

CONTROL VALVES	ACTUATOR TYPES	GENERAL INSTRUMENT	CORRSION MONITORING	FLOW	PRESSURE	NOTES:
<div><div></div>GENERIC CONTROL VALVE</div> <div><div></div>3-WAY GATE VALVE</div> <div><div></div>ANGLE GATE VALVE</div> <div><div></div>GLOBE VALVE</div> <div><div></div>3-WAY GLOBE VALVE</div> <div><div></div>ANGLE GLOBE VALVE</div> <div><div></div>BALL VALVE</div> <div><div></div>3-WAY BALL VALVE</div> <div><div></div>BUTTERFLY VALVE</div> <div><div></div>DIAPHRAGM VALVE</div> <div><div></div>SOLENOID VALVE</div> <div><div></div>3-WAY SOLENOID VALVE</div> <div><div></div>4-WAY SOLENOID VALVE</div> <div><div></div>ANGLE SOLENOID VALVE</div> <div><div></div>PLUG VALVE</div> <div><div></div>3-WAY PLUG VALVE</div>	<div><div></div>DIAPHRAGM</div> <div><div></div>MOTOR</div> <div><div></div>DOUBLE ACTING CYLINDER</div> <div><div></div>SINGLE SOLENOID</div> <div><div></div>BALL FLOAT</div> <div><div></div>CAPACITANCE SENSOR</div> <div><div></div>PRESSURE BALANCED DIAPHRAGM</div> <div><div></div>DIGITAL</div> <div><div></div>DISPLACEMENT FLOAT</div> <div><div></div>ELECTRO-HYDRAULIC</div> <div><div></div>MANUAL</div> <div><div></div>PADDLE WHEEL</div> <div><div></div>PILOT</div> <div><div></div>DOUBLE SOLENOID</div> <div><div></div>PILOT OPERATED CYLINDER</div> <div><div></div>SINGLE ACTING CYLINDER</div> <div><div></div>SPRING</div> <div><div></div>SINGLE SOLENOID W/RESET</div> <div><div></div>WEIGHT</div>	<div><div></div>SINGLE FUNCTION INSTRUMENT FIELD</div> <div><div></div>SINGLE FUNCTION INSTRUMENT MAIN PANEL</div> <div><div></div>SINGLE FUNCTION INSTRUMENT NOT ACCESSIBLE MAIN PANEL</div> <div><div></div>SINGLE FUNCTION INSTRUMENT LOCAL PANEL</div> <div><div></div>SINGLE FUNCTION INSTRUMENT NOT ACCESSIBLE LOCAL PANEL</div> <div><div></div>PILOT LIGHT FIELD</div> <div><div></div>PILOT LIGHT MAIN PANEL</div> <div><div></div>PILOT LIGHT LOCAL PANEL</div> <div><div></div>DCS FUNCTION (OPERATOR ACCESSIBLE) DCS</div> <div><div></div>DCS FUNCTION (NOT ACCESSIBLE) DCS</div> <div><div></div>SCADA FUNCTION (OPERATOR ACCESSIBLE)</div> <div><div></div>SCADA FUNCTION (NOT ACCESSIBLE)</div> <div><div></div>PLC FUNCTION PLC - MAIN PANEL</div> <div><div></div>PLC FUNCTION (NOT ACCESSIBLE) PLC - MAIN PANEL</div> <div><div></div>PLC FUNCTION PLC - FIELD</div> <div><div></div>PLC FUNCTION (NOT ACCESSIBLE) PLC - FIELD</div> <div><div></div>SIS FUNCTION (OPERATOR ACCESSIBLE) SIS</div> <div><div></div>SIS FUNCTION (NOT ACCESSIBLE) SIS</div> <div><div></div>ESD INTERLOCK FUNCTION INTER LOCK</div> <div><div></div>FIRE & GAS INTERLOCK FUNCTION INTER LOCK</div> <div><div></div>UNIT CONTROL FUNCTION INTER LOCK</div> <div><div></div>SOLENOID VALVE 3-WAY FIELD</div> <div><div></div>SOLENOID VALVE 4-WAY SINGLE FIELD</div>	<div><div></div>CORROSION MONITORING POINT</div> <div><div></div>CORROSION COUPON</div> <div><div></div>CORROSION ELEMENT</div>	<div><div></div>VAR. AREA FLOW INSTRUMENT</div> <div><div></div>RESTRICTION ORIFICE</div> <div><div></div>ORIFICE PLATE & FLANGES</div> <div><div></div>ORIFICE PLATE & QUICK CHANGE FITTING</div> <div><div></div>MAGNETIC FLOWMETER</div> <div><div></div>FLOW NOZZLE</div> <div><div></div>VORTEX FLOWMETER</div> <div><div></div>CORIOLIS TYPE FLOW METER</div> <div><div></div>ANNUBAR</div> <div><div></div>FORWARD REVERSE PITOT TUBE</div> <div><div></div>AVERAGING PITOT TUBE</div> <div><div></div>WEIR</div> <div><div></div>FLOW STRAIGHTENING VANES</div> <div><div></div>VENTURI TUBE</div> <div><div></div>TURBINE / PROPELLER FLOW INSTRUMENT</div> <div><div></div>POSITIVE DISPLACEMENT FLOW</div> <div><div></div>SINGLE PORT PITOT TUBE</div> <div><div></div>FLUME</div> <div><div></div>ULTRASONIC FLOW</div> <div><div></div>TARGET FLOW</div>	<div><div></div>BACK PRESSURE REG W/EXT TAP</div> <div><div></div>DIFF PRESSURE RED REG W/INT & EXT TAPS</div> <div><div></div>PRESSURE RED REG W/INT RV</div> <div><div></div>SELF CONTAINED BACKPRESS REG</div> <div><div></div>SELF CONTAINED PRESS RED REG</div> <div><div></div>4P6 PSET = RELIEF VALVE & CONNECTION SIZES PRESSURE SETTING</div> <div><div></div>PRESS RELIEF VALVE</div> <div><div></div>STRAIGHT-THRU PRESS RELIEF VALVE</div> <div><div></div>PSET = PRESS RELIEF RUPTURE DISC</div> <div><div></div>PSET = VAC RELIEF RUPTURE DISC</div> <div><div></div>4P6 PSET = VSET = PRESS/VAC RELIEF VALVE</div> <div><div></div>PSET = VSET = VAC RELIEF VALVE</div> <div><div></div>PSET = VSET = PRESS/VAC RELIEF MANHOLE COVER</div> <div><div></div>PSET = PRESSURE RELIEF MANHOLE COVER</div>	<div>1. FOR FURTHER DETAILS REFER TO ENGINEERING NUMBERING SPECIFICATION 0000PP-C-00-G000-DM-SFC-0001-REV-B02</div> <div>2. FAIL ACTION TO BE SHOWN BENEATH VALVE ON P & I</div>
SIGNAL LINES	MISCELLANEOUS	INSTRUMENT TAGGING (NOTE-1)				
<div><div></div>CONNECTION TO PROCESS</div> <div><div></div>PNEUMATIC SIGNAL</div> <div><div></div>ELECTRICAL SIGNAL</div> <div><div></div>CAPILLARY SIGNAL</div> <div><div></div>HYDRAULIC SIGNAL</div> <div><div></div>DCS SOFTWARE LINK</div> <div><div></div>ELECTROMAGNETIC OR SONIC SIGNAL</div>	<div><div></div>POSITIONER</div> <div><div></div>HANDWHEEL</div> <div><div></div>NON-INTRUSIVE INSTRUMENT CONNECTION</div>	<div><div></div><div>FUNCTION IDENTIFICATION CODES e.g. PRESSURE DIFFERENTIAL INDICATOR CONTROLLER, PDI</div><div>SEQUENCE NUMBER SUFFIX (OPTIONAL)</div><div>ADDITIONAL FUNCTION IDENTIFIER i.e. "HIGH" AND "LOW" ALARM SETTING UP TO TWO LETTER PER IDENTIFIER i.e. HH HIGH HIGH H HIGH LL LOW LOW L LOW O OPEN C CLOSE</div></div>				
VALVE FAILURE	INSTRUMENT TAGGING (NOTE-2)					
<div><div></div>FAIL ACTION (NOTE-2)</div> <div><div></div>FO FAIL OPEN</div> <div><div></div>FC FAIL CLOSE</div> <div><div></div>FI FAIL INTERMEDIATE</div> <div><div></div>FL FAIL LOCKED LAST POSITION</div> <div><div></div>FLO FAIL LOCKED VALVE OPENS ON DECREASING CONTROL</div> <div><div></div>FLC FAIL LOCKED VALVE CLOSES ON DECREASING CONTROL</div> <div><div></div>LC LOCK CLOSE</div> <div><div></div>LO LOCK OPEN</div>						

NOTICE: THIS DRAWING AND THE INFORMATION IT CONTAINS IS THE SOLE PROPERTY OF RUMAILA OPERATING ORGANIZATION. IT SHALL NOT BE REPRODUCED OR LENT WITHOUT THE AGREEMENT OF THE OWNER.

EARLY POWER PLANT
RUMAILA OIL FIELD
CONTRACT NO. 100478

中国石化工程建设公司
CHINA PETROLEUM ENGINEERING & CONSTRUCTION CORP.

CH2MHILL

DRAWING TITLE:
PIPING AND INSTRUMENTATION DIAGRAM
LEGEND SHEET
INSTRUMENT SYMBOLS

PROJECT NO.	100478CP	SCALE:	NONE	DWG. SIZE:	A1
DRAWING NUMBER:				SHT. NO.:	REV.
100478CP-N-PG-PP01-PR-PID-0001-003				03/17	C01

CAD FILENAME: 100478CP-N-PG-PP01-PR-PID-0001-003-C01.DWG

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REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D
C01	25.05.16	ISSUED FOR CONSTRUCTION	DX	WJ	AB
D01	18.02.16	ISSUED FOR USE (DD)	DX	S/WJ	AB
H01	09.11.15	ISSUED FOR HAZOP (DD)	DX	S/WJ	TT
G01	26.10.15	ISSUED FOR REVIEW (DD)	DX	S/WJ	TT
B02	15.07.15	APPROVED FOR COMPLETION OF FEED	DX	S/RS	TT
B01	28.05.15	ISSUED FOR DESIGN	DX	S/RS	TT
A01	10.02.15	ISSUED FOR COMPANY REVIEW	DX	HM/RS	VM









































































































EARLY POWER PLANT
RUMAILA OIL FIELD
CONTRACT NO. 100478

中国石油工程建设公司
CHINA PETROLEUM ENGINEERING & CONSTRUCTION CORP.

CH2MHILL

DRAWING TITLE:
PIPING AND INSTRUMENTATION DIAGRAM
LEGEND SHEET
INSTRUMENT SYMBOLS

PROJECT NO.	100478CP	SCALE:	NONE	DWG SIZE:	A1
DRAWING NUMBER:	100478CP-N-PG-PP01-PR-PID-0001-003	SHT. NO.:	03/17	REV.	C01

CONTROL VALVES	ACTUATOR TYPES	GENERAL INSTRUMENT	CORRSION MONITORING	FLOW	PRESSURE
<div><div> GENERIC CONTROL VALVE</div><div> 3-WAY GATE VALVE</div><div> ANGLE GATE VALVE</div><div> GLOBE VALVE</div><div> 3-WAY GLOBE VALVE</div><div> ANGLE GLOBE VALVE</div><div> BALL VALVE</div><div> 3-WAY BALL VALVE</div><div> BUTTERFLY VALVE</div><div> DIAPHRAGM VALVE</div><div> SOLENOID VALVE</div><div> 3-WAY SOLENOID VALVE</div><div> 4-WAY SOLENOID VALVE</div><div> ANGLE SOLENOID VALVE</div><div> PLUG VALVE</div><div> 3-WAY PLUG VALVE</div></div>	<div><div> DIAPHRAGM</div><div> MOTOR</div><div> DOUBLE ACTING CYLINDER</div><div> SINGLE SOLENOID</div><div> BALL FLOAT</div><div> CAPACITANCE SENSOR</div><div> PRESSURE BALANCED DIAPHRAGM</div><div> DIGITAL</div><div> DISPLACEMENT FLOAT</div><div> ELECTRO-HYDRAULIC</div><div> MANUAL</div><div> PADDLE WHEEL</div><div> PILOT</div><div> DOUBLE SOLENOID</div><div> PILOT OPERATED CYLINDER</div><div> SINGLE ACTING CYLINDER</div><div> SPRING</div><div> SINGLE SOLENOID W/RESET</div><div> WEIGHT</div></div>	<div><div> SINGLE FUNCTION INSTRUMENT FIELD</div><div> SINGLE FUNCTION INSTRUMENT MAIN PANEL</div><div> SINGLE FUNCTION INSTRUMENT NOT ACCESSIBLE MAIN PANEL</div><div> SINGLE FUNCTION INSTRUMENT LOCAL PANEL</div><div> SINGLE FUNCTION INSTRUMENT NOT ACCESSIBLE LOCAL PANEL</div><div> PILOT LIGHT FIELD</div><div> PILOT LIGHT MAIN PANEL</div><div> PILOT LIGHT LOCAL PANEL</div><div> DCS FUNCTION (OPERATOR ACCESSIBLE) DCS</div><div> DCS FUNCTION (NOT ACCESSIBLE) DCS</div><div> SCADA FUNCTION (OPERATOR ACCESSIBLE)</div><div> SCADA FUNCTION (NOT ACCESSIBLE)</div><div> PLC FUNCTION PLC - MAIN PANEL</div><div> PLC FUNCTION (NOT ACCESSIBLE) PLC - MAIN PANEL</div><div> PLC FUNCTION PLC - FIELD</div><div> PLC FUNCTION (NOT ACCESSIBLE) PLC - FIELD</div><div> SIS FUNCTION (OPERATOR ACCESSIBLE) SIS</div><div> SIS FUNCTION (NOT ACCESSIBLE) SIS</div><div> ESD INTERLOCK FUNCTION INTER LOCK</div><div> FIRE & GAS INTERLOCK FUNCTION INTER LOCK</div><div> UNIT CONTROL FUNCTION INTER LOCK</div><div> SOLENOID VALVE 3-WAY FIELD</div><div> SOLENOID VALVE 4-WAY SINGLE FIELD</div></div>	<div><div> CORROSION MONITORING POINT</div><div> CORROSION COUPON</div><div> CORROSION ELEMENT</div></div>	<div><div> VAR AREA FLOW INSTRUMENT</div><div> RESTRICTION ORIFICE</div><div> ORIFICE PLATE & FLANGES</div><div> ORIFICE PLATE & QUICK CHANGE FITTING</div><div> MAGNETIC FLOWMETER</div><div> FLOW NOZZLE</div><div> VORTEX FLOWMETER</div><div> CORRIOLIS TYPE FLOW METER</div><div> ANNUBAR</div><div> FORWARD REVERSE PITOT TUBE</div><div> AVERAGING PITOT TUBE</div><div> WEIR</div><div> FLOW STRAIGHTENING VANES</div><div> VENTURI TUBE</div><div> TURBINE / PROPELLER FLOW INSTRUMENT</div><div> POSITIVE DISPLACEMENT FLOW</div><div> SINGLE PORT PITOT TUBE</div><div> FLUME</div><div> ULTRASONIC FLOW</div><div> TARGET FLOW</div></div>	<div><div> BACK PRESSURE REG W/EXT TAP</div><div> DIFF PRESSURE RED REG W/INT & EXT TAPS</div><div> PRESSURE RED REG W/INT RV</div><div> SELF CONTAINED BACKPRESS REG</div><div> SELF CONTAINED PRESS RED REG</div><div> PRESS RELIEF VALVE</div><div> STRAIGHT-THRU PRESS RELIEF VALVE</div><div> PRESS RELIEF RUPTURE DISC</div><div> VAC RELIEF RUPTURE DISC</div><div> PRESS/VAC RELIEF VALVE</div><div> VAC RELIEF VALVE</div><div> PRESS/VAC RELIEF MANHOLE COVER</div><div> PRESSURE RELIEF MANHOLE COVER</div></div>
SIGNAL LINES	MISCELLANEOUS				
<div><div> CONNECTION TO PROCESS</div><div> PNEUMATIC SIGNAL</div><div> ELECTRICAL SIGNAL</div><div> CAPILLARY SIGNAL</div><div> HYDRAULIC SIGNAL</div><div> DCS SOFTWARE LINK</div><div> ELECTROMAGNETIC OR SONIC SIGNAL</div></div>	<div><div> POSITIONER</div><div> HANDWHEEL</div><div> NON-INTRUSIVE INSTRUMENT CONNECTION</div></div>				
VALVE FAILURE	INSTRUMENT TAGGING (NOTE-1)				
<div><div> FC</div><div> FAIL ACTION (NOTE-2)</div></div>	<div><div><div>FUNCTION IDENTIFICATION CODES e.g. PRESSURE DIFFERENTIAL INDICATOR CONTROLLER, PDIC</div><div>SEQUENCE NUMBER</div><div>SUFFIX (OPTIONAL)</div></div><div></div><div><div>ADDITIONAL FUNCTION IDENTIFIER i.e. "HIGH" AND "LOW" ALARM SETTING UP TO TWO LETTER PER IDENTIFIER i.e. HH HIGH HIGH H HIGH LL LOW LOW L LOW O OPEN C CLOSE</div></div></div>				

- NOTES:
- FOR FURTHER DETAILS REFER TO ENGINEERING NUMBERING SPECIFICATION 0000RP-C-GO-G000-DW-SPC-0001-REV-B02.
 - FAIL ACTION TO BE SHOWN BENEATH VALVE ON P & ID.

C01	25.05.16	ISSUED FOR CONSTRUCTION	DX	VU	AB	SQ
D01	18.02.16	ISSUED FOR USE (DD)	DX	SI/VU	AB	SQ
H01	09.11.15	ISSUED FOR HAZOP (DD)	DX	SI/VU	TT	SQ
G01	26.10.15	ISSUED FOR REVIEW (DD)	DX	SI/VU	TT	SQ
B02	15.07.15	APPROVED FOR COMPLETION OF FEED	DX	SI/RS	TT	SQ
B01	28.05.15	ISSUED FOR DESIGN	DX	SI/RS	TT	SQ
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REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D	



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DRAWING TITLE:
PIPING AND INSTRUMENTATION DIAGRAM
LEGEND SHEET
INSTRUMENT SYMBOLS

PROJECT NO.	100478CP	SCALE:	NONE	DWG SIZE:	A1
DRAWING NUMBER:				SHT. NO.:	REV.
100478CP-N-PG-PP01-PR-PID-0001-003				03/17	C01