PIPELINE	PIG RECEIVER 06-Z-X01	4355-PS1F-6-50-0002-001	-	-	NATURAL GAS	G	52.4	09-38	142	-45/85	76.10	16.4	63275.10	831.60	8.83				