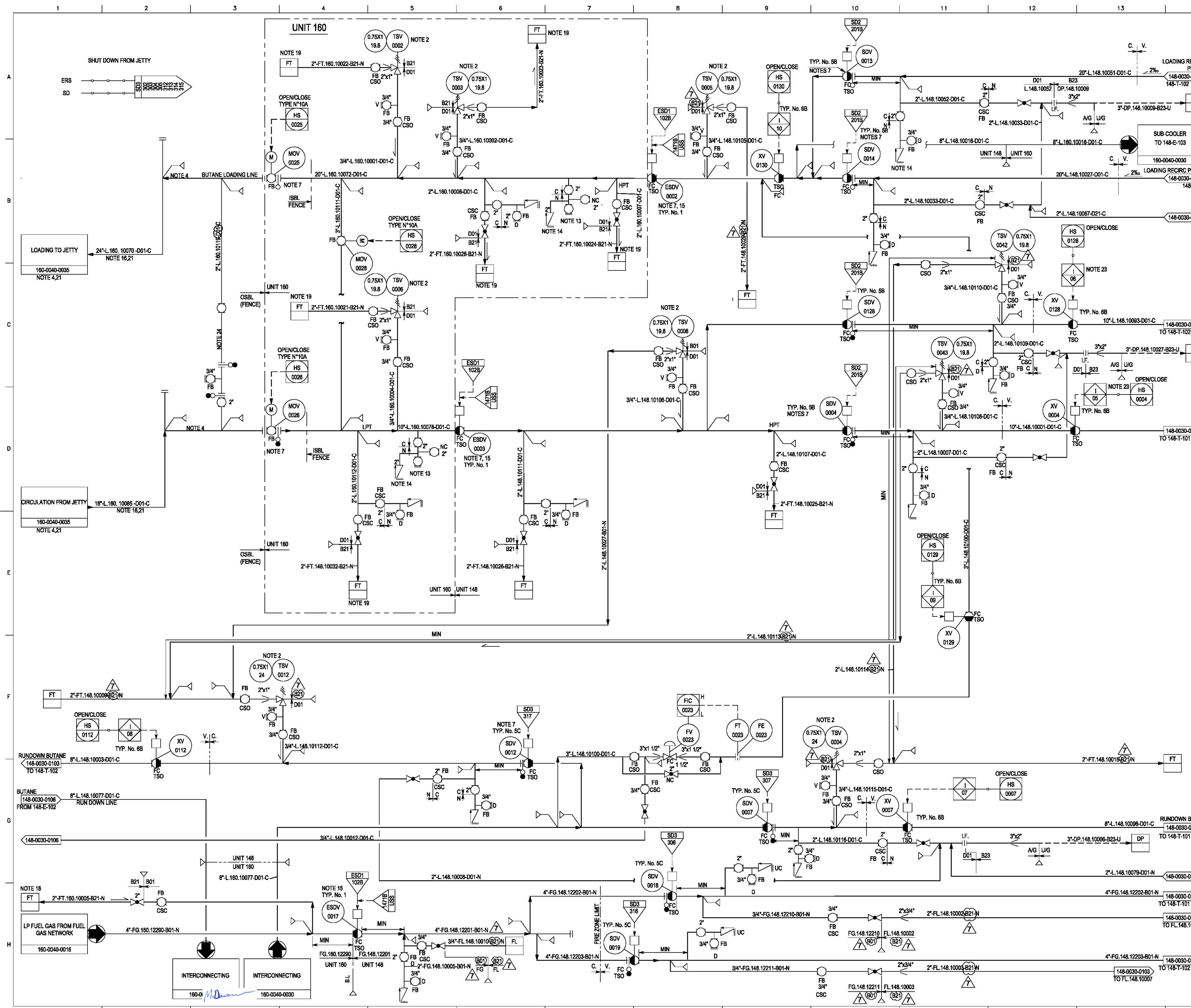




- NOTES**
- DELETED.
 - DELETED.
 - DELETED.
 - JETTY HEAD ISOLATION VALVES ARE CLOSED TO TERMINATION OF JETTY HEAD AREA.
 - DELETED.
 - DELETED.
 - SLOW CLOSURE 30-60 SECONDS.
 - DELETED.
 - DELETED.
 - PROVIDE A THREE WAY VALVE OR INTERLOCKED PAIR OF VALVES TO GUARANTEE A RELIEF PATH TO THE STORAGE TANKS.
 - DELETED.
 - DELETED.
 - CONNECTION FOR PORTABLE PUMP TO BE LOCATED AT LOW POINT.
 - RETURN FROM PORTABLE PUMP. RETURN TO CIRCULATION LINE TO DRAIN LOADING LINE AND RETURN TO LOADING LINE TO DRAIN CIRCULATION LINE.
 - DISTANCE BETWEEN ESDV AND HAZARDOUS EQUIPMENT IN THE FIRE ZONE SHOULD CONFORM TO THE RESULTS OF THE CONSEQUENCE ANALYSIS (REF DOC. NC-1718-999-1900-0001). IF NOT PRACTICABLE, THE MINIMUM DISTANCE SHALL BE 15 M FROM UNIT EDGE AND THE ESDV AND ASSOCIATED PIPING SHALL BE PROTECTED.
 - PHASE 17 & 18 EPCC CONTRACTOR SHALL PROVIDE ENOUGH I/O SIGNALS IN THE DCS IN ORDER TO FULLY SUPERVISE AND MONITOR THE LOADING OPERATIONS (I.E. CONTROL, COMMANDS AND ALARMS). DEPENDANT ON DETAILS BY OTHERS.
 - DELETED.
 - CONNECTED EITHER TO PHASE 17 OR 18.
 - LINE TO BE CONNECTED TO FT HEADER IN P&ID PID-1718-160-0040-0034.
 - DELETED.
 - CONNECTION FOR FUTURE PHASES PROPANE EXPORT/CIRCULATION COMMON HEADERS. HAS BEEN PROVIDED IN PID-1718-160-0040-0035 THE OPERATING PHILOSOPHY OF COMMON HEADER TO BE FINALIZED BY OTHER.
 - DELETED.
 - INTERLOCK PREVENTS RECIRC. VALVES FROM CLOSING SIMULTANEOUSLY DURING HOLDING MODE.
 - RESTRICTION ORIFICE TO BE INSTALLED INSTEAD OF SPACER CONSIDERING OTHER PHASES OPERATION.

GENERAL NOTES

ALL INSTRUMENT TAGS TO READ:

LETTERS	NUMBER
1481	FFFF NNNN

IS APPLICABLE ONLY FOR PIPING DESIGN SCOPE NOT FOR SUPPLY SCOPE.

EQUIPMENT LIST

ITEM NO.	EQUIPMENT	QUANTITY

UTILITY PID NUMBER

ITEM NO.	UTILITY PID NUMBER
FT	PID-1718-160-0040-0034 (SEE NOTE 19)
FT	PID-1718-191-0040-0004 (SHEET 1 OF 2)
FL	PID-1718-191-0040-0004 (SHEET 2 OF 2)
DP	PID-1718-191-0040-0005

FOR CONSTRUCTION

REV.	DATE	DESCRIPTION	ORIG.	PREP.	CHKD.	APPD.	AUTH.
7	07.JAN.2015	APPROVED FOR CONSTRUCTION	IDRO	RT	GS	GS	MD
6	08.JAN.2012	APPROVED FOR CONSTRUCTION	IDRO	SB	NS	MF	AKH
5	07.DEC.2010	ISSUED FOR APPROVAL	IDRO	MK	NS	MF	AKH
4	30.DEC.2009	ISSUED FOR APPROVAL	IDRO	NB	AD	MF	AKH
3	15.DEC.2008	ISSUED FOR COMMENT	IDRO	NB	NZ	MF	AKH
2	01/02/08	APPROVED FOR DESIGN	WP	RI	AF	RPW	MS
1	28/10/07	ISSUED FOR HAZOP	WP	RI	AB	RPW	MS
0	03/06/07	ISSUED FOR COMPANY APPROVAL	WP	RI	AF	RPW	MS

SOUTH PARS GAS FIELD DEVELOPMENT- PHASES 17 & 18, ASSALUYEH-IRAN ONSHORE FACILITIES

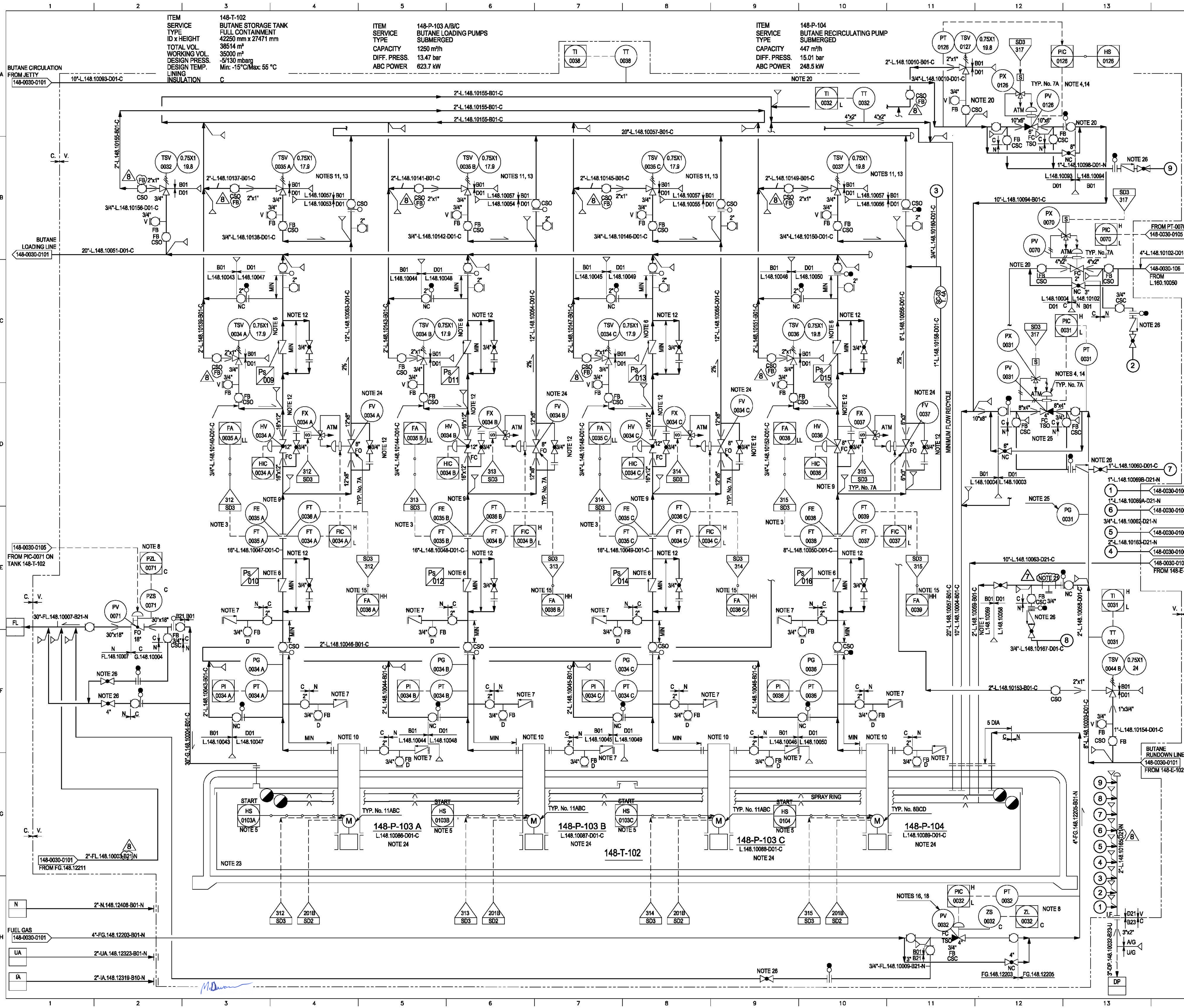
PROJECT No.: POGC-84-801-244 DOC. CLASS: 1 SCALE: N/A

WorleyParsons **IDRO** **OIEC** **PC&P**

TITLE: UNIT 148: BUTANE STORAGE AND EXPORT BUTANE MANIFOLD PIPING AND INSTRUMENT DIAGRAM

DWG No: PID-1718-148-0030-0101 SHEET No. 1 OF 1 REV. 7

SIZE: A1



- ### NOTES
- DELETED.
 - ALL VALVES ON THIS P&ID TO BE TANK ROOF MOUNTED.
 - OPERATIONAL OVERRIDE WITH A MAX 10-20 sec TIME DELAY IS REQUIRED TO ALLOW PUMP START-UP.
 - LOCATE ON TANK ROOF, CLOSE TO TANK INLET FLANGE.
 - ENSURE RECYCLE VALVE IS OPEN PRIOR TO PUMP START; ALSO ENSURE THE RECYCLE VALVE IS CLOSED ON THE OTHER TANK.
 - NON SLAM VALVE TO OPEN OR CLOSE FULL STROKE IN TWO SECONDS.
 - NITROGEN CONNECTION FOR MAINTENANCE. MINIMUM DISTANCE BETWEEN CHECK AND BALL VALVE.
 - ALARM WHEN NOT CLOSED.
 - CONNECT TO TOP OF LINE.
 - PUMP JUNCTION BOX PURGE DETAIL BY EQUIPMENT SUPPLIER.
 - HIGH POINT.
 - BY PASS CONNECTIONS TO BE MADE FROM TOP OF LINE.
 - PIPING CONFIGURATION TO BE SUCH THAT PUMP DISCHARGE PIPING MINIMUM FLOWLINE (UP TO THE MANIFOLD) IS FLOODED AT ALL TIMES.
 - SLOW CLOSURE, 30-80 s.
 - HIGH HIGH FLOW TRIP AT 120% OF DESIGN CAPACITY.
 - PV-0032 TO BE LOCATED ON TOP OF TANK.
 - DELETED.
 - PROVIDE MECHANICAL STOP TO PREVENT FULL OPENING.
 - DELETED.
 - VALVE AND DOWN STREAM LINE TO BE SUPPORTED FOR 2 PHASE FLOW.
 - TO BE USED IN THE EVENT OF EXCHANGER BY PASS IN USE.
 - DELETED.
 - PUMP WILL BE TRIPPED BY VIBRATION HIGH HIGH: 148-P-101 A/B/C BY VSHH 0101 A/B/C 148-P-102 BY VSHH 0102
 - OPEN LIMIT SWITCH IS PERMISSIVE TO START RELATED PUMP.
 - PG-0031 SHOULD BE READABLE FROM GLOBE VALVE.
 - MIN DISTANCE BETWEEN BLOCK VALVE AND GLOBE VALVE SHALL BE 600mm.
 - ORIFICE FLANGE OF FE-0035A/B/C AND FE-0038 SHALL BE TRIPLE TYPE SUITABLE FOR INSTALLING 3 FT.

GENERAL NOTES

ALL INSTRUMENT TAGS TO READ:

LETTERS	NUMBER
1481	FFFF NNNN

IS APPLICABLE ONLY FOR PIPING DESIGN SCOPE NOT FOR SUPPLY SCOPE.

EQUIPMENT LIST

PUMPS	TANK
148-P-103 A/B/C	148-T-102
148-P-104	

UTILITY PID NUMBER

FL	PID-1718-191-0040-0004 (SHEET 2 OF 2)
IA/UA	PID-1718-191-0040-0002
DP	PID-1718-191-0040-0005

FOR CONSTRUCTION

REV.	DATE	DESCRIPTION	ORIG.	PREP.	CHKD.	APPD.	AUTH.
6	07 JAN 2015	APPROVED FOR CONSTRUCTION	IDRO	RT	GS	GS	MD
7	04 FEB 2013	APPROVED FOR CONSTRUCTION	IDRO	RS	NS	MF	AKH
8	08 JAN 2012	APPROVED FOR CONSTRUCTION	IDRO	SB	NS	MF	AKH
5	07 DEC 2010	ISSUED FOR APPROVAL	IDRO	MK	NS	MF	AKH
4	30 DEC 2008	ISSUED FOR APPROVAL	IDRO	NB	AD	MF	AKH
3	15 DEC 2008	ISSUED FOR COMMENT	IDRO	NB	NZ	MF	AKH
2	01/02/08	APPROVED FOR DESIGN	WP	RI	AF	RPW	MS
1	28/10/07	ISSUED FOR HAZOP	WP	RI	AB	RPW	MS
0	08/08/07	ISSUED FOR COMPANY APPROVAL	WP	RI	AF	RPW	MS

REV. DATE DESCRIPTION ORIG. PREP. CHKD. APPD. AUTH.

SOUTH PARS GAS FIELD DEVELOPMENT- PHASES 17 & 18, ASSALUYEH-IRAN ONSHORE FACILITIES

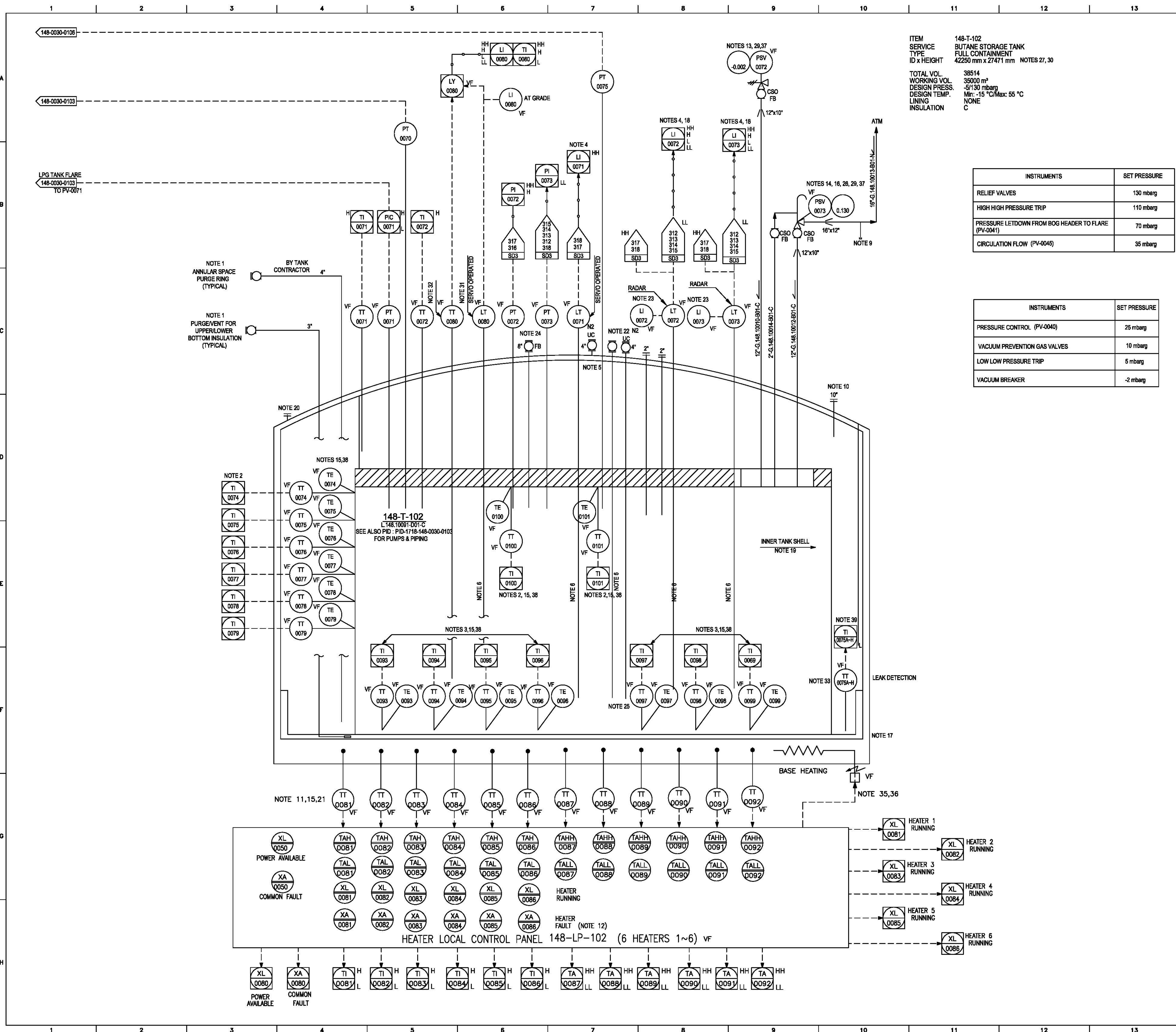
PROJECT No.: POGC-84-801-244 DOC. CLASS. 1 SCALE: N/A

WorleyParsons IDRO OIEC

TITLE: UNIT 148 BUTANE STORAGE AND EXPORT BUTANE STORAGE TANK PIPING AND INSTRUMENT DIAGRAM

DWG No. PID-1718-148-0030-0103 SHEET No. 1 OF 1 REV. 8

SIZE: A1



ITEM SERVICE 148-T-102 BUTANE STORAGE TANK
TYPE FULL CONTAINMENT
ID x HEIGHT 42250 mm x 27471 mm NOTES 27, 30
TOTAL VOL. 38514
WORKING VOL. 35000 m³
DESIGN PRESS. -5/130 mbarg
DESIGN TEMP. Min: -15 °C/Max: 55 °C
LINING NONE
INSULATION C

INSTRUMENTS	SET PRESSURE
RELIEF VALVES	130 mbarg
HIGH HIGH PRESSURE TRIP	110 mbarg
PRESSURE LETDOWN FROM BOG HEADER TO FLARE (PV-0041)	70 mbarg
CIRCULATION FLOW (PV-0045)	35 mbarg

INSTRUMENTS	SET PRESSURE
PRESSURE CONTROL (PV-0040)	25 mbarg
VACUUM PREVENTION GAS VALVES	10 mbarg
LOW LOW PRESSURE TRIP	5 mbarg
VACUUM BREAKER	-2 mbarg

NOTES

- TYPICAL NITROGEN PURGE AND VENT CONNECTION. TANK CONTRACTOR TO ENSURE THE CONFIGURATION ALLOWS PURGING DURING COMMISSIONING/OPERATION/DECOMMISSIONING.
- SKIN TYPE TEMP. INDICATORS. POINTS ATTACHED TO INNER SURFACE OF INNER TANK EQUALLY SPACED OVER SHELL HEIGHT (8 TOTAL), AND ON THE SUSPENDED DECK (2 TOTAL).
- SEVEN SKIN TEMPERATURE INDICATORS LOCATED EVENLY ON THE INNER TANK BOTTOM SURFACE.
- HIGH-HIGH LEVEL SHUTDOWN SHALL OCCUR ONLY IF 2 OF 3 LEVEL INSTRUMENTS AGREE. ONE OF THE THREE PRIMARY INSTRUMENTS TO BE OF DIFFERENT TYPE.
- TO BE LOCATED AT THE CENTER OF TANK DOME.
- STILLING WELL.
- DELETED.
- DELETED.
- PROVIDE WEEP HOLES AT LOW POINT OF PSV (DIA 13 mm). ORIENTATE TO SAFE LOCATION.
- NOZZLE FOR INSERTION OF TEMPERATURE DETECTOR/THERMOCOUPLE EXTENSION CABLE.
- TEMPERATURE SENSORS LOCATED UNDER THE INNER TANK. 6 ZONES ARE CONSIDERED. TWO TEMPERATURE TRANSMITTERS FOR EACH ZONE, ONE FOR CONTROL AND ONE FOR TRIP.
- COMMON ALARM FOR POWER FAILURE AND EARTH LEAKAGE CIRCUIT BREAKER TRIP IN EACH HEATER POWER SUPPLY.
- TYPICAL FOR ONE OF 3 VACUUM BREAKERS (INCLUDING ONE SPARE). VALVE ON SPARE TO BE CSC, OTHERS CSO. PROVISION SHOWN IS A MINIMUM. FINAL DESIGN IS THE TANK CONTRACTOR'S RESPONSIBILITY.
- TYPICAL FOR ONE OF 2 PILOT OPERATED PSV (INCLUDING ONE SPARE). VALVE ON SPARE TO BE CSC, OTHERS CSO. PROVISION SHOWN IS A MINIMUM. FINAL DESIGN IS THE TANK CONTRACTOR'S RESPONSIBILITY.
- JUNCTION BOX TO CONTAIN A SPARE RTDS FOR EACH TRANSMITTER.
- TAIL PIPE CONFIGURATION IS PRELIMINARY. FINAL DESIGN, RESPECTING DISPERSION/IGNITED VENT DESIGN CRITERIA BY TANK CONTRACTOR.
- TWO INCLINOMETER CONDUITS SHALL BE PROVIDED IN BASE AT 90 DEGREES TO EACH OTHER.
- ONE OF TWO LOW LEVELS TO TRIP THE PUMPS.
- ONE INNER TANK DEFLECTION METER MEASURING VERTICAL AND HORIZONTAL DEFLECTION SHALL BE PROVIDED.
- TYPICAL PERLUITE FILL CONNECTION: ONE EVERY 6m OR LESS AROUND TANK CIRCUMFERENCE.
- ALL TEMPERATURE ELEMENTS FOR FOLLOWING SHALL BE DUAL ELEMENT TYPE: TE-0081 TO TE-0092.
- FOR INSTALLATION OF TRAVERSING DENSITY MONITORING INSTRUMENT.
- LI-0072/0073 TO BE LOCATED CLOSE TO PUMP PLATFORM TO BE EASILY ACCESSIBLE BY OPERATOR.
- FOR DIRECTIONAL VIDEO CAMERA WITH INTERNAL LIGHTING, TO VIEW INNER TANK DURING OPERATION, NOZZLE AT CENTER OF TANK DOME.
- NITROGEN PURGE HEADER TO BE FITTED WITH PERFORATED DISTRIBUTOR RING.
- PSV-0073 TAIL PIPE WILL BE PROVIDED WITH DRY POWDER CONNECTION FOR SNUFFING.
- DELETED.
- DELETED.
- PSV IN CRYOGENIC SERVICE-CHECK FOR INSULATION IN ACCORDING TO TYPICAL NO. 7 OF THE PID-1718-999-0030-0005.
- DIMENSIONS REFER TO THE INNER TANK.
- CONNECTED TO TGS.
- MULTI-ELEMENT AVERAGE TEMPERATURE.
- SKIN TEMPERATURE LEAK DETECTOR SYSTEM.
- FOR NUMBER, SIZE AND POSITION OF MANWAYS REFER TO VENDOR DRAWING NO.VP-1718-148-T-101-2-121.
- HEATER ON-OFF-TRIP WITH FOLLOWING LOGIC:
-ON: TT OF EACH ZONE REACH AT LOW TEMPERATURE.
-OFF: TT OF EACH ZONE REACH AT HIGH TEMPERATURE.
-TRIP: TT OF EACH ZONE REACH AT HIGH HIGH TEMPERATURE.
- BASE HEATING LOCAL CONTROL PANEL ARRANGEMENT WILL BE FINALIZED AFTER RECEIVING VENDOR INFORMATION.
- IN TANK VENDOR SCOPE OF SUPPLY.
- ALL TEMPERATURE ELEMENTS FOR FOLLOWING SHALL BE DUAL ELEMENT TYPE: TE-0074 TO TE-0079
TE-0083 TO TE-0089
TE-0100 TO TE-0101
- THE NUMBER OF LEAK DETECTIONS SHALL BE CONSIDERED 8. (IN TANK VENDOR SCOPE OF SUPPLY.)

GENERAL NOTES

ALL INSTRUMENT TAGS TO READ:
LETTERS NUMBER
1481 FFFF NNNN

EQUIPMENT LIST

TANK			
148-T-102			

FOR CONSTRUCTION

6	26.JUL.2016	APPROVED FOR CONSTRUCTION	IDRO	RT	RT	HRR	MD		
7	07.JAN.2015	APPROVED FOR CONSTRUCTION	IDRO	RT	GS	GS	MD		
6	08.JAN.2012	APPROVED FOR CONSTRUCTION	IDRO	SB	NS	MF	AKH		
5	07.DEC.2010	ISSUED FOR APPROVAL	IDRO	MK	NS	MF	AKH		
4	30.DEC.2008	ISSUED FOR APPROVAL	IDRO	NB	AD	MF	AKH		
3	15.DEC.2008	ISSUED FOR COMMENT	IDRO	NB	NZ	MF	AKH		
2	01/02/08	APPROVED FOR DESIGN	WP	RI	AF	RPW	MS		
1	28/10/07	ISSUED FOR NAZOP	WP	RI	AB	RPW	MS		
0	08/06/07	ISSUED FOR COMPANY APPROVAL	WP	RI	AF	RPW	MS		
REV.	DATE	DESCRIPTION	ORIG.	PREP.	CHKD.	APPD.	AUTH.		

SOUTH PARS GAS FIELD DEVELOPMENT-
PHASES 17 & 18, ASSALUYEH-IRAN
ONSHORE FACILITIES

PARS OIL AND GAS COMPANY

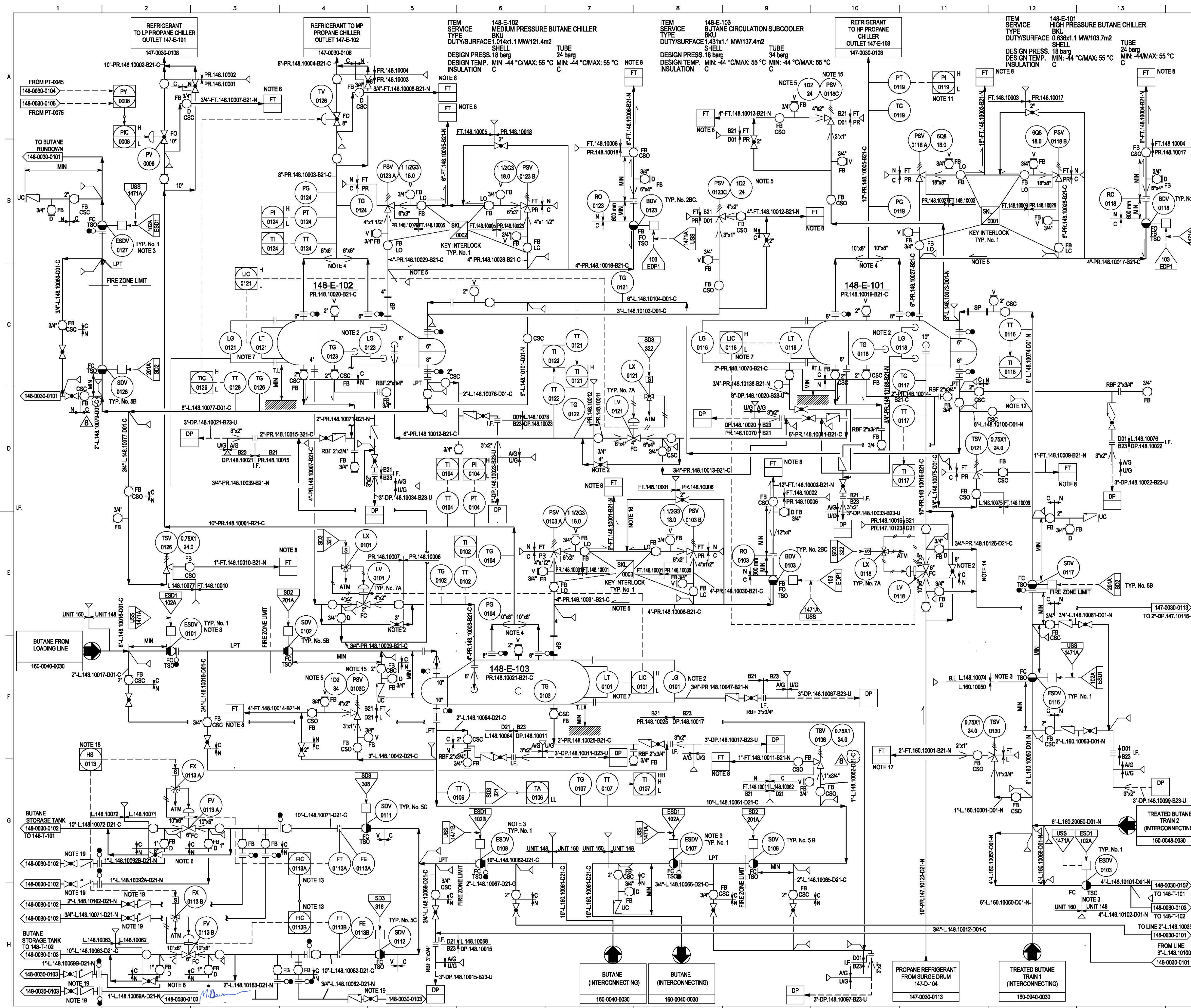
PROJECT No.: POGC-84-801-244 DOC. CLASS: 1 SCALE: N/A

WorleyParsons IDRO OIEC

TITLE: UNIT 148: BUTANE STORAGE AND EXPORT
BUTANE STORAGE TANK INSTRUMENTATION
PIPING AND INSTRUMENT DIAGRAM

DWG No. PID-1718-148-0030-0105 SHEET No. 1 OF 1 REV. 8

SIZE: A1



- ### NOTES
- FOR NORMAL OPERATION MAINTAIN A 50% SPLIT FOR THE FLOW.
 - LG TO BE READABLE FROM GLOBE VALVE LOCATED ON BY-PASS OF FEED CONTROL VALVE.
 - DISTANCE BETWEEN ESDV AND HAZARDOUS EQUIPMENT IN THE FIRE ZONE SHOULD CONFORM TO THE RESULTS OF THE CONSEQUENCE ANALYSIS (REF. DOC. NC-1718-999-1900-0001). IF NOT PRACTICABLE, THE MINIMUM DISTANCE SHALL BE 15 M FROM UNIT EDGE AND THE ESDV AND ASSOCIATED PIPING SHALL BE PROTECTED.
 - SYMMETRICAL PIPING.
 - FOR LIMIT OF INSULATION FOR PSV, REFER TO TYPICAL NO. 7 ON PID-1718-999-0030-0005.
 - CONTROL VALVES TO BE LOCATED IN TANK AREA FIRE ZONE.
 - LEVEL GAUGE DRAINS TO DP (COLD DRAIN) AS PER TYP. NO. PID-1718-999-0030-0008. FOR THE DRAIN LINES REFER TO DRAINS DISTRIBUTION PID-1718-191-0040-0005.
 - CONNECTED EITHER TO PHASE 17 OR 18.
 - IN EVENT OF PROLONGED SHUT DOWN, LINES TO BE DRAINED TO CLOSED DRAIN SYSTEM.
 - EXPORT LINE EPCC CONTRACTOR TO PROVIDE DRAWING NUMBER.
 - LOSS OF BUTANE FLOW TO EXCHANGERS WILL RESULT IN A REDUCTION IN PROPANE VAPOUR GENERATION, AND HENCE LOW PRESSURE.
 - BYPASS TO BE USED FOR INITIAL PURGE OF FUEL GAS BY WARM BUTANE GAS.
 - NORMALLY SET AT 50% FLOW TO EACH TANK. OPERATOR CAN RESET RATIO IN DCS. (IF REQUIRED WHEN LOADING).
 - REFER TO PID-1718-999-0030-0012.
 - SPARE RELIEF VALVE STORED IN WARE HOUSE.
 - SLUG FLOW REGIME MAY BE OCCUR, THESE PIPES REQUIRE VIBRATION AND LINE SUPPORT STUDIES.
 - LINES TO BE CONNECTED TO MAIN FT HEADER IN PID-1718-160-0040-0004.
 - HS-0113 WILL SELECT FV-0113A OR FV-0133B OR BOTH OF THEM.
 - MIN DISTANCE BETWEEN BLOCK VALVE AND GLOBE VALVE SHALL BE 600 mm.

GENERAL NOTES

ALL INSTRUMENT TAGS TO READ:
LETTERS NUMBER
1481 FFFF NNNN

EQUIPMENT LIST

EXCHANGERS			
148-E-101			
148-E-102			
148-E-103			

UTILITY PID NUMBER

FT	PID-1718-191-0040-0004 (SHEET 1 OF 2)
FT	PID-1718-160-0040-0034 (NOTE 17)
DP	PID-1718-191-0040-0005

FOR CONSTRUCTION

		IDRO	RT	GS	GS	MD
7	07.JAN.2015	APPROVED FOR CONSTRUCTION	IDRO	SB	NS	MF AKH
6	08.JAN.2012	APPROVED FOR CONSTRUCTION	IDRO	SB	NS	MF AKH
5	07.DEC.2010	ISSUED FOR APPROVAL	IDRO	MK	NS	MF AKH
4	30.DEC.2009	ISSUED FOR APPROVAL	IDRO	NB	AD	MF AKH
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2	01/02/08	APPROVED FOR DESIGN	WP	RU	AF	RPW MS
1	28/10/07	ISSUED FOR HAZOP	WP	RU	AB	RPW MS
0	07/09/07	ISSUED FOR COMPANY APPROVAL	WP	RU	AF	RPW MS

REV. DATE DESCRIPTION ORIG. PREP. CHKD. APPD. AUTH.

SOUTH PARS GAS FIELD DEVELOPMENT- PHASES 17 & 18, ASSALUYEH-IRAN ONSHORE FACILITIES

PROJECT No.: POGC-84-801-244 DOC. CLASS: 1 SCALE: N/A

WorleyParsons IDRO OIEC

TITLE: UNIT 148: BUTANE STORAGE AND EXPORT BUTANE CHILLERS PIPING AND INSTRUMENT DIAGRAM

DWG No: PID-1718-148-0030-0106 SHEET No. 1 OF 1 REV. 7

SIZE: A1