

DATE	BY	CHK	APP.	FE	REV.
06/09/09	J. CHU				5
09/11/17	L. TURNO				4
09/11/17	N. STRECHENKO				3
09/11/17	L. TURNO				2
09/11/17	P. FE.				1
09/11/17	P. SIBULOV				0

NO.	DESCRIPTION	REV.
1	ISSUED FOR CONSTRUCTION	
2	RE-DESIGNED FOR CONSTRUCTION	
3	AS-BUILT - GENERAL REVISIONS (LURBAT - UAC-793)	
4	ISSUED FOR CONSTRUCTION (CLIENT METER REPLACEMENT - HOS #141)	
5	AS-BUILT PER CLIENT MARK-UPS (HOS #148)	

DATE	BY	CHK	APP.	FE	REV.
06/09/09	J. CHU				5
09/11/17	L. TURNO				4
09/11/17	N. STRECHENKO				3
09/11/17	L. TURNO				2
09/11/17	P. FE.				1
09/11/17	P. SIBULOV				0

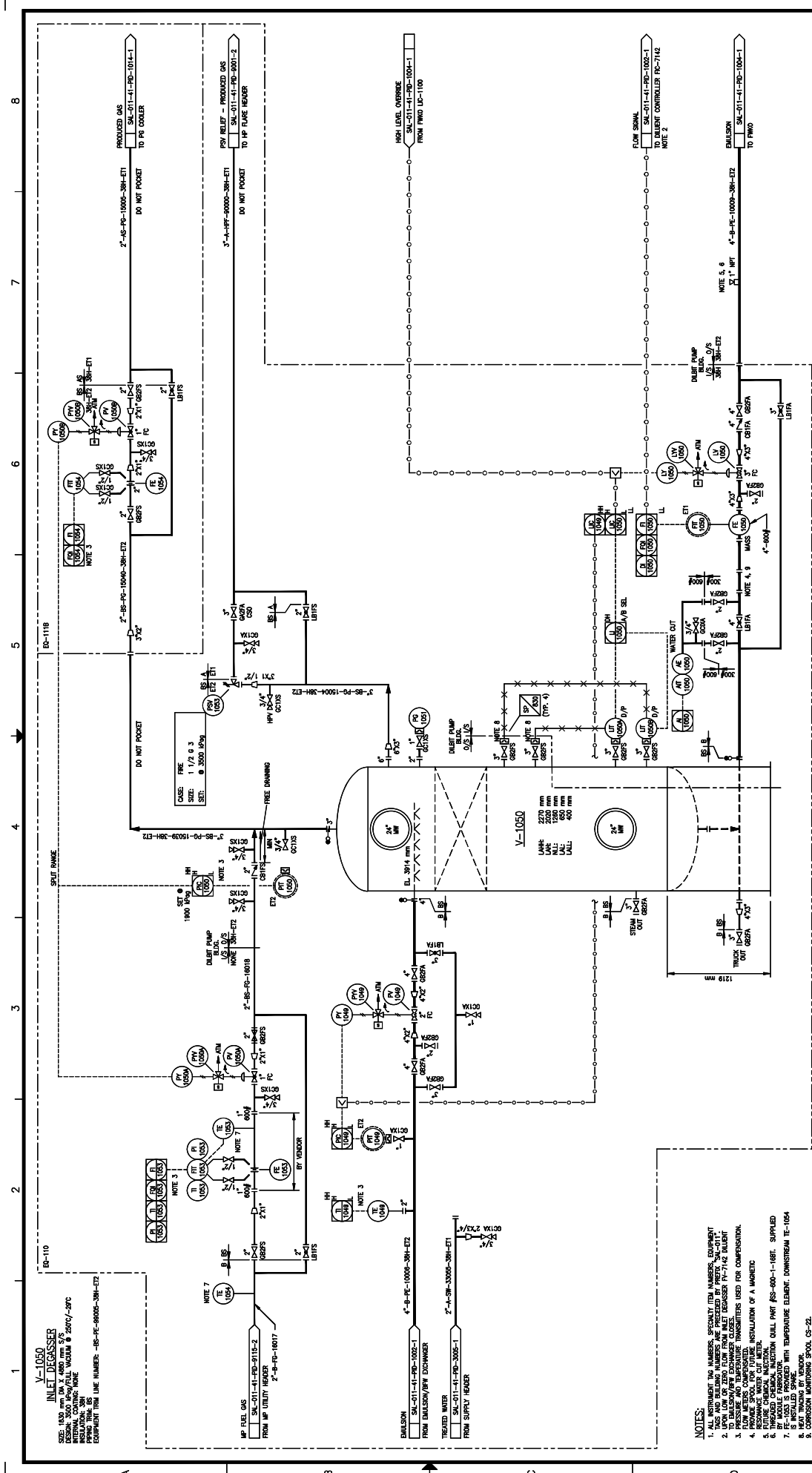
NO.	DESCRIPTION	REV.
1	ISSUED FOR CONSTRUCTION	
2	RE-DESIGNED FOR CONSTRUCTION	
3	AS-BUILT - GENERAL REVISIONS (LURBAT - UAC-793)	
4	ISSUED FOR CONSTRUCTION (CLIENT METER REPLACEMENT - HOS #141)	
5	AS-BUILT PER CLIENT MARK-UPS (HOS #148)	



**HOCS PROJECTS #1461**

**SALESKI SC SAGD PILOT PROJECT**  
**EMULSION / PW EXCHANGERS**  
**PIPING AND INSTRUMENTATION DIAGRAM**

DRAWING NO. SAL-011-41-PD-1002-1  
 SCALE: N.T.S.  
 JOB NO. 1461  
 DATE: 09/11/17  
 DESIGNED BY: L. TURNO  
 CHECKED BY: N. STRECHENKO  
 APPROVED BY: L. TURNO  
 DATE: 09/11/17



**V-1050**  
**INLET DEGASSER**  
 SIZE: 1800 mm DIA x 1800 mm HT  
 MATERIAL: CARBON STEEL  
 INTERNAL COATING: NONE  
 EQUIPMENT TAG LINE NUMBER: -IS-PC-9000S-38H-ETZ

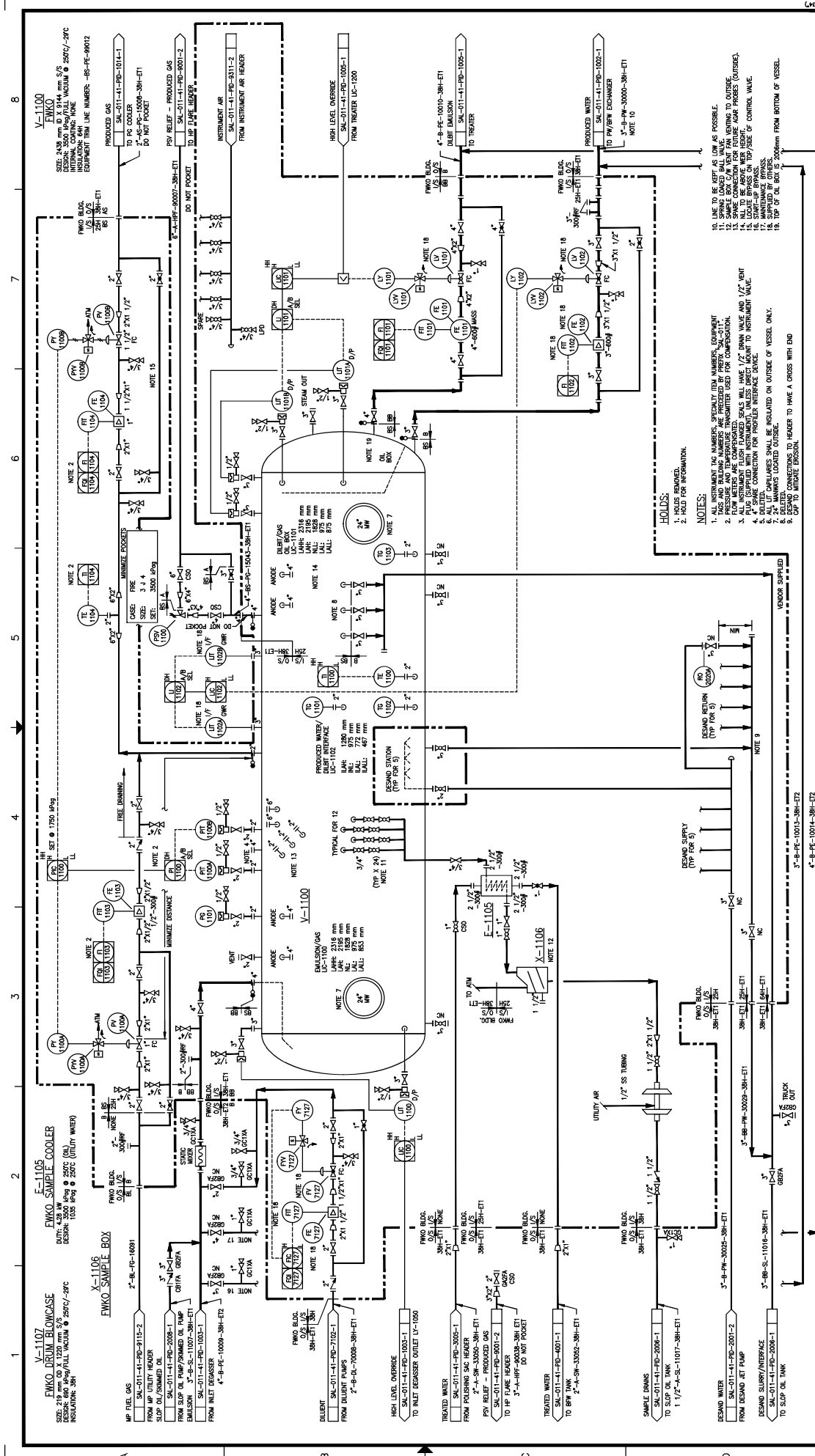
- NOTES:**
1. TAG NUMBERS, SPECIALTY ITEM NUMBERS, EQUIPMENT TAGS AND BUILDING NUMBERS ARE PRECEDED BY PREFIX "SA-011."
  2. TO BALLPUMP/RYR DRAINER CLASS.
  3. PRESSURE AND TEMPERATURE TRANSMITTERS USED FOR COMPENSATION.
  4. PROVIDE SPOOL FOR FUTURE INSTALLATION OF A MAGNETIC FLOW TRANSDUCER.
  5. FUTURE CHEMICAL ANALYSIS POINT.
  6. PROVIDE CORROSION MONITORING SPOOL.
  7. FE-1053 IS PROVIDED WITH TEMPERATURE ELEMENT, DOWNSTREAM FE-1054 IS PROVIDED WITH TEMPERATURE ELEMENT, DOWNSTREAM FE-1054.
  8. HEAT TRACING BY VENDOR.
  9. CORROSION MONITORING SPOOL, CS-2Z.

<b>HCS PROJECTS #1461</b>		<b>HCS PROJECTS #1461</b>		<b>HCS PROJECTS #1461</b>	
DATE	06/07/01	DATE	09/12/01	DATE	09/12/01
DESIGNED BY	J. CHN	DESIGNED BY	L. TURNO	DESIGNED BY	L. TURNO
CHECKED BY	M. MC	CHECKED BY	M. MC	CHECKED BY	M. MC
APPROVED BY	L. TURNO	APPROVED BY	L. TURNO	APPROVED BY	L. TURNO
DATE	09/12/01	DATE	09/12/01	DATE	09/12/01
SCALE	N.T.S.	SCALE	N.T.S.	SCALE	N.T.S.
JOB NO.	1461	JOB NO.	1461	JOB NO.	1461
DRAWING NO.	SA-011-41-PD-1003-1	DRAWING NO.	SA-011-41-PD-1003-1	DRAWING NO.	SA-011-41-PD-1003-1
REV.	5	REV.	5	REV.	5

**LARICINA**  
**HCS PROJECTS**

SW SECTION 26-85-19 WAM  
 SALESKI SC SAGD PILOT PROJECT  
 INLET DEGASSER  
 PIPING AND INSTRUMENTATION DIAGRAM

REV.	DESCRIPTION	DATE	BY	CHK	APP.	FE	MC	LT	MT
5	AS-BUILT PER CLIENT MARK-UP (NOS #48)	12/09/04	MC	MC	MC	MC	MC	MC	MC
4	GENERAL REVISIONS (AS-BUILT-1461-203)	12/09/04	MC	MC	MC	MC	MC	MC	MC
3	AS-BUILT - GENERAL REVISIONS (AS-BUILT-1461-203)	12/09/04	MC	MC	MC	MC	MC	MC	MC
2	AS-BUILT (NEW ZONED)	11/20/04	MC	MC	MC	MC	MC	MC	MC
1	ISSUED FOR CONSTRUCTION	10/04/04	MC	MC	MC	MC	MC	MC	MC
0	ISSUED FOR CONSTRUCTION	09/22/01	MC	MC	MC	MC	MC	MC	MC



**V-1100**  
FWKO  
DESIGN: 3000 PSIG @ 250°C (ALL VESSELS)  
INSULATION: 38H

**E-1105**  
FWKO SAMPLE COOLER  
DESIGN: 3000 PSIG @ 250°C (OIL)  
INSULATION: 38H

**X-1106**  
FWKO SAMPLE BOX

**REV.**

REV.	DATE	BY	CHK	APP.	DESCRIPTION
5	09/12/21	MC	FE	MC	ISSUED FOR CONSTRUCTION
4	09/12/21	MC	FE	MC	ISSUED FOR CONSTRUCTION
3	09/12/21	MC	FE	MC	ISSUED FOR CONSTRUCTION
2	09/12/21	MC	FE	MC	ISSUED FOR CONSTRUCTION
1	09/12/21	MC	FE	MC	ISSUED FOR CONSTRUCTION

**DATE**

DATE	DESIGNED	CHECKED	APPROVED
09/12/21	BT	BB	MC
09/12/21	BT	BB	MC
09/12/21	BT	BB	MC

**SCALE**

N.T.S.

**DRAWING NO.**

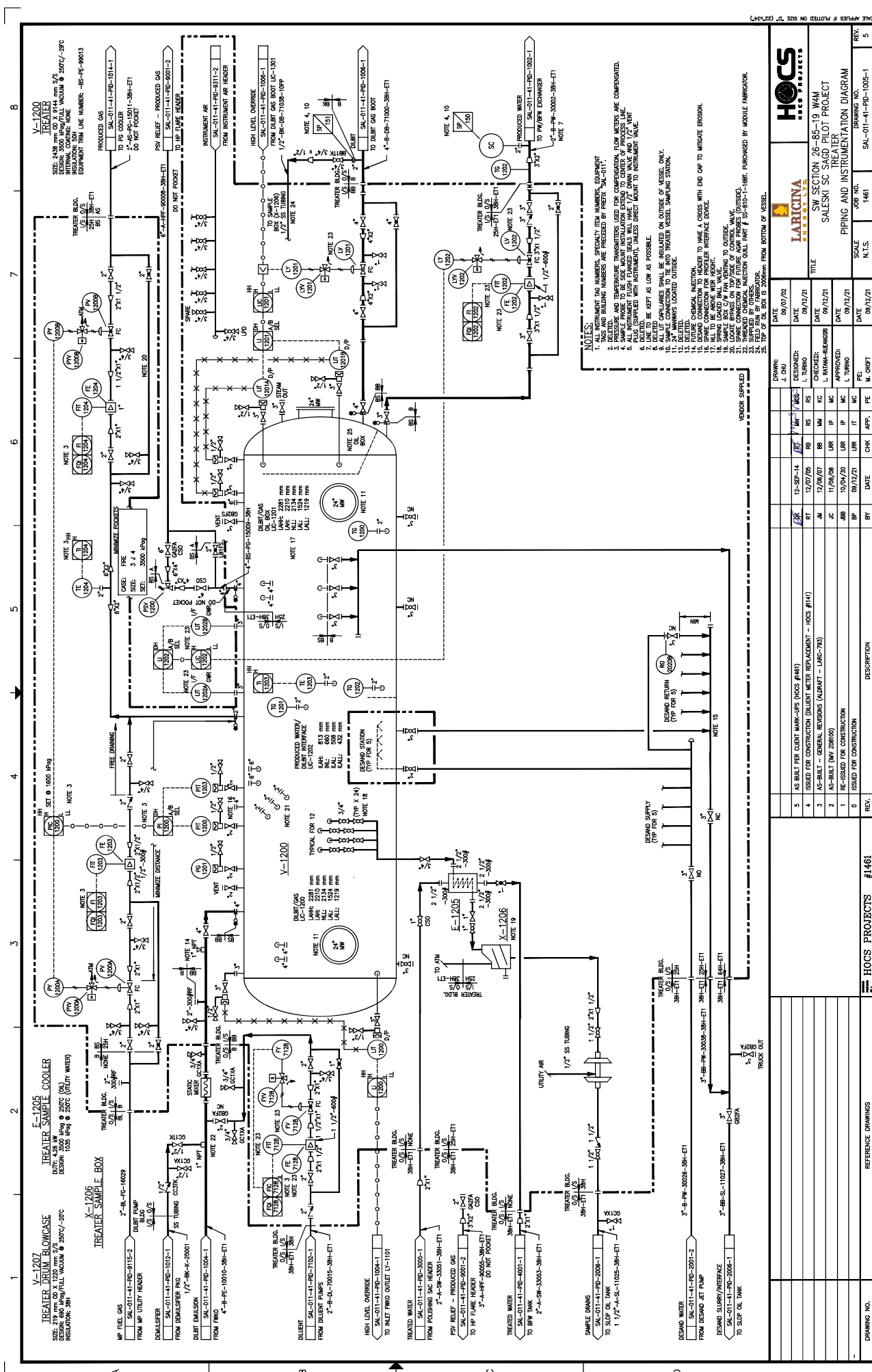
SAL-011-41-PID-1004-1

**HOCS PROJECTS #1461**

**HOCS PROJECTS**

**SW SECTION 26-85-19 WAM**  
**SALESKI SC SAGO PILOT PROJECT**  
**FREE WATER KNOCK OUT**  
**PIPING AND INSTRUMENTATION DIAGRAM**

**HOCS PROJECTS**



- NOTES:**
1. ALL INSTRUMENT TAG NUMBERS, SPECIALLY ITEM NUMBERS, EQUIPMENT TAG NUMBERS AND BUILDING NUMBERS ARE PRECEDED BY PREFIX "SA-011".
  2. PRESSURE AND TEMPERATURE TRANSMITTERS USED FOR COMPENSATION, FLOW METERS ARE COMPENSATED.
  3. ALL INSTRUMENTS SHALL BE INSULATED ON OUTSIDE OF VESSEL ONLY.
  4. ALL INSTRUMENT FLUSH FLANGED SEALS SHALL HAVE 1/2" DRAIN WALK AND 1/2" VENT.
  5. ALL INSTRUMENTS SHALL BE SUPPLIED WITH INSTRUMENT, UNLESS DIRECT MOUNT TO INSTRUMENT VALUE.
  6. DELTA T TO BE KEPT AS LOW AS POSSIBLE.
  7. LINE TO BE KEPT AS LOW AS POSSIBLE.
  8. ALL UT CARTRIDGES SHALL BE INSULATED ON OUTSIDE OF VESSEL ONLY.
  9. ALL UT CARTRIDGES SHALL BE INSULATED ON OUTSIDE OF VESSEL ONLY.
  10. ALL UT CARTRIDGES SHALL BE INSULATED ON OUTSIDE OF VESSEL ONLY.
  11. 24" WALKWAY LOADED OUTSIDE.
  12. DELETED.
  13. FUTURE CHEMICAL INJECTION POINTS TO HAVE A CROSS WITH END CAP TO INDICATE CROSS.
  14. SPARE CONNECTION FOR PROPLER INTERFACE SIGNAL.
  15. SPARE CONNECTION FOR PROPLER INTERFACE SIGNAL.
  16. SPARE CONNECTION FOR PROPLER INTERFACE SIGNAL.
  17. SPARE CONNECTION FOR PROPLER INTERFACE SIGNAL.
  18. SPARE CONNECTION FOR PROPLER INTERFACE SIGNAL.
  19. SPARE CONNECTION FOR PROPLER INTERFACE SIGNAL.
  20. SPARE CONNECTION FOR PROPLER INTERFACE SIGNAL.
  21. SPARE CONNECTION FOR PROPLER INTERFACE SIGNAL.
  22. SUPPLIED BY OTHER.
  23. FIELD PAINT BY FABRICATOR.
  24. 10% OF ALL INSTRUMENTS TO BE SUPPLIED FROM BOTTOM OF VESSEL.

**HOCS PROJECTS #1461**

SW SECTION 26-85-19 WAM  
SALESKI SC SAGO PILOT PROJECT  
TREATER  
PIPING AND INSTRUMENTATION DIAGRAM

DRAWING NO. 1461  
JOB NO. 1461  
SCALE N.T.S.  
DATE 09/12/21  
REV. 5

REV.	DESCRIPTION	DATE	CHK	APP.	FE	MC	PE	BY	DATE
0	ISSUED FOR CONSTRUCTION	08/27/21	BP	IT	MC	PE			
1	RE-ISSUED FOR CONSTRUCTION	09/12/21	BP	IT	MC	PE			
2	AS-BUILT (REV 20/00)	11/09/20	JB	IP	MC	PE			
3	AS-BUILT - GENERAL REVISIONS (AS-BUILT - UAC-793)	12/09/20	DM	IP	MC	PE			
4	ISSUED FOR CONSTRUCTION (CLIENT METER REPLACEMENT - HOCS #141)	07	BT	BB	RS	RS			
5	AS BUILT PER CLIENT MARK-UPS (HOCS #148)	12-SEP-14	BT	BT	RS	RS			

DESIGNED: J. CHU  
CHECKED: L. TURNO  
DRAWN: J. CHU  
DATE: 06/07/02





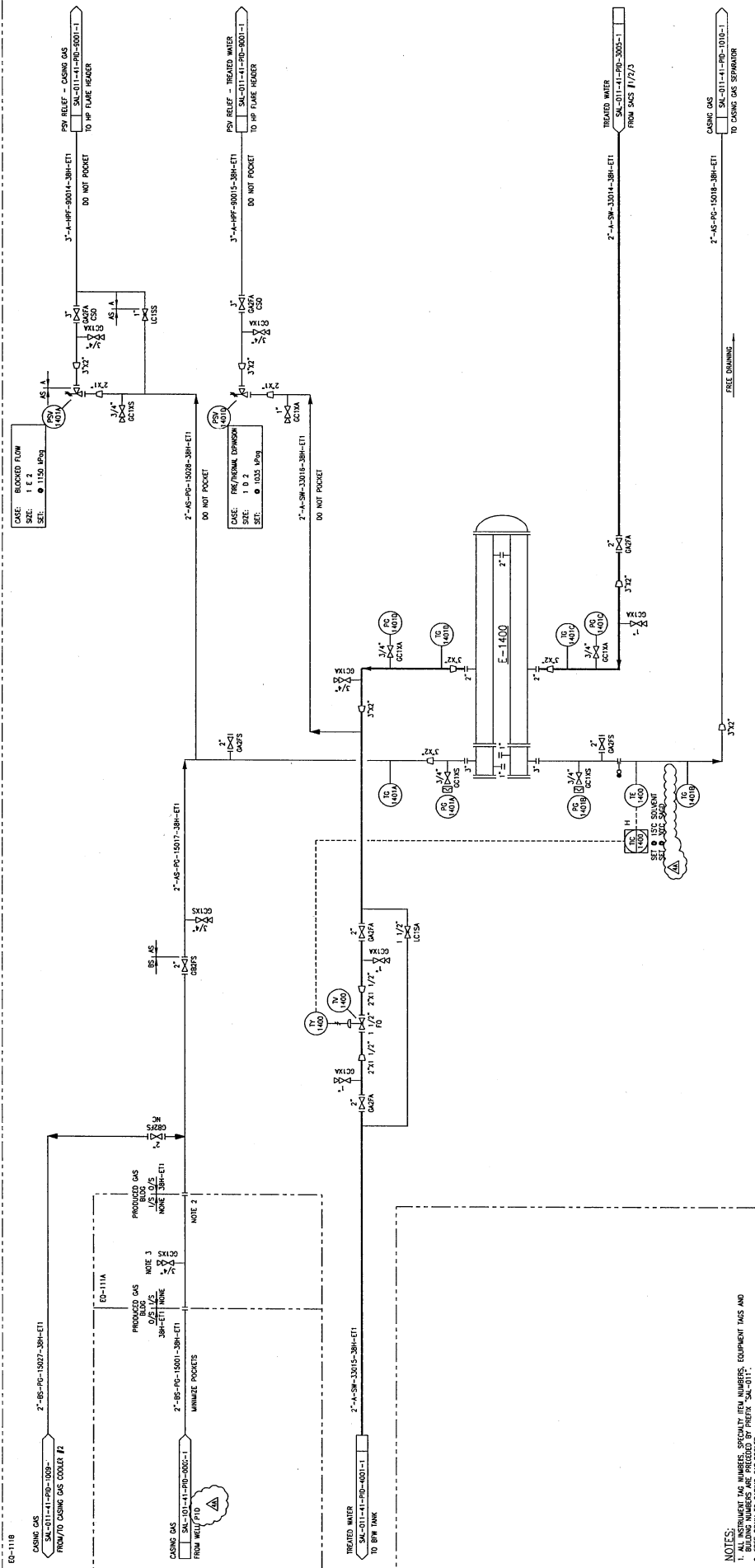




8  
7  
6  
5  
4  
3  
2  
1

### E-1400 CASING GAS COOLER #1

UNIT: 371.8 MW  
TYPE: CASING GAS COOLER  
SIZE: DIA/FINISH LEAD: 154 mm x 5791 mm (DIA = BEM - HARPIN)  
RATED DESIGN: 1500 PSIG/FULL VACUUM @ 7500/7500 PSIG  
INSULATION: 38H-ETI  
COMPONENT TAG NUMBER: IS-AS-PC-10000-38H-ETI; SS-A-SW-10001-38H-ETI



- NOTES:
1. ALL INSTRUMENT TAG NUMBERS, SPECIALLY ITEM NUMBERS, EQUIPMENT TAGS AND PIPING TAGS SHALL BE IDENTICAL TO THE TAGS SHOWN ON THE INSTRUMENT TAG SHEET.
  2. FREE DRAIN TO CASING GAS COOLER.
  3. CONNECTION FOR GAS CHROMATOGRAPH.

DRAWING NO. 1223				HOCS Projects #1223				REFERENCE DRAWINGS							
DATE	09/07/03	DRAWN	J. CHU	DATE	09/07/03	DESIGNED	J. CHU	DATE	09/07/03	CHECKED	J. CHU	DATE	09/07/03	APPROVED	J. CHU
DATE	09/12/21	DESIGNED	L. TURNO	DATE	09/12/21	CHECKED	L. TURNO	DATE	09/12/21	APPROVED	L. TURNO	DATE	09/12/21	SCALE	N.T.S.
DATE	09/12/21	CHECKED	L. TURNO	DATE	09/12/21	APPROVED	L. TURNO	DATE	09/12/21	SCALE	N.T.S.	JOB NO.	1223	DRAWING NO.	1223
DATE	09/12/21	APPROVED	L. TURNO	DATE	09/12/21	SCALE	N.T.S.	JOB NO.	1223	DRAWING NO.	1223	SCALE	N.T.S.	JOB NO.	1223
DATE	09/12/21	SCALE	N.T.S.	JOB NO.	1223	DRAWING NO.	1223	SCALE	N.T.S.	JOB NO.	1223	DRAWING NO.	1223	SCALE	N.T.S.
DATE	09/12/21	SCALE	N.T.S.	JOB NO.	1223	DRAWING NO.	1223	SCALE	N.T.S.	JOB NO.	1223	DRAWING NO.	1223	SCALE	N.T.S.

**HOCS PROJECTS**

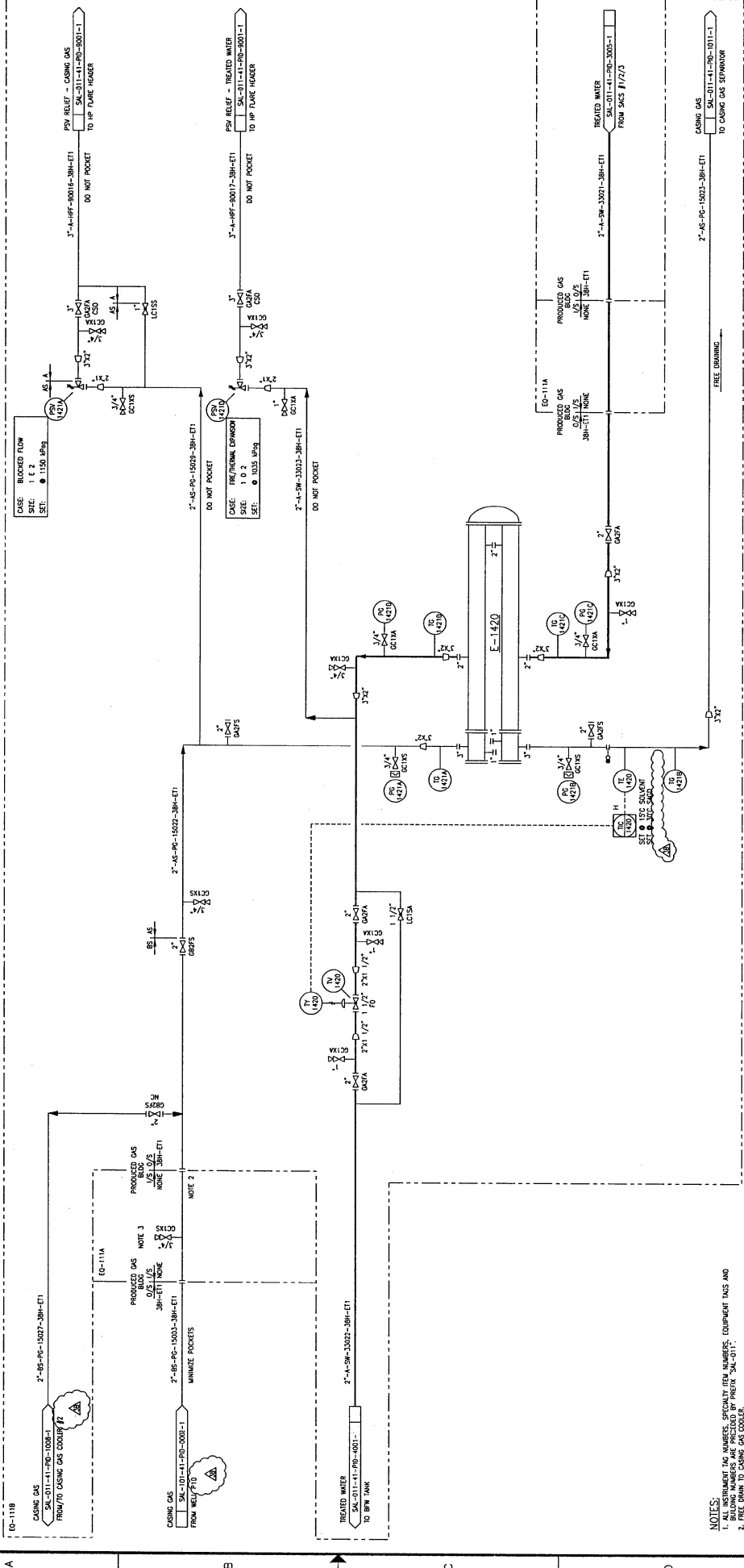
**LARICINA**  
ENGINEERS

SW SECTION 26-85-19 WAM  
SALESKI SC SAGD PILOT PROJECT  
CASING GAS COOLER #1  
PIPING AND INSTRUMENTATION DIAGRAM

REV.	DESCRIPTION	BY	DATE	CHK	APP.	FE	DATE	DATE
1	ISSUED FOR CONSTRUCTION	RP	10/04/00	LR	IT	MC	09/12/21	09/12/21
2	AS-BUILT (REV 2005)	AC	11/09/03	DR	IP	MC	09/12/21	09/12/21
3	AS-BUILT - GENERAL RESPONSE (AS-BUILT LARG-79)	JM	12/06/07	BB	MC	MC	09/12/21	09/12/21
4	ISSUED FOR CONSTRUCTION - EAS SAGDS SEAM URGE (MCS / 120)	MT	12/07/13	RM	MC	MC	09/12/21	09/12/21
5	ISSUED FOR CONSTRUCTION - EAS SAGDS SEAM URGE (MCS / 120)	MT	12/07/13	RM	MC	MC	09/12/21	09/12/21
6	ISSUED FOR CONSTRUCTION - EAS SAGDS SEAM URGE (MCS / 120)	MT	12/07/13	RM	MC	MC	09/12/21	09/12/21

### E=1420 CASING GAS COOLER #2

DUTY: 371.8 MW  
 SIZE: 1 E 2  
 SET: 1150 LP93  
 SIZE: 154 mm x 5791 mm (6" x 228")  
 WEIGHT: 1500 kg  
 INSULATION: 38H-E1  
 EQUIPMENT TAG NUMBER: 26-65-PC-15022-38H-E1; 65-A-SW-15023-38H-E1



**NOTES:**  
 1. ALL INSTRUMENT TAG NUMBERS, SPECIALTY ITEM NUMBERS, EQUIPMENT TAGS AND  
 2. FREE DRAIN TO CASING GAS COOLER.  
 3. CONNECTION FOR GAS CIRCUMFERENCE.

NO.	REVISION	DESCRIPTION	BY	DATE	CHK	APP.	FE	MC	IT	UR	UR	UR	UR	UR	UR	UR	UR	UR
38	ISSUED FOR INSTRUMENTATION - REVISED CHANGES APPLIED FOR HOCS PROJECT #123 (ON HOLD)		JM	08/07/03														
37	ISSUED FOR REVIEW - LINE SIZE MODIFIED (R02E #123)		JM	08/07/03														
36	AS BUILT - GENERAL RESPONSE (ADAPT LARG-75)		JM	12/26/07														
35	AS BUILT (REV 2008)		JM	11/26/13														
34	RE-ISSUED FOR CONSTRUCTION		JP	09/17/12														
33	ISSUED FOR CONSTRUCTION		JP	09/17/12														

**HOCS Projects #1223**

DATE: 08/07/03  
 DESIGNED: J. CHU  
 DRAWN: J. CHU  
 CHECKED: M. RYAN  
 APPROVED: M. RYAN  
 DATE: 08/07/03  
 DATE: 08/07/03  
 DATE: 08/07/03  
 DATE: 08/07/03  
 DATE: 08/07/03

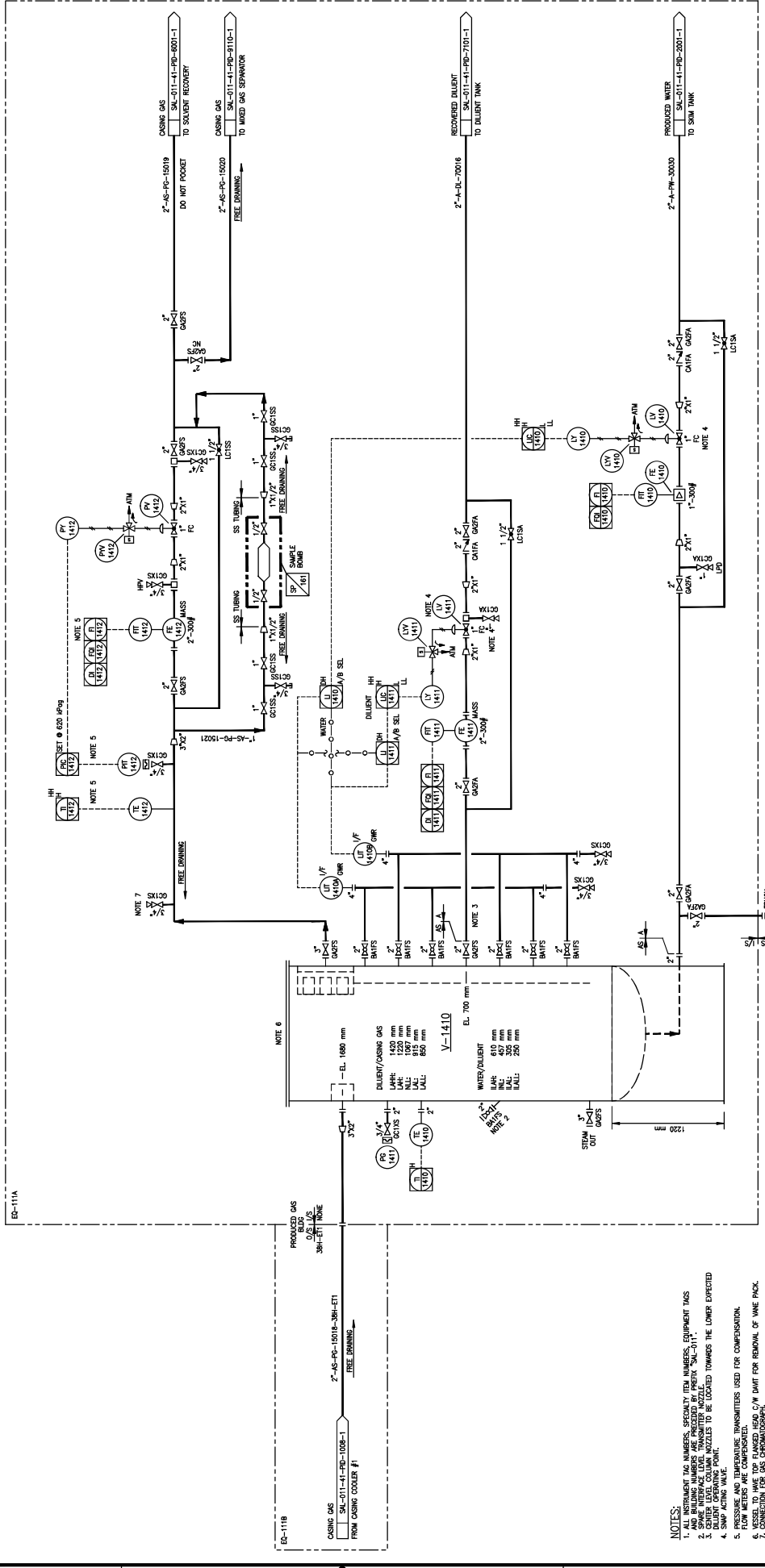
SCALE: N.T.S.

**HOCS PROJECTS**

SW SECTION 26-65-19 WAM  
 SALESKI SC SAGD PILOT PROJECT  
 CASING GAS COOLER #2  
 PIPING AND INSTRUMENTATION DIAGRAM  
 JOB NO. 1223  
 DRAWING NO. SAL-011-41-PID-1009-1  
 REV. 38



**V-1410**  
**CASING GAS SEPARATOR #1**  
 SIZE: 493 mm DIA X 7,430 mm HIG / 19" DIA X 290' / 290"  
 INTERNAL CORNERS: NONE  
 EQUIPMENT TAG LINE NUMBER: -AS-PC-99018



- NOTES:**
1. INSTRUMENT TAG NUMBERS, SECURITY TAG NUMBERS, EQUIPMENT TAGS AND BILLING NUMBERS ARE PRECEDED BY PREFIX "SAI-011-".
  2. CENTER LEGAL COLUMN NOZZLES TO BE LOCATED TOWARDS THE LOWER EXPECTED FLOW DIRECTION.
  3. CENTER LEGAL COLUMN NOZZLES TO BE LOCATED TOWARDS THE LOWER EXPECTED FLOW DIRECTION.
  4. SUPPLY OPENING POINT.
  5. PRESSURE AND TEMPERATURE TRANSMITTERS USED FOR COMPENSATION. FLOW METERS ARE COMPENSATED.
  6. NOZZLES TO HAVE ONE FLANGED 1/2" DIA FOR REMOVAL OF WAKE PACK.
  7. DIRECTION FOR GAS COMPENSATION.

REV.	DESCRIPTION	DATE	BY	CHK	APP.	FE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE
5	AS-BUILT PER CLIENT MARK-UPS (NOCS #1481)	12/20/14	FB	AM	S	MS		12/20/14	12/20/14	09/12/21	09/12/21	09/12/21	09/12/21	09/12/21
4	AS-BUILT - GENERAL RESPONSE (AS-BUILT LARC-793)	12/20/14	BB	MM	KC			12/20/14	12/20/14	09/12/21	09/12/21	09/12/21	09/12/21	09/12/21
3	AS-BUILT - GENERAL RESPONSE (AS-BUILT LARC-793)	12/20/14	BB	MM	KC			12/20/14	12/20/14	09/12/21	09/12/21	09/12/21	09/12/21	09/12/21
2	AS-BUILT (REV 200400)	11/20/13	TC	DM	IP	MC		11/20/13	11/20/13	09/12/21	09/12/21	09/12/21	09/12/21	09/12/21
1	ISSUED FOR CONSTRUCTION	09/27/21	RP	LR	IP	MC		09/27/21	09/27/21	09/12/21	09/12/21	09/12/21	09/12/21	09/12/21
0	ISSUED FOR CONSTRUCTION	09/27/21	RP	LR	IP	MC		09/27/21	09/27/21	09/12/21	09/12/21	09/12/21	09/12/21	09/12/21

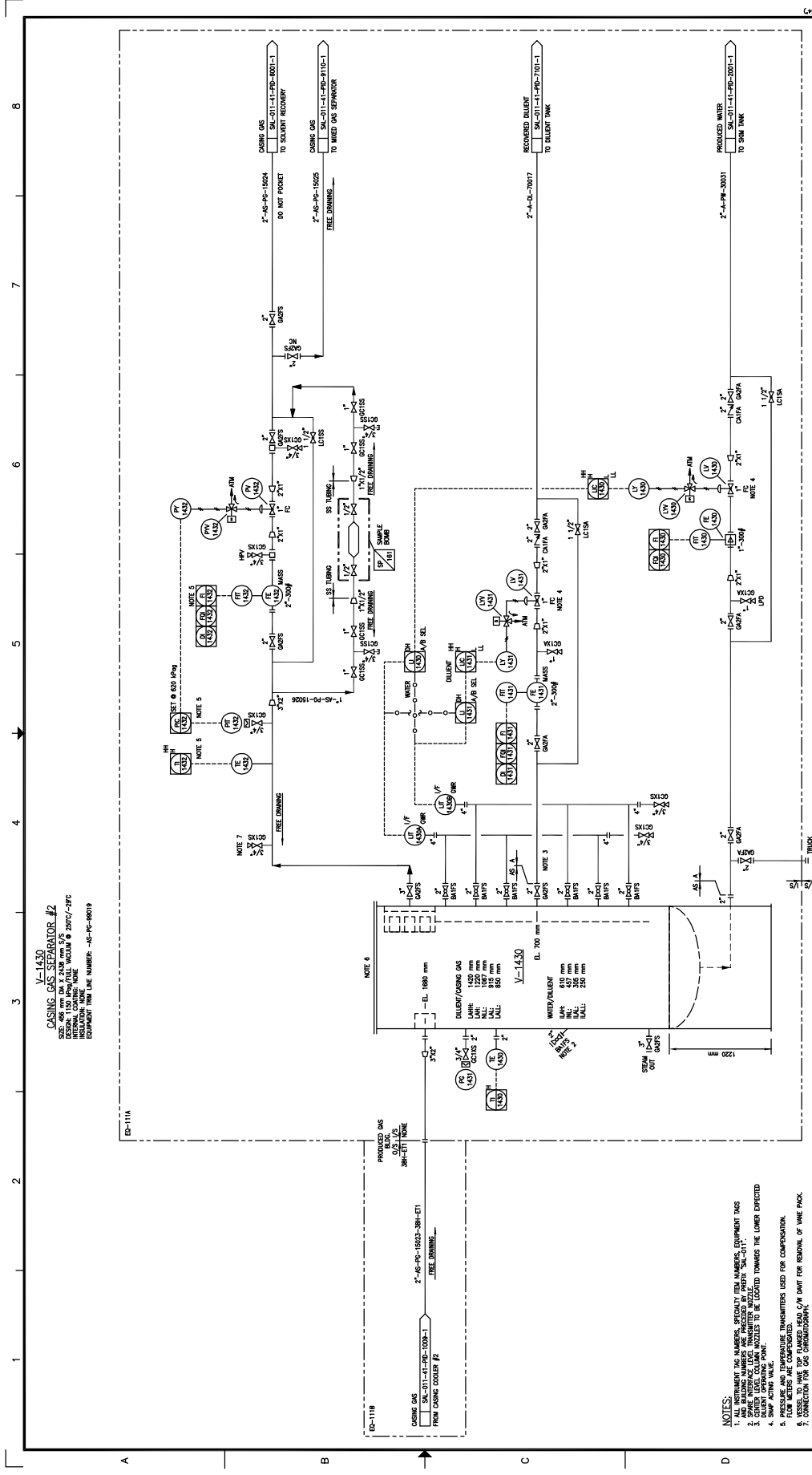
**LARICINA**  
**ENGINEERS**  
**SCALE** N.T.S.  
**JOB NO.** 1481  
**DRAWING NO.** SAI-011-41-PD-1010-1  
**REV.** 5

**SW SECTION 26-85-19 WAM**  
**SALESKI SC SAGD PILOT PROJECT**  
**CASING GAS SEPARATOR #1**  
**PIPING AND INSTRUMENTATION DIAGRAM**

DATE	DESIGNED:	DRAWN:	CHECKED:	APPROVED:
06/07/04	L. TURNO	A. CHU	L. TURNO	L. TURNO
09/12/21	L. TURNO	L. TURNO	L. TURNO	L. TURNO
09/12/21	L. TURNO	L. TURNO	L. TURNO	L. TURNO
09/12/21	L. TURNO	L. TURNO	L. TURNO	L. TURNO
09/12/21	L. TURNO	L. TURNO	L. TURNO	L. TURNO

REV.	DESCRIPTION
5	AS-BUILT PER CLIENT MARK-UPS (NOCS #1481)
4	AS-BUILT - GENERAL RESPONSE (AS-BUILT LARC-793)
3	AS-BUILT - GENERAL RESPONSE (AS-BUILT LARC-793)
2	AS-BUILT (REV 200400)
1	ISSUED FOR CONSTRUCTION
0	ISSUED FOR CONSTRUCTION

**HOCS PROJECTS #1461**  
**REFERENCE DRAWINGS**



V-1430  
**CASING GAS SEPARATOR #2**  
 DESIGN 1150 mm FULL WALL VESSEL @ 250% / 2FC  
 INSULATION 100 mm  
 EQUIPMENT TAG LINE NUMBER: -4S-PC-30019

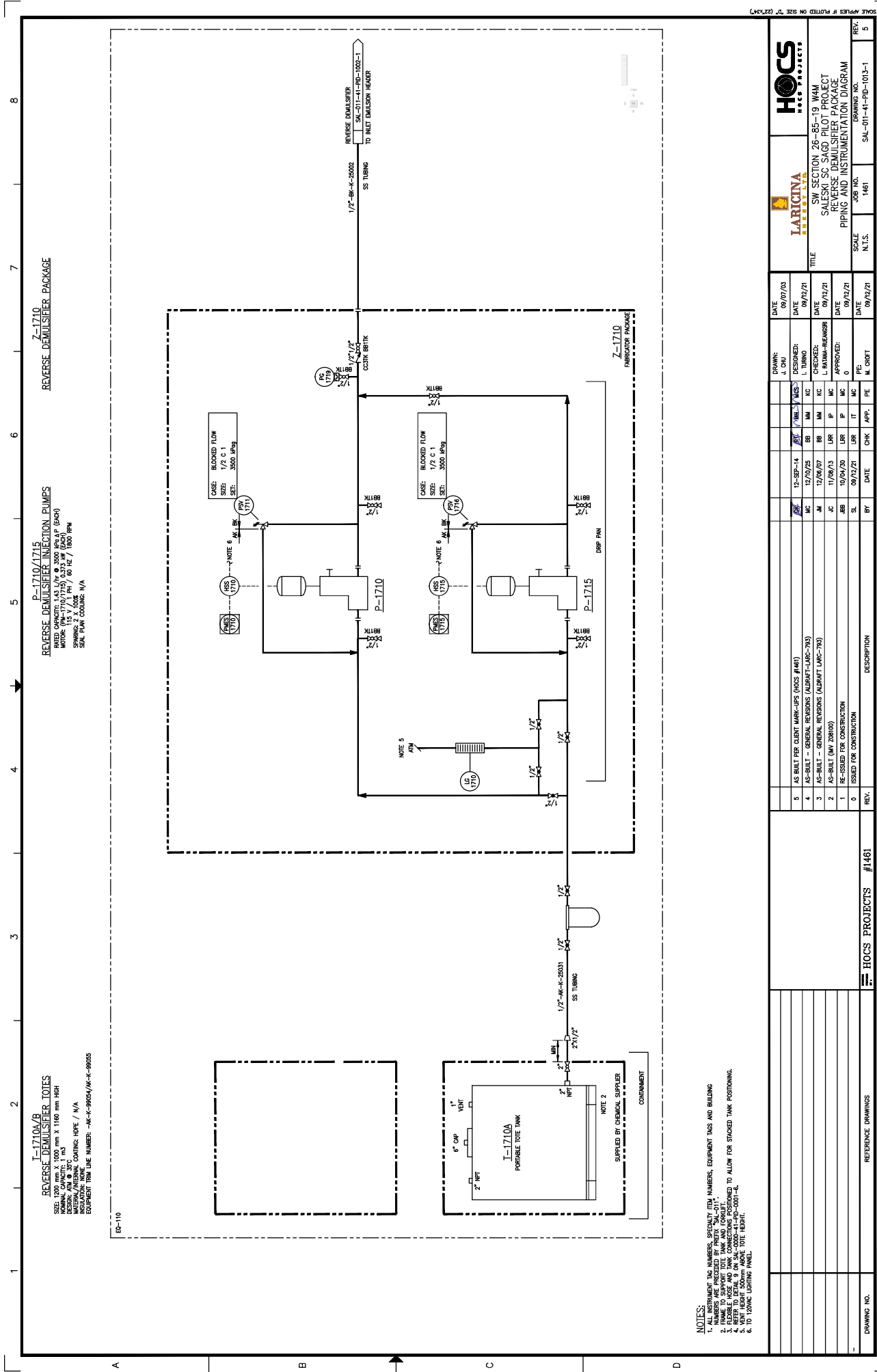
NOTE 6  
 WATER/VALVE  
 EL. 700  
 WATER/VALVE  
 DIA. 1200 mm  
 HGT. 650 mm  
 WALL 250 mm  
 INSULATION 100 mm

- NOTES:
1. ALL INSTRUMENT TAG NUMBERS, SPECIALLY ITEM NUMBERS, EQUIPMENT TAGS
  2. SWP INSTRUMENT TAGS ARE SUFFIXED BY PREFIX "SW-011"
  3. CENTER LINE COLUMN INZETTES TO BE LOCATED TOWARDS THE LOWER EXPECTED PRESSURE AND TEMPERATURE TRANSMITTERS USED FOR COMPENSATION.
  4. SWP ACTING VALVE.
  5. VESSEL TO HAVE TOP FLANGED HEAD C/W INWT FOR REMOVAL OF WARE PAZS.
  6. CONNECTION FOR GAS CHROMATOGRAPH.

REV.	DESCRIPTION	BY	DATE	CHK	APP.	PE	M. COST	DATE	DESIGNED	DRAWN	DATE
4	AS-BUILT - GENERAL REVISIONS (ALUMAT-LARC-703)	MM	12/02/25	BB	MM	KC		09/12/21	L. TURNO	R. PAVAN	09/04/19
3	AS BUILT - GENERAL REVISIONS (ALUMAT-LARC-703)	AC	11/08/23	LPR	BB	MM	KC	09/12/21	L. TURNO	R. PAVAN	09/04/19
2	AS BUILT (WV ZERKOO)	AC	11/08/23	LPR	BB	MM	KC	09/12/21	L. TURNO	R. PAVAN	09/04/19
1	ISSUED FOR CONSTRUCTION	BB	10/04/20	LPR	BB	MM	KC	09/12/21	L. TURNO	R. PAVAN	09/04/19
0	ISSUED FOR CONSTRUCTION	BB	09/12/21	LPR	BB	MM	KC	09/12/21	L. TURNO	R. PAVAN	09/04/19

**LARICINA**  
 SW SECTION 26-85-19 WAM  
 SALES/ SC SAGD PILOT PROJECT  
 PIPING AND INSTRUMENTATION DIAGRAM  
 SCALE N.T.S.  
 SUB NO. SAL-011-41-PP-101-1  
 DRAWING NO. 4





**P-1710A/B**  
**REVERSE DEMULSIFIER TOTES**

SIZE: 1200 mm X 1000 mm X 1100 mm HIGH  
 DESIGN: ATM @ 25°C  
 INSULATION: NONE  
 EQUIPMENT TRIM LINE NUMBER: -AK-K-9955/AK-K-9955

**P-1710/1715**  
**REVERSE DEMULSIFIER INJECTION PUMPS**

RAISED ORIENTED: 1.517 mm @ 3000 RPM (0.474)  
 DESIGN: ATM @ 25°C  
 INSULATION: NONE  
 SEAL PAINT COATING: N/A

- NOTES:**
1. INSTRUMENT TAG NUMBERS, SERIALITY (TR) NUMBERS, EQUIPMENT TAGS AND BUILDING NUMBERS ARE PRECEDED BY PREFIX 'SAL-2011'.
  2. FILLING, UNLOADING AND TANK CONNECTIONS POSITIONED TO ALLOW FOR STACKED TANK POSITIONING.
  3. FILLING, UNLOADING AND TANK CONNECTIONS POSITIONED TO ALLOW FOR STACKED TANK POSITIONING.
  4. REFER TO DETAIL 8 ON SAL-1000-41-PP-0001-B.
  5. TO 120VAC LIGHTING PANEL.
  6. TO 120VAC LIGHTING PANEL.

REV.	DESCRIPTION	DATE	CHK	APP.	BY	ISSUED FOR CONSTRUCTION	REVISIONS
5	AS BUILT PER CLIENT MARK-UPS (NOIS #148)	12-SEP-14	AK	AK	AK		
4	AS-BUILT - GENERAL RESPONSE (ASBRAFT-LARC-793)	12/07/20	BB	MM	MC		
3	AS-BUILT - GENERAL RESPONSE (ASBRAFT-LARC-793)	12/09/20	BB	MM	MC		
2	AS-BUILT (REV 20000)	11/06/21	BB	MM	MC		
1	RE-ISSUED FOR CONSTRUCTION	10/04/20	BB	MM	MC		
0	ISSUED FOR CONSTRUCTION	09/12/21	SL	IT	MC		

DATE	CHK	APP.	FE	MC	PE	IT	MC	FE
09/12/21								
09/12/21								
09/12/21								
09/12/21								
09/12/21								

DATE	DESIGNED	DATE	DATE
09/07/20	J. CHU	09/12/21	09/12/21
09/12/21	L. TURNO	09/12/21	09/12/21
09/12/21	L. BATINA-REMBERS	09/12/21	09/12/21
09/12/21	L. MC	09/12/21	09/12/21
09/12/21	L. MC	09/12/21	09/12/21
09/12/21	L. MC	09/12/21	09/12/21
09/12/21	L. MC	09/12/21	09/12/21
09/12/21	L. MC	09/12/21	09/12/21

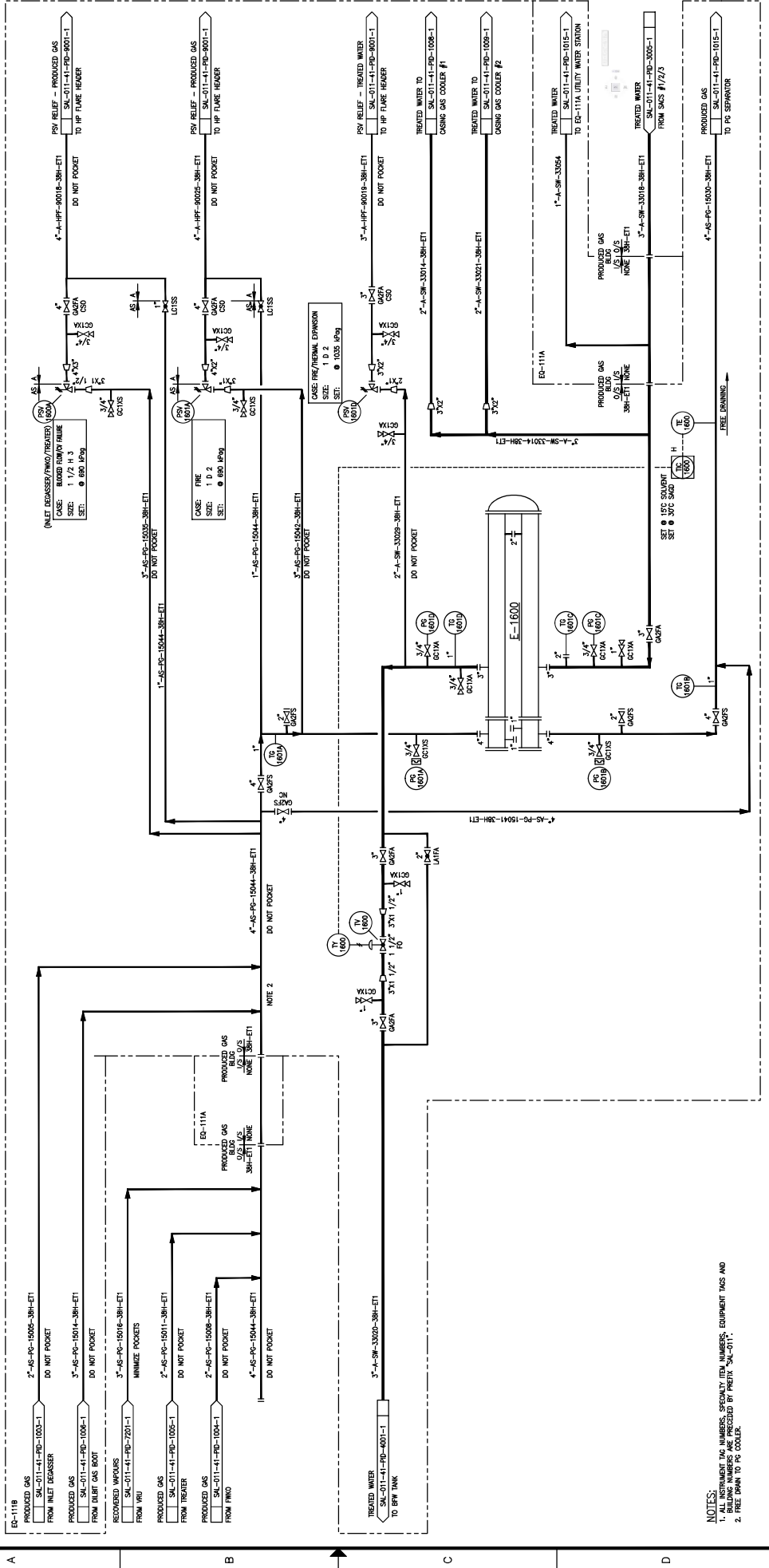
SCALE	JOB NO.	DRAWING NO.	REV.
N.T.S.	1461	SAL-011-41-PID-1013-1	5

SCALE APPLIES IF PLOTTED ON SIZE "C" (22x34)
--

**E-1600  
PRODUCED GAS COOLER**

OUTLET 12 IN. W. 203.7 mm  
 SIZE 203.7 mm x 203.7 mm (8" x 8")  
 SIZE 203.7 mm x 203.7 mm (8" x 8")  
 SIZE 203.7 mm x 203.7 mm (8" x 8")  
 SHELL DESIGN: 1400 PSIG/14.7 BAR @ 180/177 °F  
 EXPANSION: 200 LBS. IN. DIAM. NUMBER: TS, AS-PC-89204-38H-ETI SS, A-SW-90205-38H-ETI



**NOTES:**  
 1. ALL INSTRUMENT TAG NUMBERS, SPECIFIC ITEM NUMBERS, EQUIPMENT TAGS AND  
 2. FREE DRAIN TO P/S COOLER.

DATE	BY	DESCRIPTION	REV.
09/12/21	PE	ISSUED FOR CONSTRUCTION	0
09/12/21	IT	RE-DESIGNED FOR CONSTRUCTION	1
09/12/21	MC	AS-BUILT - GENERAL RESPONSE (AS-BUILT LARC-793)	2
09/12/21	IP	AS-BUILT - GENERAL RESPONSE (AS-BUILT LARC-793)	3
09/12/21	MC	AS-BUILT - GENERAL RESPONSE (AS-BUILT LARC-793)	4
09/12/21	IP	AS-BUILT - GENERAL RESPONSE (AS-BUILT LARC-793)	5

DATE	BY	DESCRIPTION	REV.
09/07/21	PE	ISSUED FOR CONSTRUCTION	0
09/12/21	IT	RE-DESIGNED FOR CONSTRUCTION	1
09/12/21	MC	AS-BUILT - GENERAL RESPONSE (AS-BUILT LARC-793)	2
09/12/21	IP	AS-BUILT - GENERAL RESPONSE (AS-BUILT LARC-793)	3
09/12/21	MC	AS-BUILT - GENERAL RESPONSE (AS-BUILT LARC-793)	4
09/12/21	IP	AS-BUILT - GENERAL RESPONSE (AS-BUILT LARC-793)	5

DATE	BY	DESCRIPTION	REV.
09/07/21	PE	ISSUED FOR CONSTRUCTION	0
09/12/21	IT	RE-DESIGNED FOR CONSTRUCTION	1
09/12/21	MC	AS-BUILT - GENERAL RESPONSE (AS-BUILT LARC-793)	2
09/12/21	IP	AS-BUILT - GENERAL RESPONSE (AS-BUILT LARC-793)	3
09/12/21	MC	AS-BUILT - GENERAL RESPONSE (AS-BUILT LARC-793)	4
09/12/21	IP	AS-BUILT - GENERAL RESPONSE (AS-BUILT LARC-793)	5

**HOCS PROJECTS #1461**

**SALESKI SC SAGD PILOT PROJECT**

**PRODUCED GAS COOLER**

**PIPING AND INSTRUMENTATION DIAGRAM**

SCALE: N.T.S. JOB NO. 1461 DRAWING NO. SAL-011-41-PD-1014-1 REV. 5

**LARICINA**

DESIGNED: J. CHU DATE: 06/07/21

CHECKED: L. TURNO DATE: 09/12/21

APPROVED: L. TURNO DATE: 09/12/21

**HOCS PROJECTS #1461**

**SALESKI SC SAGD PILOT PROJECT**

**PRODUCED GAS COOLER**

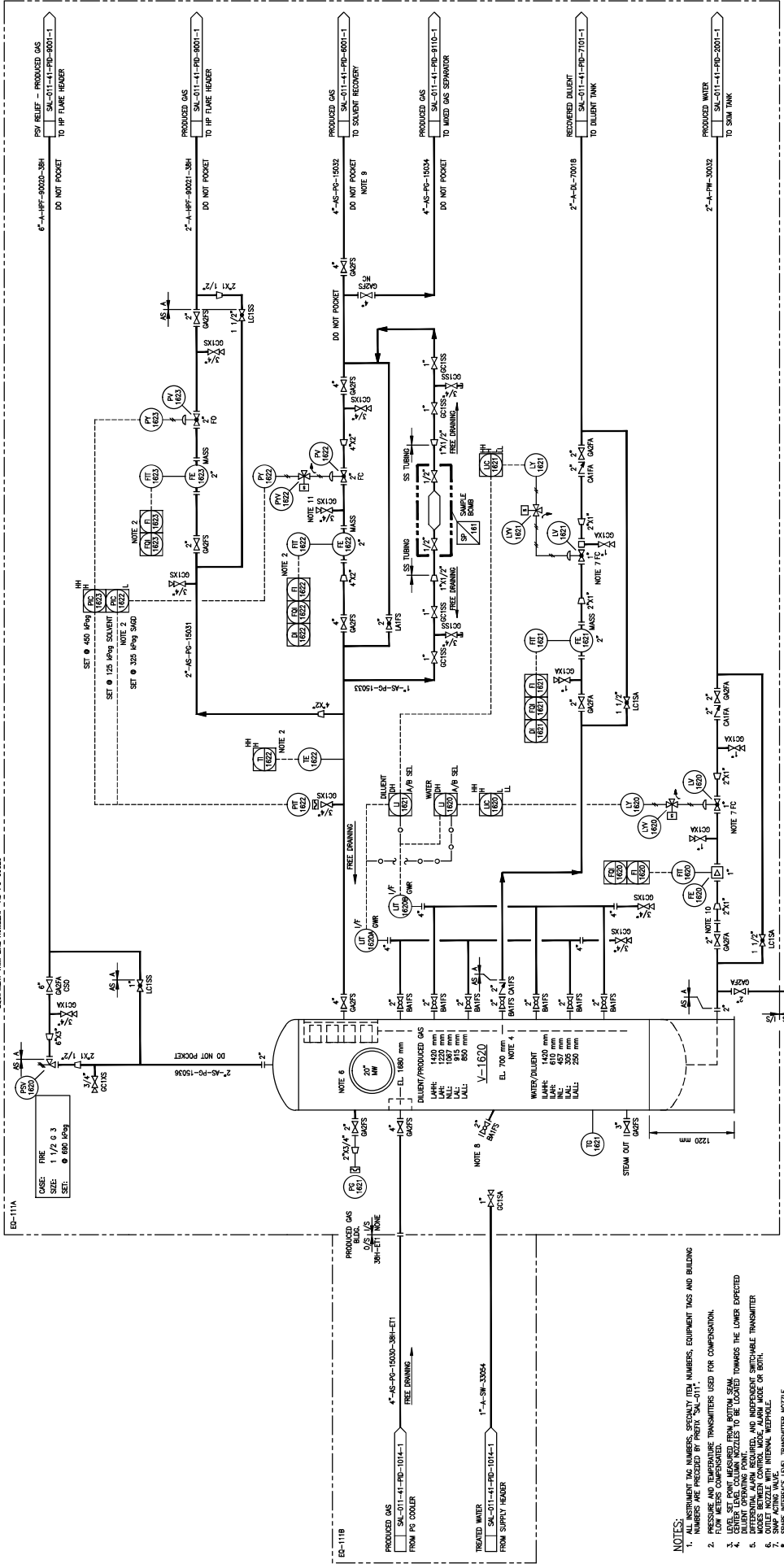
**PIPING AND INSTRUMENTATION DIAGRAM**

SCALE: N.T.S. JOB NO. 1461 DRAWING NO. SAL-011-41-PD-1014-1 REV. 5



SCALE APPLES # PLOTTED ON SIZE "D" (22"x34")

8 7 6 5 4 3 2 1



**NOTES:**

1. ALL INSTRUMENT TAG NUMBERS, EQUIPMENT TAG NUMBERS, EQUIPMENT TAGS AND BILLING NUMBERS AND TEMPERATURE TRANSMITTERS USED FOR COMPENSATION.
2. PRESSURE AND TEMPERATURE TRANSMITTERS USED FOR COMPENSATION.
3. LEVELS SET POINTS MEASURED FROM BOTTOM OF VESSEL TOWARDS THE LOWER EXPECTED DILUENT OPERATING POINT.
4. DILUENT OPERATING POINT.
5. ACCESS POINTS TO CONTROL ROOMS, ALARMS, LOCALS OR OTHER.
6. OUTLET NOZZLE WITH INTERNAL WEDGELINE.
7. SPARE INTERFACE LABEL, TRANSMITTER NOZZLE.
8. SPARE INTERFACE LABEL, TRANSMITTER NOZZLE.
9. CORROSION MONITORING EXCEL, CS-2.
10. CORROSION MONITORING EXCEL, CS-2.
11. CONNECTION FOR GAS CHROMATOGRAPH.

**HCS PROJECTS #1461**

REVISIONS:

REV.	DESCRIPTION	DATE	BY	CHK	APP.	FE	M.	CRFT
0	ISSUED FOR CONSTRUCTION	09/12/21	RP	IT	MC	FE		
1	RE-ISSUED FOR CONSTRUCTION	09/12/21	RP	IT	MC	FE		
2	ISSUED FOR CONSTRUCTION	09/12/21	RP	IT	MC	FE		

**HOCS PROJECTS #1461**

DATE	BY	CHK	APP.	FE	M.	CRFT
09/07/24	J. OH					

DATE	DESIGNED	DATE	CHECKED	DATE	APPROVED
09/12/21	L. TURNO	09/12/21	L. TURNO	09/12/21	L. TURNO
09/12/21	M. KO	09/12/21	M. KO	09/12/21	M. KO
09/12/21	L. BATINA-REINISER	09/12/21	L. BATINA-REINISER	09/12/21	L. BATINA-REINISER

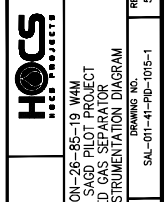
SCALE: N.T.S. JOB NO. SAL-011-41-PID-1015-1

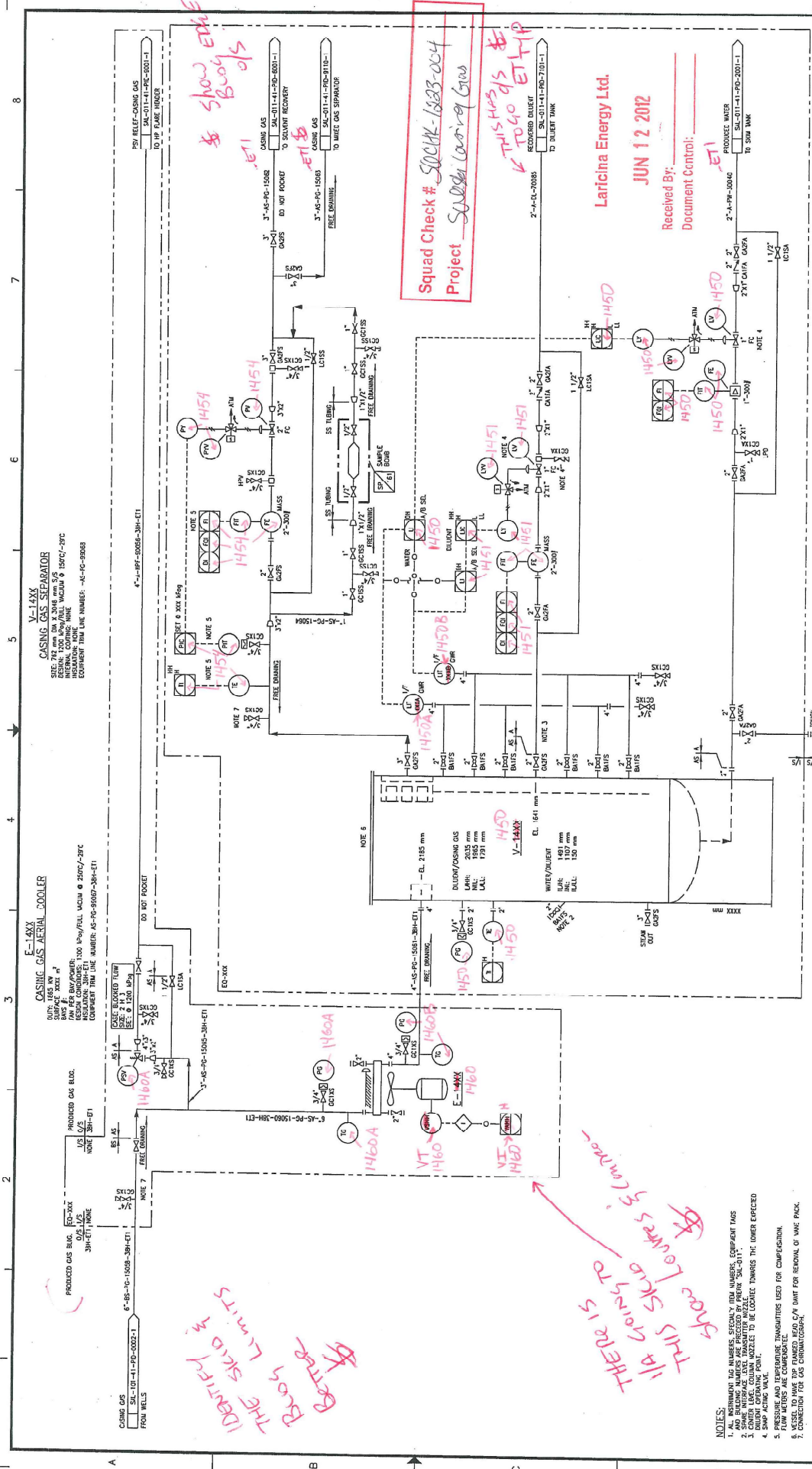
DRAWING NO. 5

REV. 5

**HOCS PROJECTS #1461**

SALESKI SC SAGO PILOT PROJECT  
PRODUCED GAS SEPARATOR  
PIPING AND INSTRUMENTATION DIAGRAM





**V-145X**  
**CASING GAS SEPARATOR**  
 SIZE: 1200 LBS/WALL THICKNESS 1/2\"/>

**E-145X**  
**CASING GAS AERIAL COOLER**  
 CAPACITY: 1000 LBS/WALL THICKNESS 1/2\"/>

**PRODUCED GAS BLVD.**  
 FROM WELLS  
 3\"/>

**PRODUCED GAS BLVD.**  
 FROM WELLS  
 3\"/>

**Squad Check # 5002K-1283-004**  
**Project: SAGD (air) GWS**

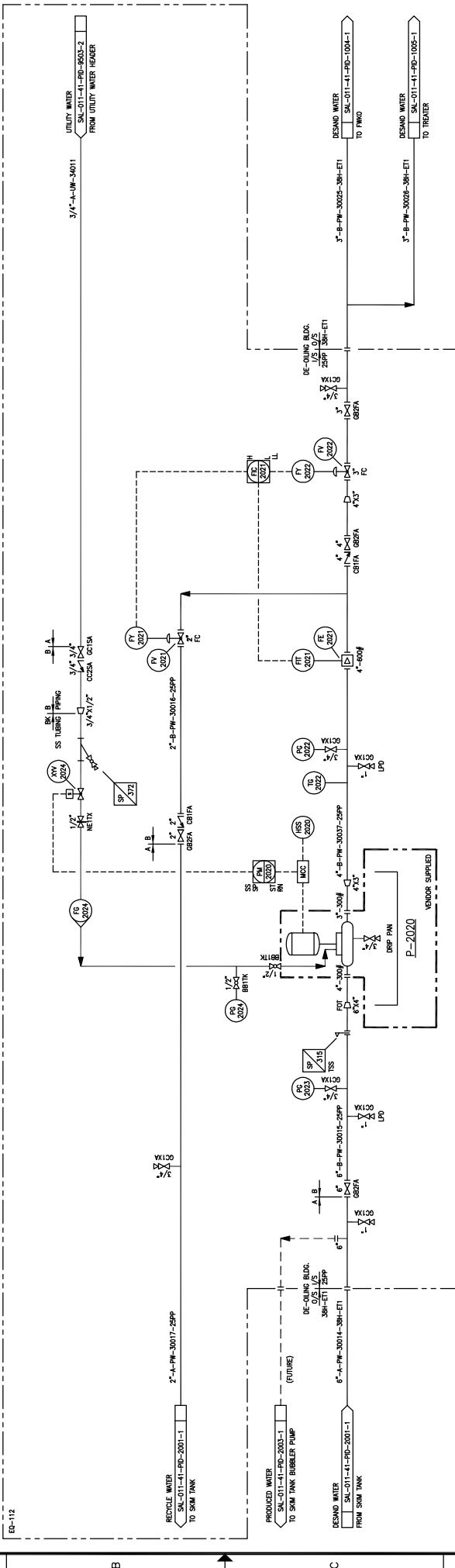
*Handwritten notes:*  
 THERE IS  
 1/4\"/>

- NOTES:**
1. ALL INSTRUMENT TAG NUMBERS, REGIONAL ITEM NUMBERS, EQUIPMENT TAGS
  2. SHOWN INSTRUMENT TAGS TRANSMITTER MODEL NUMBER "SAL-011"
  3. SHOWN INSTRUMENT TAGS TRANSMITTER MODEL NUMBER "SAL-011"
  4. SHOWN INSTRUMENT TAGS TRANSMITTER MODEL NUMBER "SAL-011"
  5. SHOWN INSTRUMENT TAGS TRANSMITTER MODEL NUMBER "SAL-011"
  6. VESSEL TO HAVE DTP FLANGED. HEAD C/A DWT FOR REMOVAL OF WAKE PACK.
  7. CONNECTION FOR GAS CHROMATOGRAPH.

**Laricina Energy Ltd.**  
**JUN 12 2012**  
 Received By: \_\_\_\_\_  
 Document Control: \_\_\_\_\_

DRAWING NO.		JOB NO.		SCALE		TITLE		DATE		DRAWN BY		CHECKED BY		APPROVED BY	
SAL-01-41-100-1001-1		1223		N. L.S.		SW SECTION 26-85-19 14M SALESK SC SAGD PILOT PROJECT CASING GAS COOLER & SEPARATOR PIPING AND INSTRUMENTATION DIAGRAM		11/09/12		B. TUCKERSON		K. HINEZ		K. HINEZ	
REV. A		1223		N. L.S.		SW SECTION 26-85-19 14M SALESK SC SAGD PILOT PROJECT CASING GAS COOLER & SEPARATOR PIPING AND INSTRUMENTATION DIAGRAM		11/09/12		B. TUCKERSON		K. HINEZ		K. HINEZ	

P-2020  
**DESAND JET PUMP**  
 MOTOR: 440V, 415 RPM, 3P @ 2370 RPM 4P  
 MOTOR: 440V 3P 3PH / 60 Hz / 3600 RPM  
 SPEED: 575 3/4 RPM  
 SEAL PLAN COLORING PLAN TO UTILITY WATER



- NOTES:
1. ALL INSTRUMENT TAG NUMBERS, SPECIFICITY ITEM NUMBERS, EQUIPMENT TAGS AND BUILDING NUMBERS ARE PREFIXED "SAL-011-".
  2. SOUNDED THROUGH BY CORRESPONDING PUMP TRIP OR PLANT ESD.

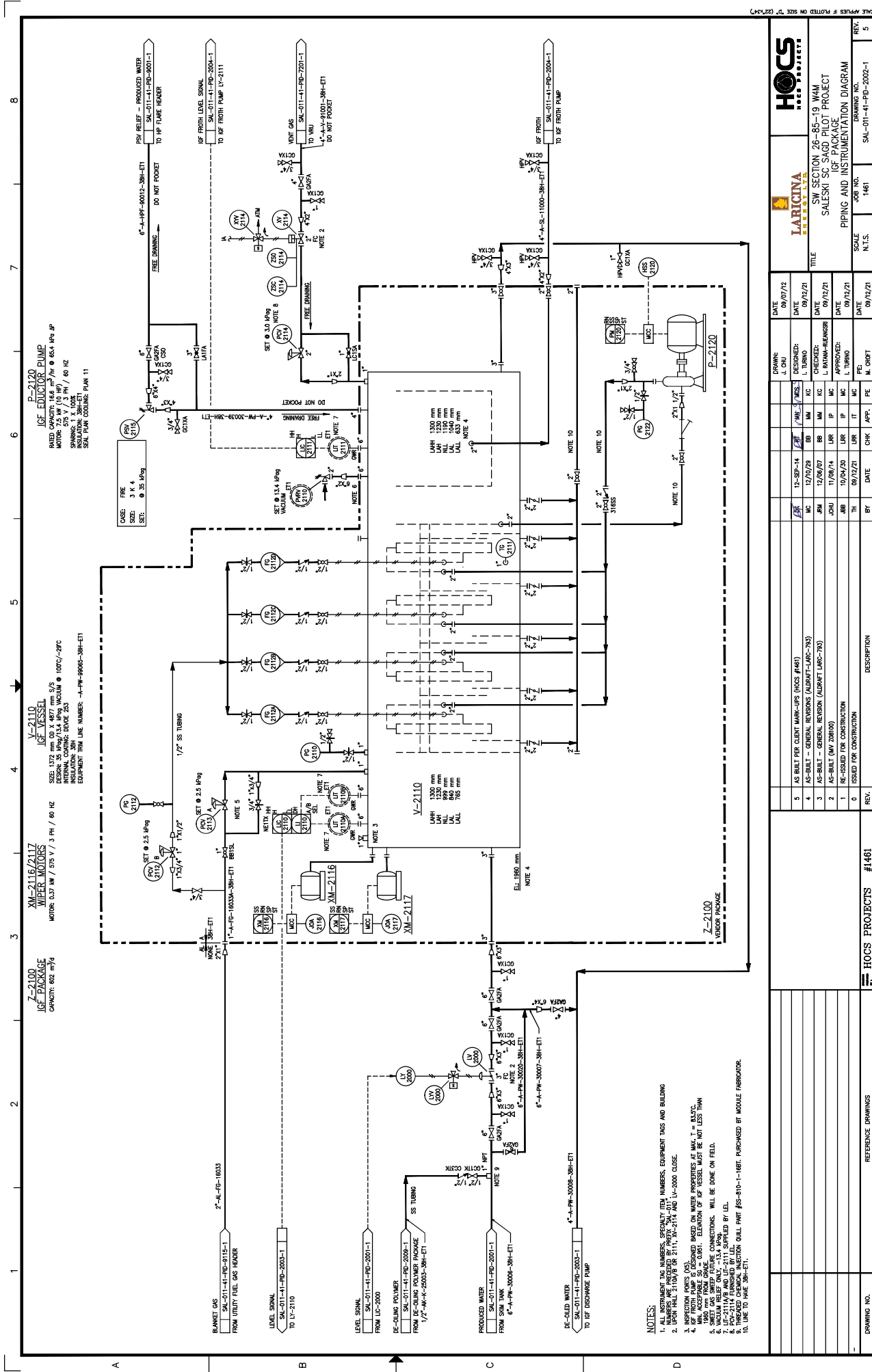
DRAWING NO.		REFERENCE DRAWINGS	
REV.	DESCRIPTION	BY	DATE
3	AS BUILT - GENERAL REVISION (AUGUST 1987-793)	JKL	11/28/77
2	AS BUILT	JOHU	11/28/75
1	RE-ISSUED FOR CONSTRUCTION	QSB	10/04/70
0	ISSUED FOR MODULAR CONSTRUCTION	SL	09/11/77

DRAWN:	DATE:	DESIGNED:	DATE:	CHECKED:	DATE:	APPROVED:	DATE:
R. PARIAL	09/09/16	L. TURNO	09/11/77	MC	09/11/77	N. STELIORNIHO	09/11/77
				IP	09/11/77	L. TURNO	09/11/77
				IT	09/11/77	FS	09/11/77
				APP.	09/11/77	PE	09/11/77
				CHK	09/11/77	P. SULLOW	09/11/77

TITLE	SCALE	JOB NO.	DRAWING NO.	REV.
SW SECTION 26-85-19 IWAM SALESKI SC SAGD PILOT PROJECT DESAND JET PUMP PIPING AND INSTRUMENTATION DIAGRAM	N.T.S.		SAL-011-41-PD-2001-2	3



**HOCS PROJECTS #1461**

DATE: 09/07/12  
DESIGNED: J. CHU  
CHECKED: L. TURNO  
DATE: 09/12/12  
DATE: 09/12/12  
DATE: 09/12/12  
DATE: 09/12/12  
DATE: 09/12/12

SCALE: N.T.S.  
JOB NO.: 1461  
DRAWING NO.: SAL-011-41-PD-2002-1

REV.	DATE	BY	CHK	APP.	DESCRIPTION
5	09/12/12	M. ORFIT	FE		
4	09/12/12	L. TURNO	MC		
3	12/09/10	BB	MC		AS-BUILT - GENERAL REVISION (AS-BUILT LARC-793)
2	12/09/10	BB	MC		AS-BUILT - GENERAL REVISION (AS-BUILT LARC-793)
1	11/06/14	DM	IP	MC	AS-BUILT (NEW 2000)
0	10/04/10	DM	IP	MC	ISSUED FOR CONSTRUCTION
	09/12/12	DM	IT	MC	ISSUED FOR CONSTRUCTION

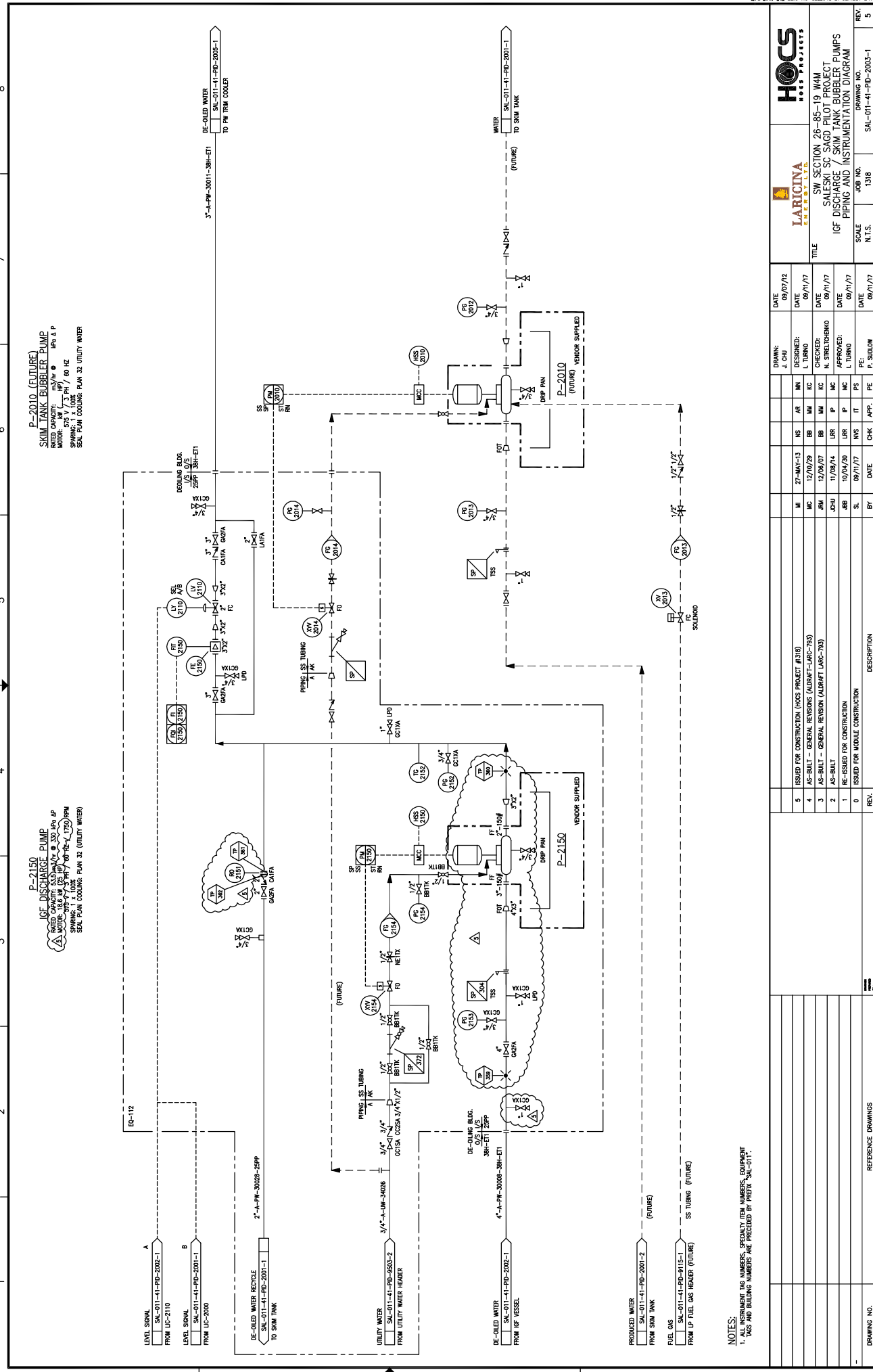
**HOCS PROJECTS #1461**

DATE: 09/07/12  
DESIGNED: J. CHU  
CHECKED: L. TURNO  
DATE: 09/12/12  
DATE: 09/12/12  
DATE: 09/12/12  
DATE: 09/12/12

SCALE: N.T.S.  
JOB NO.: 1461  
DRAWING NO.: SAL-011-41-PD-2002-1

**P-2010 (FUTURE)**  
**SKIM TANK BUBBLER PUMP**  
 CAPACITY: 100 GPM @ 200 FT  
 MOTOR: 1/2 HP / 115V / 60 HZ  
 SPANNING: 100 FT / 100 FT / 100 FT  
 SEAL PLAN COORDINATE: PLAN 32 UTILITY WATER

**P-2150**  
**ICF DISCHARGE PUMP**  
 CAPACITY: 100 GPM @ 200 FT  
 MOTOR: 1/2 HP / 115V / 60 HZ  
 SPANNING: 100 FT / 100 FT / 100 FT  
 SEAL PLAN COORDINATE: PLAN 32 UTILITY WATER



**NOTES:**  
 1. ALL INSTRUMENT TAG NUMBERS, SPECIALTY ITEM NUMBERS, EQUIPMENT TAGS AND BUILDING NUMBERS ARE PRECEDED BY PREFIX "SAL-011".

REV.	DESCRIPTION	DATE	BY	CHK	APP.	FE	PE	DATE	SCALE	JOB NO.	DRAWING NO.
5	ISSUED FOR CONSTRUCTION (HCCS PROJECT #310)	09/07/12	J. CHU	DESIGNED:				09/07/12	N.T.S.	1318	SAL-011-41-PD-2003-1
4	AS-BUILT - GENERAL REVISION (AURAT-LARC-793)	09/11/17	L. TURNO	CHECKED:				09/11/17			
3	AS-BUILT - GENERAL REVISION (AURAT-LARC-793)	09/11/17	N. STRELTOHENKO	APPROVED:				09/11/17			
2	AS-BUILT - GENERAL REVISION (AURAT-LARC-793)	09/11/17	J. CHU	DESIGNED:				09/11/17			
1	RE-ISSUED FOR CONSTRUCTION	09/11/17	S.	DATE				09/11/17			
0	ISSUED FOR MIDDLE CONSTRUCTION	09/11/17	S.	DATE				09/11/17			

**HCCS PROJECTS**  
**LARICINA ENGINEERS & ARCHITECTS**  
 SW SECTION 26-85-19 WAM  
 SALESKI SC SAGD PILOT PROJECT  
 ICF DISCHARGE / SKIM TANK BUBBLER PUMPS  
 PIPING AND INSTRUMENTATION DIAGRAM

DATE	SCALE	JOB NO.	DRAWING NO.
09/07/12	N.T.S.	1318	SAL-011-41-PD-2003-1

DATE	DATE	DATE	DATE	DATE
09/07/12	09/11/17	09/11/17	09/11/17	09/11/17

REV.	DESCRIPTION
5	ISSUED FOR CONSTRUCTION (HCCS PROJECT #310)
4	AS-BUILT - GENERAL REVISION (AURAT-LARC-793)
3	AS-BUILT - GENERAL REVISION (AURAT-LARC-793)
2	AS-BUILT - GENERAL REVISION (AURAT-LARC-793)
1	RE-ISSUED FOR CONSTRUCTION
0	ISSUED FOR MIDDLE CONSTRUCTION

REV.	DESCRIPTION
5	ISSUED FOR CONSTRUCTION (HCCS PROJECT #310)
4	AS-BUILT - GENERAL REVISION (AURAT-LARC-793)
3	AS-BUILT - GENERAL REVISION (AURAT-LARC-793)
2	AS-BUILT - GENERAL REVISION (AURAT-LARC-793)
1	RE-ISSUED FOR CONSTRUCTION
0	ISSUED FOR MIDDLE CONSTRUCTION

REV.	DESCRIPTION
5	ISSUED FOR CONSTRUCTION (HCCS PROJECT #310)
4	AS-BUILT - GENERAL REVISION (AURAT-LARC-793)
3	AS-BUILT - GENERAL REVISION (AURAT-LARC-793)
2	AS-BUILT - GENERAL REVISION (AURAT-LARC-793)
1	RE-ISSUED FOR CONSTRUCTION
0	ISSUED FOR MIDDLE CONSTRUCTION

REV.	DESCRIPTION
5	ISSUED FOR CONSTRUCTION (HCCS PROJECT #310)
4	AS-BUILT - GENERAL REVISION (AURAT-LARC-793)
3	AS-BUILT - GENERAL REVISION (AURAT-LARC-793)
2	AS-BUILT - GENERAL REVISION (AURAT-LARC-793)
1	RE-ISSUED FOR CONSTRUCTION
0	ISSUED FOR MIDDLE CONSTRUCTION

REV.	DESCRIPTION
5	ISSUED FOR CONSTRUCTION (HCCS PROJECT #310)
4	AS-BUILT - GENERAL REVISION (AURAT-LARC-793)
3	AS-BUILT - GENERAL REVISION (AURAT-LARC-793)
2	AS-BUILT - GENERAL REVISION (AURAT-LARC-793)
1	RE-ISSUED FOR CONSTRUCTION
0	ISSUED FOR MIDDLE CONSTRUCTION

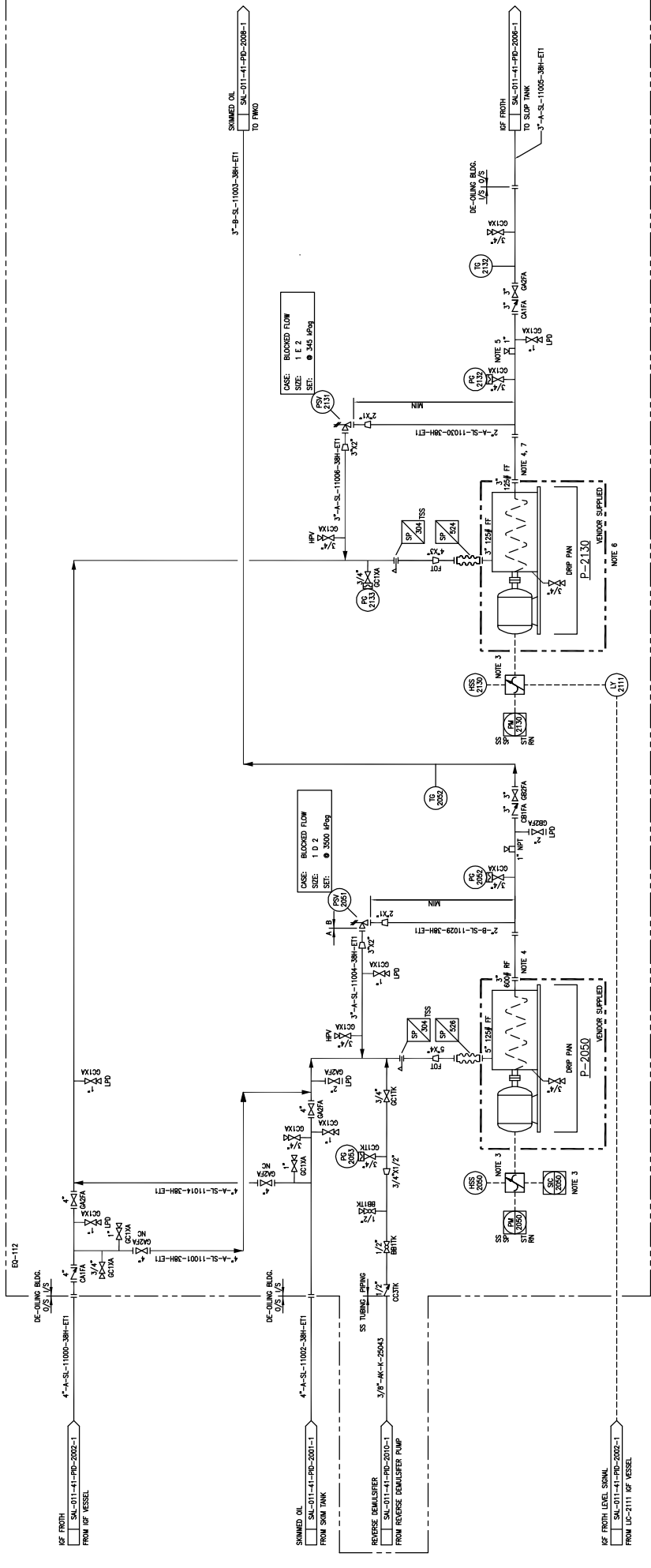
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4	AS-BUILT - GENERAL REVISION (AURAT-LARC-793)
3	AS-BUILT - GENERAL REVISION (AURAT-LARC-793)
2	AS-BUILT - GENERAL REVISION (AURAT-LARC-793)
1	RE-ISSUED FOR CONSTRUCTION
0	ISSUED FOR MIDDLE CONSTRUCTION

REV.	DESCRIPTION
5	ISSUED FOR CONSTRUCTION (HCCS PROJECT #310)
4	AS-BUILT - GENERAL REVISION (AURAT-LARC-793)
3	AS-BUILT - GENERAL REVISION (AURAT-LARC-793)
2	AS-BUILT - GENERAL REVISION (AURAT-LARC-793)
1	RE-ISSUED FOR CONSTRUCTION
0	ISSUED FOR MIDDLE CONSTRUCTION



**P-2130**  
IGF FROTH PUMP  
MOTOR: 3.7 kW / 5 HP / 60 HZ / 1750 RPM  
SPANNING: 57.5 V / 3 PH / 60 HZ / 1750 RPM  
SEAL PLAN COOLING: NONE (PACKING)

**P-2050**  
SKIM OIL PUMP  
MOTOR: 15 kW / 20 HP / 60 HZ / 1750 RPM  
SPANNING: 57.5 V / 3 PH / 60 HZ / 1750 RPM  
SEAL PLAN COOLING: NONE (PACKING)



- NOTES:**
1. ALL INSTRUMENT TAG NUMBERS, SPECIALTY ITEM NUMBERS, EQUIPMENT TAG NUMBERS, AND SPECIALTY ITEM NUMBERS SHALL BE DISPLAYED IN THE P&ID.
  2. SELECTOR IN POS TO MOVE CONTROL FROM P-2050 TO P-2130.
  3. SPEED SHALL BE USED TO CALCULATE THE FLOW RATE AND WILL BE DISPLAYED IN THE P&ID.
  4. CONNECTION FOR FUTURE LOW FLOW SWITCH ON EITHER PUMP SHALL BE MADE AT THE END OF THE LINE.
  5. MIN. ACCEPTABLE SS = 0.5". ELEVATION OF IGF VESSEL MUST BE NOT LESS THAN 1850 mm FROM GRADE.
  6. CORROSION MONITORING SPOOL CS-54.

REV.	DESCRIPTION	DATE	CHK	APP.	BY
3	AS BUILT - GENERAL REVISION (AUGRAFT LARC-793)	12/09/07	BB	MC	
2	AS BUILT	11/09/14	LJR	IP	
1	RE-ISSUED FOR CONSTRUCTION	10/04/20	LJR	IP	
0	ISSUED FOR MIDDLE CONSTRUCTION	09/11/17	MS	IT	PS

DATE	DRAWN:	DESIGNED:	CHECKED:	APPROVED:
09/07/12	J. CHU	L. TURNO	N. STRELCHENKO	L. TURNO
09/11/17				
09/11/17				
09/11/17				

SCALE	JOB NO.	DRAWING NO.
N.T.S.	SAL-01-41-PD-2004-1	3

DATE	REV.	DESCRIPTION
09/07/12		REFERENCE DRAWINGS

**LARICINA**  
ENGINEERS LTD.

**TITLE**  
SW SECTION 26-85-19 WAM  
SALESKI SC SAGD PILOT PROJECT  
SKIM OIL AND IGF FROTH PUMPS  
PIPING AND INSTRUMENTATION DIAGRAM

SW SECTION 26-85-19 WAM  
SALESKI SC SAGD PILOT PROJECT  
SKIM OIL AND IGF FROTH PUMPS  
PIPING AND INSTRUMENTATION DIAGRAM

SCALE: N.T.S.  
JOB NO.: SAL-01-41-PD-2004-1  
DRAWING NO.: 3

DATE: 09/07/12  
DATE: 09/11/17  
DATE: 09/11/17  
DATE: 09/11/17

DATE: 09/07/12  
DATE: 09/11/17  
DATE: 09/11/17  
DATE: 09/11/17

DATE: 09/07/12  
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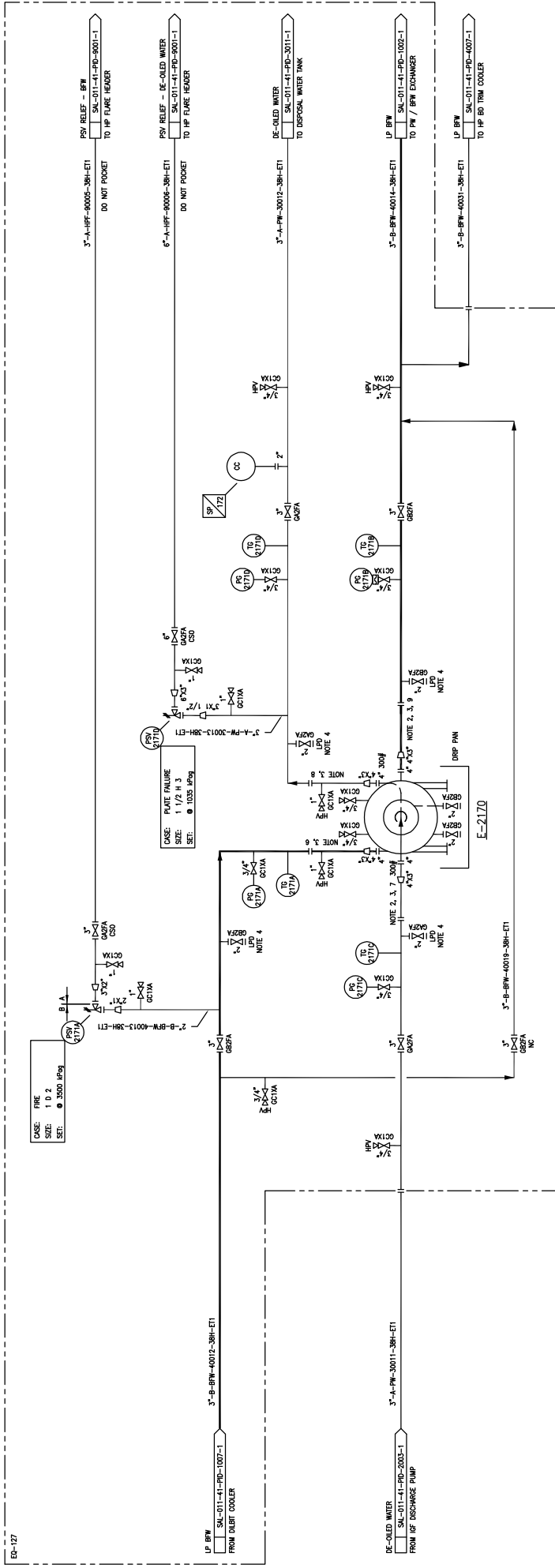
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DATE: 09/11/17  
DATE: 09/11/17

DATE: 09/07/12  
DATE: 09/11/17  
DATE: 09/11/17  
DATE: 09/11/17

**E-2170  
PW TRIM COOLER**

OVERALL AREA: 74.6 m<sup>2</sup>  
 OVERALL LENGTH: 11.4 m  
 OVERALL WIDTH: 6.5 m  
 SURFACE AREA: 74.6 m<sup>2</sup>  
 OVERALL WEIGHT: 1500 kg  
 HOT DESIGN: 3500 kPa / FULL VACUUM @ 250C / -25C  
 COLD DESIGN: 3500 kPa / FULL VACUUM @ 250C / -25C  
 INSULATION: 30mm ETI NOTE 5  
 EQUIPMENT TRIM LINE NUMBER: AS-B-B-PW-9010-3BH-ETI  
 CS-B-B-PW-9009-3BH-ETI



- NOTES:**
1. BILLING NUMBER FOR NUMBERS, ASSEMBLY, ITEM NUMBERS, EQUIPMENT TAGS AND BILLING NUMBERS ARE PRECEDED BY PREFIX 'SAL-011'
  2. REMOVABLE SPOOL TO OPEN ENGINEER'S DOOR
  3. TRACK OUT / BRANS / CHEMICAL CLEANING CONNECTIONS
  4. CORROSION MONITORING SPOOL CS-18
  5. CORROSION MONITORING SPOOL CS-19
  6. CORROSION MONITORING SPOOL CS-20
  7. CORROSION MONITORING SPOOL CS-21
  8. CORROSION MONITORING SPOOL CS-22
  9. CORROSION MONITORING SPOOL CS-23

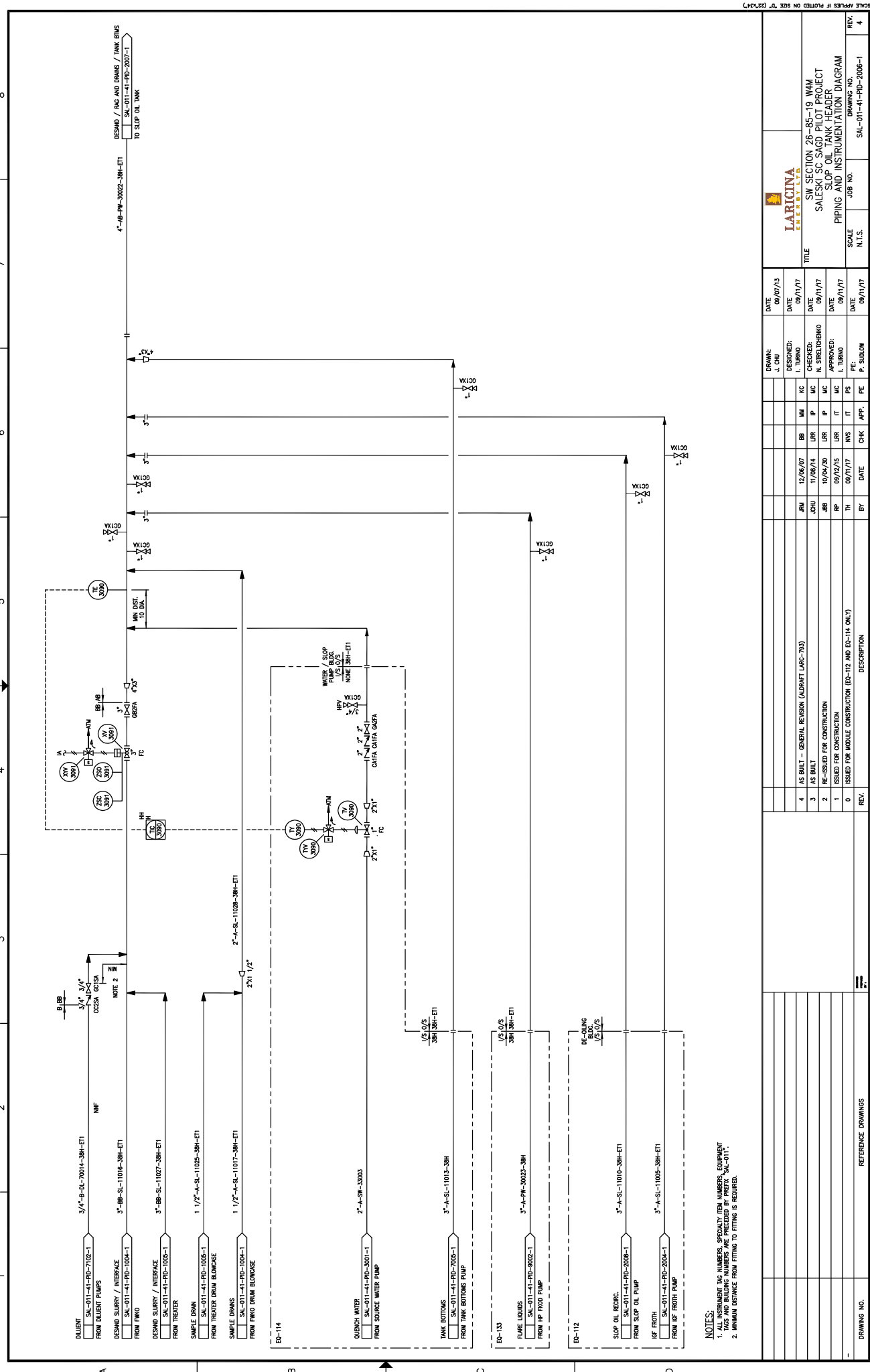
DATE	BY	DESCRIPTION	REV.
09/11/17	SL	ISSUED FOR MIDDLE CONSTRUCTION	0
10/04/20	ASB	RE-ISSUED FOR CONSTRUCTION	1
09/11/17	SL	AS BUILT - GENERAL REVISION (AUDRIFT LARC-793)	2
09/11/17	ASB	AS BUILT - GENERAL REVISION (AUDRIFT LARC-793)	3

DATE	DATE	DATE	DATE	DATE	DATE
09/11/17	09/11/17	09/11/17	09/11/17	09/11/17	09/11/17
DESIGNED:	CHECKED:	APPROVED:	SCALE:	JOB NO.:	DRAWING NO.:
L. TURNO	N. STELTONENHO	L. TURNO	N.T.S.	SAL-011-41-PD-2005-1	3

DATE	DATE	DATE	DATE	DATE	DATE
09/07/13	09/11/17	09/11/17	09/11/17	09/11/17	09/11/17
DRAWN:	DESIGNED:	CHECKED:	APPROVED:	SCALE:	JOB NO.:
J. CHU	L. TURNO	N. STELTONENHO	L. TURNO	N.T.S.	SAL-011-41-PD-2005-1
IM	MC	MC	MC	MC	MC
BB	BB	BB	BB	BB	BB
UR	UR	UR	UR	UR	UR
IP	IP	IP	IP	IP	IP
IT	IT	IT	IT	IT	IT
FS	FS	FS	FS	FS	FS
PE	PE	PE	PE	PE	PE
APP.	APP.	APP.	APP.	APP.	APP.
CHK	CHK	CHK	CHK	CHK	CHK
DATE	DATE	DATE	DATE	DATE	DATE
09/11/17	09/11/17	09/11/17	09/11/17	09/11/17	09/11/17



1 2 3 4 5 6 7 8

A B C D

DESAND / DRS AND DRAINS / TANK RBMS  
 TO SLOP OIL TANK  
 SAL-011-41-PD-2001-1  
 4"-AB-PW-30023-3BH-ETI

MIN. DST. TO DIA.  
 3" X 1/2"

WATER / SLOP  
 1/5 O/S  
 NONE 3BH-ETI  
 HPV  
 2" X 1/2"  
 DATA DATA DATA

DE-OLING  
 1/5 O/S  
 3BH-ETI

DILUENT  
 SAL-011-41-PD-102-1  
 FROM DILUENT PUMPS  
 3/4" BOLL  
 3/4" 3/4"  
 COSSN COSSN  
 NMF  
 NOTE 2

DESAND SLURRY / INTERFACE  
 SAL-011-41-PD-104-1  
 FROM PUMP  
 3"-BB-SL-11016-3BH-ETI

DESAND SLURRY / INTERFACE  
 SAL-011-41-PD-105-1  
 FROM TREATER  
 3"-BB-SL-11027-3BH-ETI

SAMPLE DRAIN  
 SAL-011-41-PD-105-1  
 FROM TREATER DRAIN BLOWSE

SAMPLE DRAINS  
 SAL-011-41-PD-104-1  
 FROM FINO DRAIN BLOWSE

DRENCH WATER  
 SAL-011-41-PD-1001-1  
 FROM SOURCE WATER PUMP  
 2"-A-SW-33003

TANK BOTTOMS  
 SAL-011-41-PD-1005-1  
 FROM TANK BOTTOMS PUMP  
 3"-A-SL-11013-3BH

FLANGE LIQUIDS  
 SAL-011-41-PD-1002-1  
 FROM HP FICO PUMP  
 3"-A-PW-30023-3BH

SLOP OIL RECIRC.  
 SAL-011-41-PD-2005-1  
 FROM SLOP OIL PUMP  
 3"-A-SL-11010-3BH-ETI

REF FROTH  
 SAL-011-41-PD-2004-1  
 FROM HP FROTH PUMP

**NOTES:**

- ALL INSTRUMENT TAG NUMBERS, SPECIALITY TAG NUMBERS, EQUIPMENT TAG NUMBERS AND PUMP TAG NUMBERS SHALL BE AS SHOWN.
- MINIMUM DISTANCE FROM FITTING TO FITTING IS REQUIRED.

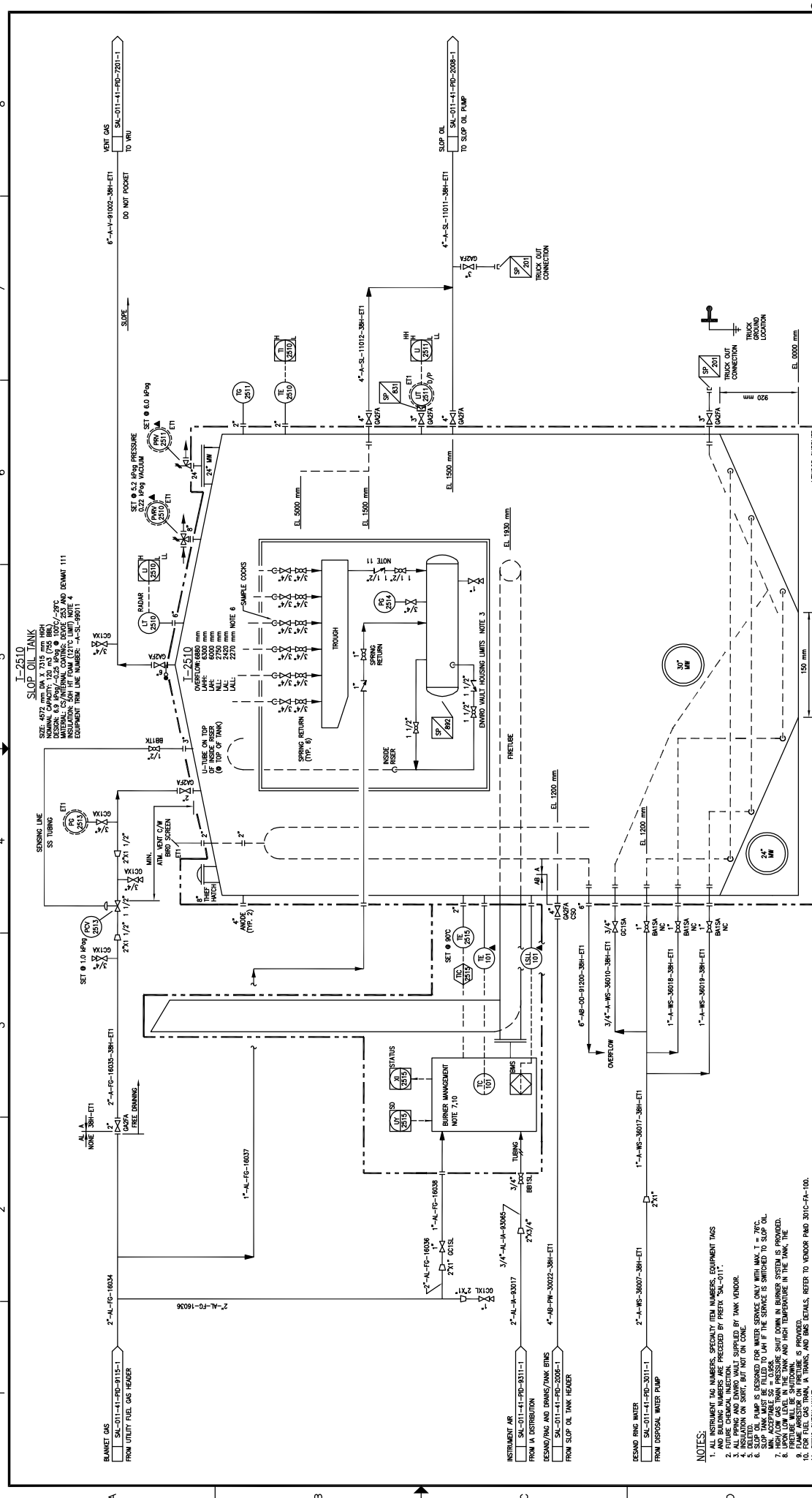
REV.	DESCRIPTION	BY	DATE	CHK	APP.	FE	PE
4	AS BUILT - GENERAL REVISION (AUGUST 1993)	JCH	12/08/97	BB	MM	IC	IC
3	AS BUILT	JCH	11/09/94	LRR	IP	MC	MC
2	RE-ISSUED FOR CONSTRUCTION	BB	10/29/90	LRR	IT	MC	MC
1	ISSUED FOR CONSTRUCTION	TH	09/12/85	LRR	IT	MC	MC
0	ISSUED FOR MODULAR CONSTRUCTION (ED-112 AND ED-114 ONLY)	TH	09/11/77	MIS	IT	FS	FS

DATE	DRAWN:	DESIGNED:	CHECKED:	APPROVED:
09/07/13	J. CHU	L. TURNO	N. STRELCHENKO	L. TURNO
09/11/77				

SCALE	JOB NO.	DRAWING NO.	REV.
N.T.S.	SAL-011-41-PD-2008-1		4

**LARICINA ENERGY LTD.**

SW SECTION 26-85-19 WAM  
 SALESKI SC SAGD PILOT PROJECT  
 SLOP OIL TANK HEADER  
 PIPING AND INSTRUMENTATION DIAGRAM



**T-2510 SLOP OIL TANK**  
 SIZE: 472 mm DIA X 2115 mm HIGH  
 NOMINAL CAPACITY: 120 m<sup>3</sup> (796 BBL) @ 70°C  
 MATERIAL: CS (INTERNAL COATING: DEVCO 253 AND DEWAT 111)  
 EQUIPMENT TAG NUMBER: SA-011-41-PID-2008-1  
 EQUIPMENT FROM LINE NUMBER: SA-011-41-PID-2008-1

SENSING LINE  
 SS TUBING  
 SET @ 1.0 MPa/g (FCV 2513)  
 SET @ 0.2 MPa/g VACUUM (FCV 2514)  
 SET @ 6.0 MPa/g (FCV 2515)

VENT GAS TO WRO  
 SA-011-41-PID-2008-1

DO NOT POCKET  
 6" AL-V-91002-38H-ETI

SLOP OIL TO SLOP OIL PUMP  
 SA-011-41-PID-2008-1

EL. 1500 mm

EL. 1320 mm

EL. 1200 mm

EL. 8000 mm

BLANKET GAS FROM UTILITY FUEL GAS HEADER  
 SA-011-41-PID-3115-1

INSTRUMENT AIR FROM AIR DISTRIBUTION  
 SA-011-41-PID-3031-1

DESIGN/ING AND DRAWS/TANK ENDS FROM SLOP OIL TANK HEADER  
 SA-011-41-PID-2008-1

DEMAND RING WATER FROM DISPOSAL WATER PUMP  
 SA-011-41-PID-3011-1

OVERFLOW  
 3/4" AL-WS-36010-38H-ETI

1" AL-WS-36019-38H-ETI

1" AL-WS-36019-38H-ETI

**NOTES:**

1. INSTRUMENT TAG NUMBERS, ESPECIALLY FROM NUMBERS, EQUIPMENT TAGS AND BUILDING NUMBERS ARE PRECEDED BY PREFIX "SA-011".
2. FUTURE CHEMICAL INVENTION.
3. INSULATION ON SHIRT SUPPLIED BY TANK VENDOR.
4. INSULATION ON SHIRT NOT ON CODE.
5. SLOP OIL PUMP IS DESIGNED FOR WATER SERVICE ONLY WITH MAX. T = 70°C.
6. SLOP OIL TANK MUST BE FILLED TO LVL IF THE SERVICE IS SWITCHED TO SLOP OIL.
7. HIGH/LOW GAS TRAIN PRESSURE SHUT DOWN IN BURNER SYSTEM IS PROVIDED.
8. FRESH AIR FROM UTILITY FUEL GAS TANK AND HIGH TEMPERATURE IN THE TANK.
9. FLAME ARRESTOR ON PRECLUDE IS PROVIDED.
10. FRESH AIR FROM UTILITY FUEL GAS TANK, AND BMS DETAILS REFER TO VENDOR PAID 3010-C-FA-100.
11. SPRING CHECK VALVE.

DATE: 09/07/13  
 DRAWN: J. CHU  
 DESIGNED: L. TURNO  
 CHECKED: L. BAYAMA-REMSER  
 APPROVED: L. TURNO  
 DATE: 09/12/13  
 DATE: 09/12/13  
 DATE: 09/12/13  
 DATE: 09/12/13

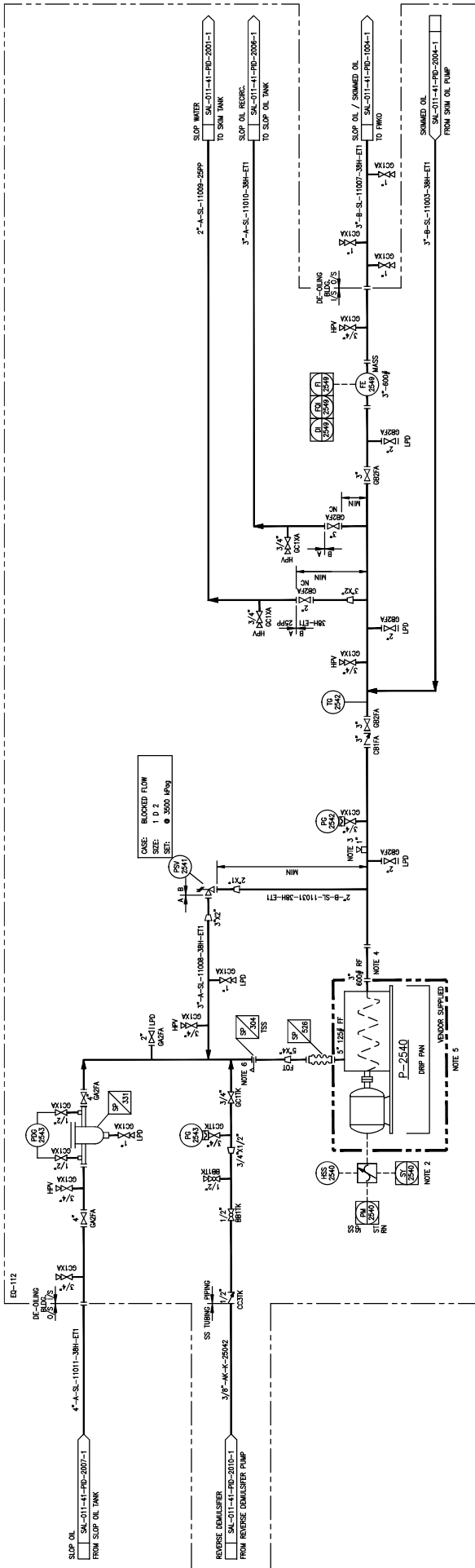
SCALE: N.T.S.  
 JOB NO.: SA-011-41-PID-2007-1  
 DRAWING NO.: 4

REV. DESCRIPTION

REV.	DESCRIPTION	BY	DATE	CHK	APP.	PE	DATE
4	AS-BUILT - GENERAL REVISION (AIR/AT-LARC-793)	MC	12/10/20	BB	MM	MC	09/12/13
3	AS-BUILT - GENERAL REVISION (AIR/AT-LARC-793)	MM	11/09/07	BB	MM	MC	09/12/13
2	AS-BUILT	JOHU	11/09/14	LRR	IP	MC	09/12/13
1	RE-ISSUED FOR CONSTRUCTION	BB	10/04/20	LRR	IP	MC	09/12/13
0	ISSUED FOR CONSTRUCTION	BP	09/12/13	LRR	IT	MC	09/12/13

REFERENCE DRAWINGS



**P-2540**  
**SLOP OIL PUMP**  
 RATED CAPACITY: 5.5 m<sup>3</sup>/hr @ 3500 RPM A P  
 MOTOR: 15 HP / 730 RPM / 40 VZ / 1700 RPM  
 SPRING: 1 X CODE  
 SOIL PUMP COUPLER: NONE (PENDING)



- NOTES:**
1. ALL INSTRUMENT NUMBERS, SPECIFICALLY WITH NUMBERS, SHALL BE IDENTIFIED WITH INSTRUMENT NUMBERS AS PRECEDED BY INSTRUMENT IDENTIFICATION.
  2. SIZES SHALL BE USED TO DETERMINE FLOW RATE AND SHALL BE DISPLAYED IN THE P&ID.
  3. REMOVABLE SPOON AT LEAST THREE TIMES THE STRAIN LENGTH FOR PUMP MAINTENANCE.
  4. SLOP OIL TANK MUST BE FILLED TO 10% IF THE SERVICE IS SWITCHED TO SLOP OIL.
  5. TEMP-CONTROL VALVE SHALL BE DISASSEMBLED AND REMOVED AFTER INSTALLING THE BASKET STRAINER.
  6. TEMP-CONTROL VALVE ELEMENT TO BE REMOVED AFTER INSTALLING THE BASKET STRAINER.

REV.	DESCRIPTION	DATE	BY	CHK	APP.	FE	PE	SCALE	JOB NO.	DRAWING NO.	REV.
6	AS-BUILT PER CLIENT MARK-UPS (NOCS #1481)	09/07/13									
5	ISSUED FOR CONSTRUCTION (NOCS #1430)	09/11/17									
4	AS-BUILT - GENERAL REVISION (AS-BUILT-ARC-793)	09/11/17									
3	AS-BUILT - GENERAL REVISION (AS-BUILT-ARC-793)	09/11/17									
2	AS-BUILT - GENERAL REVISION (AS-BUILT-ARC-793)	09/11/17									
1	ISSUED FOR CONSTRUCTION	09/11/17									
0	ISSUED FOR CONSTRUCTION	09/11/17									
<b>HOCS PROJECTS #1461</b>											
REFERENCE DRAWINGS											

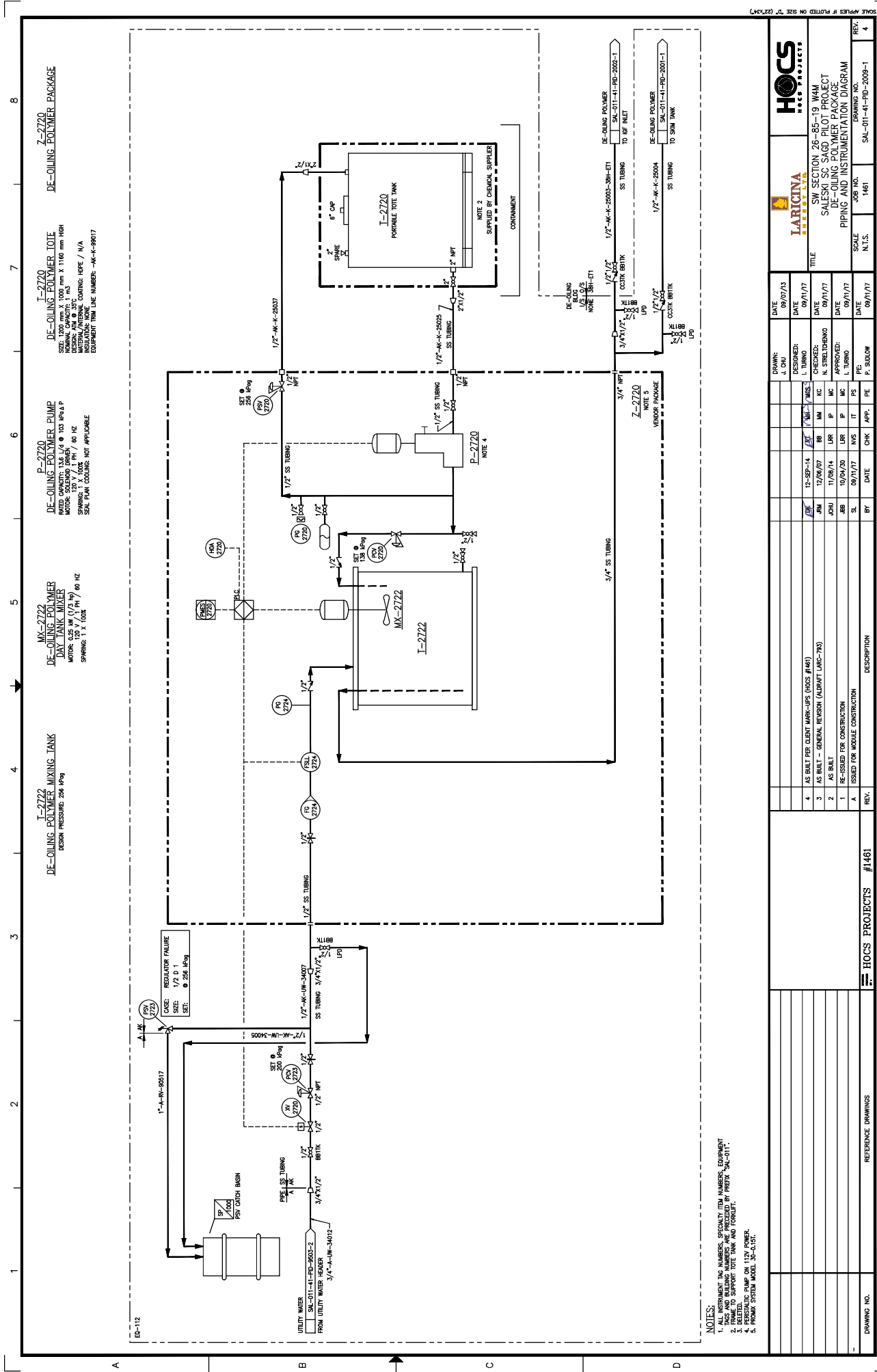
SCALE APPLIES IF PLOTTED ON SIZE "D" (22x34)

SW SECTION 26-85-19 WAM  
 SALESKI SC SAGD PILOT PROJECT  
 SLOP OIL PUMP  
 PIPING AND INSTRUMENTATION DIAGRAM

DESIGNED:	DATE	DATE	DATE	DATE	DATE
L. TURNO	09/11/17	09/11/17	09/11/17	09/11/17	09/11/17
CHECKED:	DATE	DATE	DATE	DATE	DATE
N. STELBACHENKO	09/11/17	09/11/17	09/11/17	09/11/17	09/11/17
APPROVED:	DATE	DATE	DATE	DATE	DATE
P. SUDLOW	09/11/17	09/11/17	09/11/17	09/11/17	09/11/17





**I-2722**  
DE-OILING POLYMER MIXING TANK  
DESIGN PRESSURE: 250 PSIG

**MK-2722**  
DE-OILING POLYMER DAY TANK MIXER  
MOTOR: 0.25 HP (1/3 HP) 60 HZ  
SPARKING: 1 X 100K  
SEAL PLAN COOLING: NOT APPLICABLE

**P-2720**  
DE-OILING POLYMER PUMP  
RATED CAPACITY: 1.8 L/S @ 103 PSIA @ P  
MOTOR: SOLID STATE 60 HZ  
SPARKING: 1 X 100K  
SEAL PLAN COOLING: NOT APPLICABLE

**I-2720**  
DE-OILING POLYMER TOTE  
SIZE: 1000 mm X 1000 mm X 1160 mm HRH  
NOMINAL CAPACITY: 1 m<sup>3</sup>  
MATERIAL: 304 SS  
WELDING: 1 X 100K  
EQUIPMENT FROM LINE NUMBERS: MK-K-9917

**Z-2720**  
DE-OILING POLYMER  
NOTE 2: SUPPLIED BY CHEMICAL SUPPLIER  
CONTAINMENT

- NOTES:**
1. ALL INSTRUMENT TAG NUMBERS, SPECIALTY ITEM NUMBERS, EQUIPMENT TAG NUMBERS AND BUILDING NUMBERS ARE PRECEDED BY PREFIX "SA-011".
  2. DETELED.
  3. DETELED.
  4. PRESSURIC PUMP ON 112V POWER.
  5. PUMP SYSTEM MODEL: 30-6151.

DRAWING NO. #1461		HOCS PROJECTS		REV.	
NO.	DESCRIPTION	BY	DATE	CHK	APP.
4	AS BUILT PER CLIENT MARK-UPS (MOCS #1461)				
3	AS BUILT - GENERAL PERSON (AUBRAFT JRG-793)	JRG	12/09/07	BB	MC
2	AS BUILT	JRG	11/06/14	BB	MC
1	ISSUED FOR CONSTRUCTION	SL	10/04/20	BB	MC
A	ISSUED FOR MODULE CONSTRUCTION	SL	09/17/17	BB	MC

DESIGNER	DATE	DESIGNED	DATE	CHECKED	DATE	APPROVED	DATE
J. CHU	09/07/13	L. TURNO	09/11/17	N. STELTERHO	09/11/17		

SCALE	JOB NO.	DRAWING NO.	REV.
N.T.S.	1461	SA-011-41-PID-2009-1	4

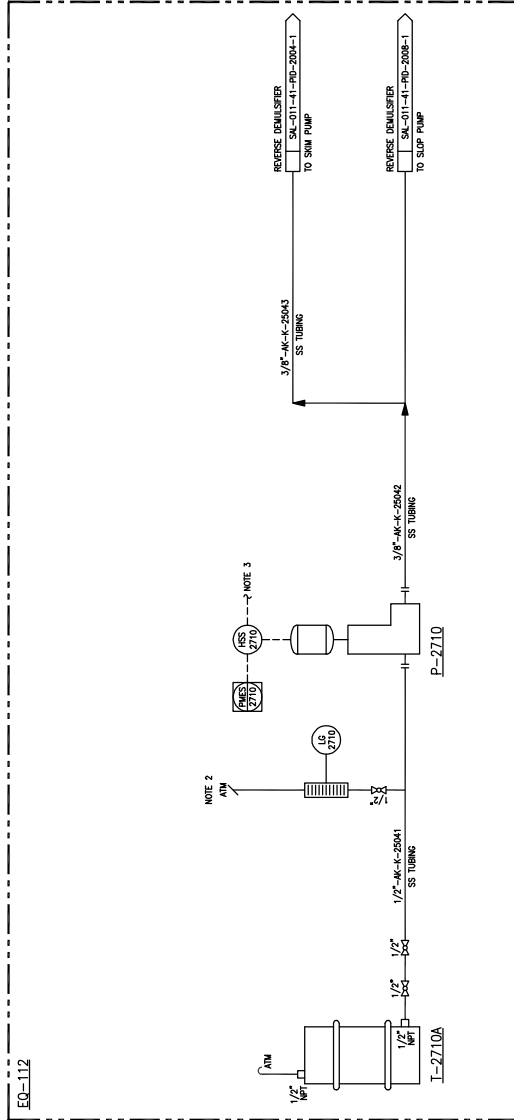
COMPANY	LOGO	PROJECT TITLE
HOCS PROJECTS		SW SECTION 26-85-19 WAM SALESKI SC SAGO PILOT PROJECT DE-OILING POLYMER PACKAGE PIPING AND INSTRUMENTATION DIAGRAM

1 2 3 4 5 6 7 8

**I-2710A**  
**REVERSE DEMULSIFIER BARREL**  
 DESIGN: ANI  
 DRAWING NO. I-2710A  
 MATERIAL: 304 SS  
 CAPACITY: 0.218 MG (85 GAL)  
 INSULATION: NONE

**P-2710**  
**REVERSE DEMULSIFIER INJECTION PUMP**  
 DESIGN: ANI  
 DRAWING NO. P-2710  
 MOTOR: 24.8 KW (33 HP) @ 2314 RPM  
 SPEED: 1 X 100%  
 SOL. POINT COUPLER: NOT APPLICABLE

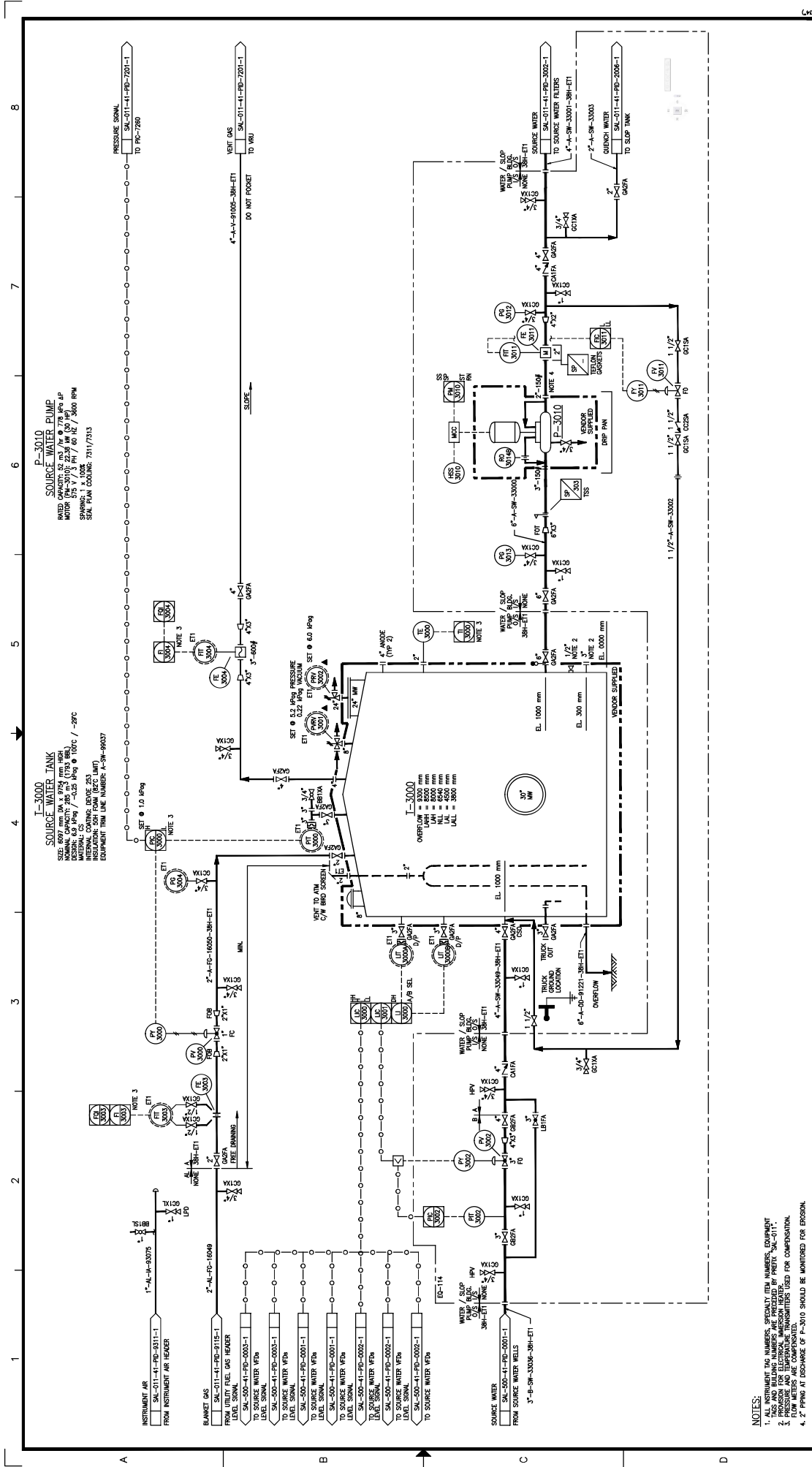
**Z-2710**  
**REVERSE DEMULSIFIER PACKAGE #2**



**NOTES:**  
 1. ALL INSTRUMENT TAG NUMBERS PRECEDED BY "SAL-011".  
 2. NET HEIGHT ABOVE BARREL HEIGHT.  
 3. TO 120 INCL. LOFTING PANEL.

DRAWING NO.		REFERENCE DRAWINGS		DRAWING NO.		SAL-01-41-PID-2000-1	
REV.		DESCRIPTION		DATE		BY	
1	AS BUILT - GENERAL REVISION (AUGUST LARC-793)	12/26/07	BB	MM	KC	PE	1
SCALE		N.T.S.		JOB NO.		SAL-01-41-PID-2000-1	
TITLE		SW SECTION 26-85-19 WAM SALESKI SC SAGD PILOT PROJECT REVERSE DEMULSIFIER PACKAGE PIPING AND INSTRUMENTATION DIAGRAM					
DRAWN:		J. NOWAK		DATE		17/09/09	
DESIGNED:				DATE			
CHECKED:				DATE			
APPROVED:				DATE			
PE:				DATE			
LARCINA ENERGY LTD.							

SCALE APPLIES IF PLOTTED ON SIZE "D" (22"x34")



**I-3000**  
**SOURCE WATER TANK**  
 SIZE: 30' DIA. x 10' HGT.  
 WEIGHT: 15,000 LBS.  
 DESIGN: 150 PSIG @ 100°C / -20°C  
 INSULATION: 2" POLYURETHANE  
 EQUIPMENT TAG LINE NUMBER: P-3010-0003

**P-3010**  
**SOURCE WATER PUMP**  
 MODEL: 1000 GPM  
 WEIGHT: 1,000 LBS.  
 DESIGN: 150 PSIG @ 100°C / -20°C  
 INSULATION: 2" POLYURETHANE  
 EQUIPMENT TAG LINE NUMBER: P-3010-0003

**NOTE 1:** ALL INSTRUMENT TAG NUMBERS, SPECIALTY ITEM NUMBERS, EQUIPMENT TAGS AND BUILDING NUMBERS ARE PRECEDED BY PREFIX "SAL-011".  
**NOTE 2:** PRESSURE AND TEMPERATURE TRANSDUCERS USED FOR COMPENSATION.  
**NOTE 3:** ALL INSTRUMENTS ARE TO BE PROVIDED BY THE CONTRACTOR.  
**NOTE 4:** 2" PIPING AT DISCHARGE OF P-3010 SHOULD BE MONITORED FOR EROSION.

**REFERENCE DRAWINGS**

NO.	DESCRIPTION
1	AS BUILT PER CLIENT MARK-UP (NOIS #48)
2	AS BUILT - (NOIS 1403)
3	AS BUILT - GENERAL REGION (DRAFT IJRC-793)
4	AS BUILT
5	ISSUED FOR CONSTRUCTION (E-114 ONLY)
6	ISSUED FOR MODULAR CONSTRUCTION

**HOCS PROJECTS #1461**

REV.	DATE	CHK	APP.	FE	DESCRIPTION
0	09/17/17	MS	IT	PS	FE.
1	11/09/14	DR	IP	MC	L TURNO
2	12/09/07	DR	MM	MC	N. STELTSCHKO
3	11-04-14	DR	MM	MC	L TURNO
4	12-SEP-14	DR	MM	MC	L TURNO
5	09/09/14	DR	MM	MC	L TURNO

**HOCS PROJECTS #1461**

REV.	DATE	CHK	APP.	FE	DESCRIPTION
0	09/17/17	MS	IT	PS	FE.
1	11/09/14	DR	IP	MC	L TURNO
2	12/09/07	DR	MM	MC	N. STELTSCHKO
3	11-04-14	DR	MM	MC	L TURNO
4	12-SEP-14	DR	MM	MC	L TURNO
5	09/09/14	DR	MM	MC	L TURNO

**LARICINA**  
**ENGINEERS**

**HOCS PROJECTS**

SW SECTION 26-85-19 WAM  
 SALESKI SC SAGD PILOT PROJECT  
 SOURCE WATER TANK AND PUMP  
 PIPING AND INSTRUMENTATION DIAGRAM

SCALE: N.T.S.  
 JOB NO.: 1461  
 DRAWING NO.: SAL-011-41-PID-3001-1

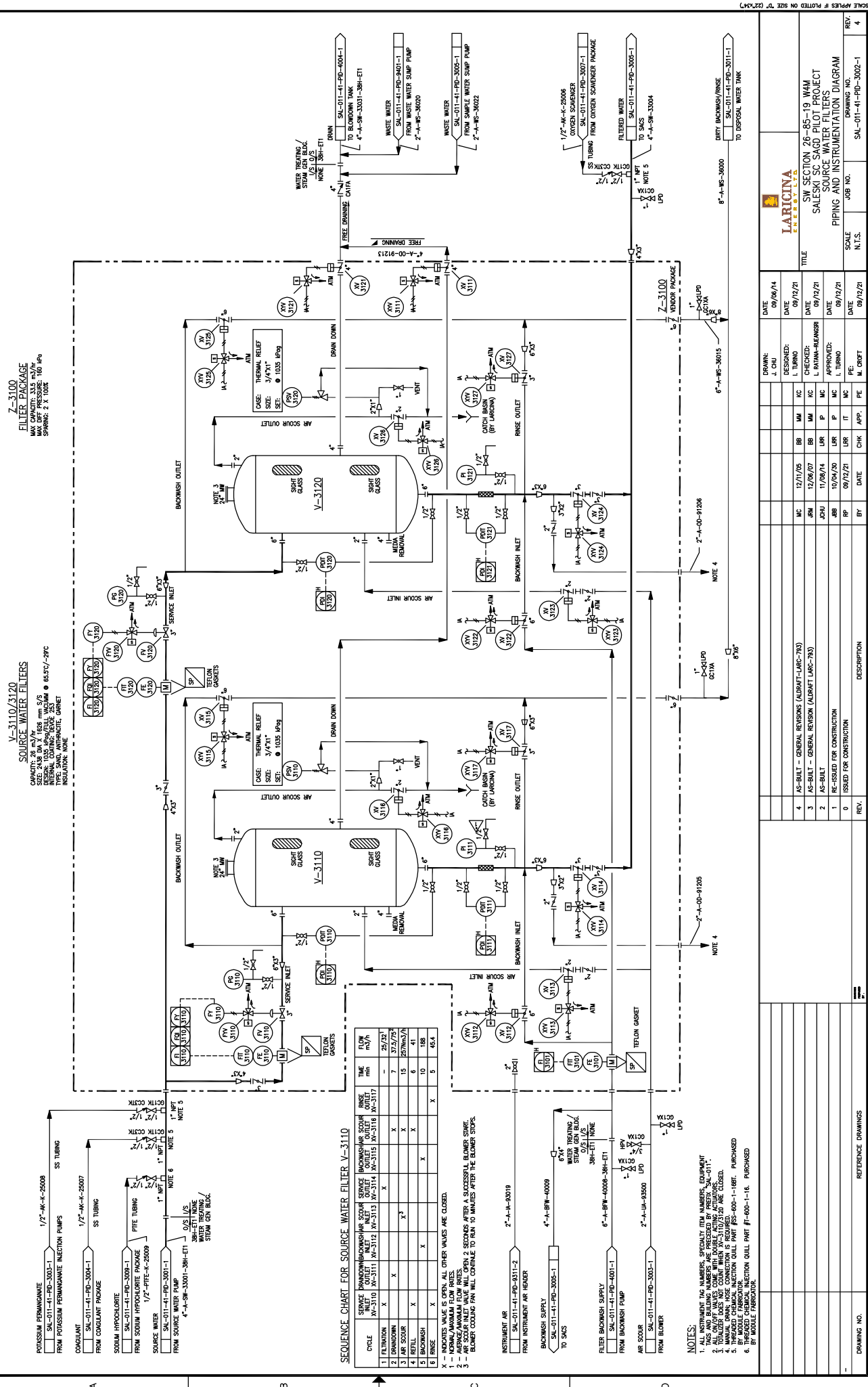
DATE	DESIGNED	CHECKED	APPROVED
09/11/17	L. TURNO	N. STELTSCHKO	L. TURNO
09/11/17	L. TURNO	N. STELTSCHKO	L. TURNO
09/11/17	L. TURNO	N. STELTSCHKO	L. TURNO
09/11/17	L. TURNO	N. STELTSCHKO	L. TURNO

DATE: 09/09/14  
 DRAWN: J. CHU  
 CHECKED: L. TURNO  
 DESIGNED: L. TURNO

DRAWING NO. SAL-011-41-PID-3001-1

HOCS PROJECTS #1461

REV. 5



**Z-3100**  
**FILTER PACKAGE**  
 MAX OPERATING PRESSURE: 160 lps  
 SPRING: 2 X 100#

**V-3110/3120**  
**SOURCE WATER FILTERS**  
 CASE: 2X8 IN V / 1608 mm S/S  
 DESIGN: 100 LPS @ 160 PSI @ 65.0°C / 99°C  
 TYPE: SAND, ANTHRACITE, GARNET  
 INSULATOR: NONE

**SEQUENCE CHART FOR SOURCE WATER FILTER V-3110**

CYCLE	SERVICE PUMP	BACKWASH	AIR SCOUR	RISE	TIME min	FLOW m <sup>3</sup> /h
1	Filtration	X	X	X	25/32	
2	Draindown	X	X	X	7	37.9/75
3	Air Scour	X <sup>3</sup>	X	X	15	257/m <sup>3</sup> /h
4	Refill	X	X	X	6	41
5	Backwash	X	X	X	10	188
6	Rise	X	X	X	9	464

NOTE: 1 - NORMAL FLOW RATE. ALL OTHER VALUES ARE CLOSED.  
 2 - NORMAL FLOW RATE.  
 3 - AIR SCOUR FLOW RATE.  
 4 - AIR SCOUR FLOW RATE.  
 5 - AIR SCOUR FLOW RATE.  
 6 - AIR SCOUR FLOW RATE.

- NOTES:**
1. TAG AND BILLING NUMBERS, SPECIALTY ITEM NUMBERS, EQUIPMENT TAG AND BILLING NUMBERS ARE PRECEDED BY PREFIX "SAL-011".
  2. TOTALIZER DOES NOT COUNT WHEN PIPING IS CLOSED.
  3. TOTALIZER DOES NOT COUNT WHEN PIPING IS CLOSED.
  4. MANUAL OPEN, CLOSE CONNECTION IS REQUIRED.
  5. BY MODULE FABRICATOR.
  6. BY MODULE FABRICATOR.

**LARICINA**  
 ENGINEERING & CONSULTING

**SW SECTION 26-85-19 WAM**  
**SALESI SC SAGD PILOT PROJECT**  
**SOURCE WATER FILTERS**  
**PIPING AND INSTRUMENTATION DIAGRAM**

DATE	BY	CHK	APP.	FE	PE	DATE	DESCRIPTION
09/09/14	J. CHU						
09/12/14							
12/11/05	MC	BB	MM	MC			AS-BUILT - GENERAL REVISION (AUBRAT-LARC-793)
12/06/07	RM	BB	MM	MC			AS-BUILT - GENERAL REVISION (AUBRAT-LARC-793)
11/09/14	JOHU	LUR	IP	MC			AS-BUILT
10/04/20	ABB	LUR	IT	MC			RE-ISSUED FOR CONSTRUCTION
09/12/21	RP	LUR	IP	MC			ISSUED FOR CONSTRUCTION
09/12/21	RP	CHK	APP.	PE	M. CRIFT		REFERENCE DRAWINGS

SCALE: N.T.S.  
 JOB NO.: SAL-011-41-PID-3002-1  
 DRAWING NO.: 4

1 2 3 4 5 6 7 8

A B C D

**Z-3700**  
POTASSIUM PERMANGANATE PACKAGE

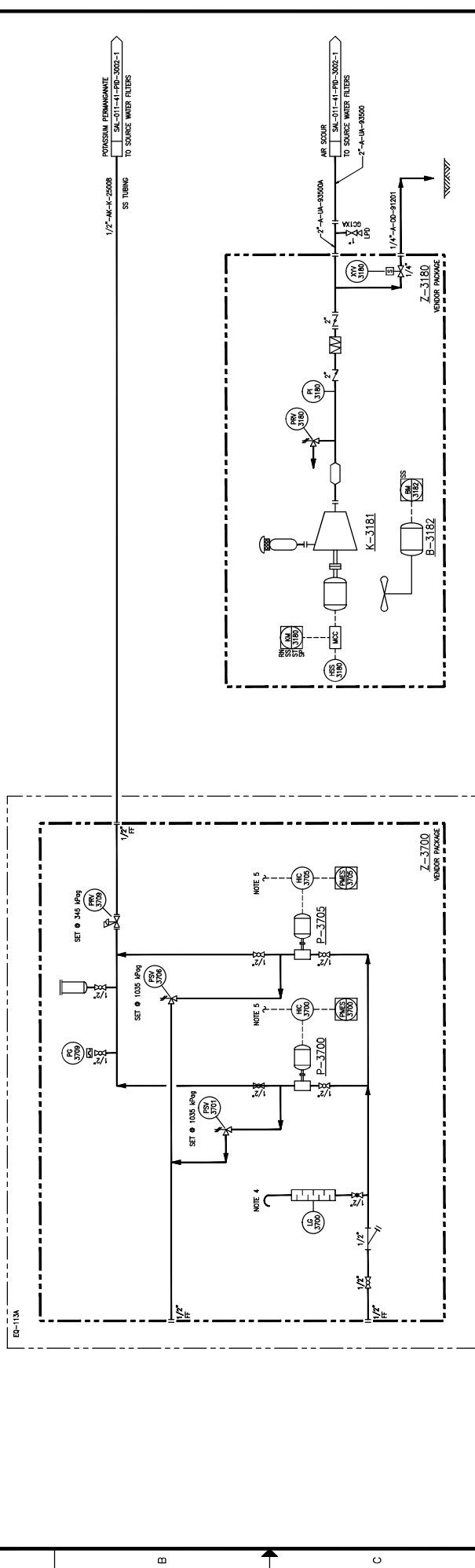
**P-3700/3705**  
POTASSIUM PERMANGANATE INJECTION PUMPS  
RATED CAPACITY: 1.64 L/H @ 1035 KPa gP  
MOTOR SPEED: 3000 RPM / 60 HZ  
SPRINGS: 2 X 100K  
SOIL PLUM COOLING: NOT APPLICABLE

**B-3182**  
AIR SCOUR BLOWER COOLING FAN  
DESIGN: 2.0 m<sup>3</sup>/hr  
MOTOR PRESSURE: N/A  
SPEED: 115 WAC / 1PH / 60 HZ

**K-3181**  
AIR SCOUR BLOWER  
DESIGN FLOW: 257 m<sup>3</sup>/hr (151 SCFM)  
MOTOR PRESSURE: 55 KPa  
SPEED: 115 WAC / 1PH / 60 HZ

**Z-3180**  
AIR SCOUR PACKAGE

**POTASSIUM PERMANGANATE**  
1/2" AK-K-25008  
SS TUBING  
TO SOURCE WATER FILTERS



**Z-3180**  
AIR SCOUR PACKAGE

**Z-3700**  
VENDOR PACKAGE

REV.	DESCRIPTION	DATE	CHK	APP.	BY
4	AS BUILT PER CLIENT MARK-UPS (MOS #141)				
3	AS BUILT - GENERAL REVISION (DRAFT LARC-793)				
2	AS BUILT				
1	ISSUED FOR CONSTRUCTION				
0	ISSUED FOR CONSTRUCTION				

**NOTES:**

1. ALL DIMENSIONS AND NUMBERS, SEQUENTIAL DIMENSIONS, DIMENSION LINES AND BUILDING NUMBERS ARE PRECEDED BY PREFIX "SUBMIT".
2. FRAME TO SUPPORT TOTE TANK AND FORMULAT.
3. TOTE TANK TO BE 500 mm HIGHER THAN TOTE HEIGHT.
4. VENT HEIGHT TO BE 500 mm HIGHER THAN TOTE HEIGHT.
5. TO LIGHTING LIGHTING PANEL.

DATE	DESIGNED BY	CHECKED BY	APPROVED BY
09/09/15	L. TURNO	L. TURNO	L. TURNO
09/12/21	L. TURNO	L. TURNO	L. TURNO
09/12/21	L. TURNO	L. TURNO	L. TURNO
09/12/21	L. TURNO	L. TURNO	L. TURNO
09/12/21	L. TURNO	L. TURNO	L. TURNO

**LARICINA**  
SALIZADA

**HCS PROJECTS**

SW SECTION 26-85-19 WAM  
SALESKI SC SAGO PILOT PROJECT  
POTASSIUM PERMANGANATE & AIR SCOUR PACKAGE  
PIPING AND INSTRUMENTATION DIAGRAM

SCALE: N.T.S.  
JOB NO.: 1461  
DRAWING NO.: SAL-011-41-PID-3003-1

DATE: 09/12/21  
DESIGNED BY: L. TURNO  
CHECKED BY: L. TURNO  
APPROVED BY: L. TURNO

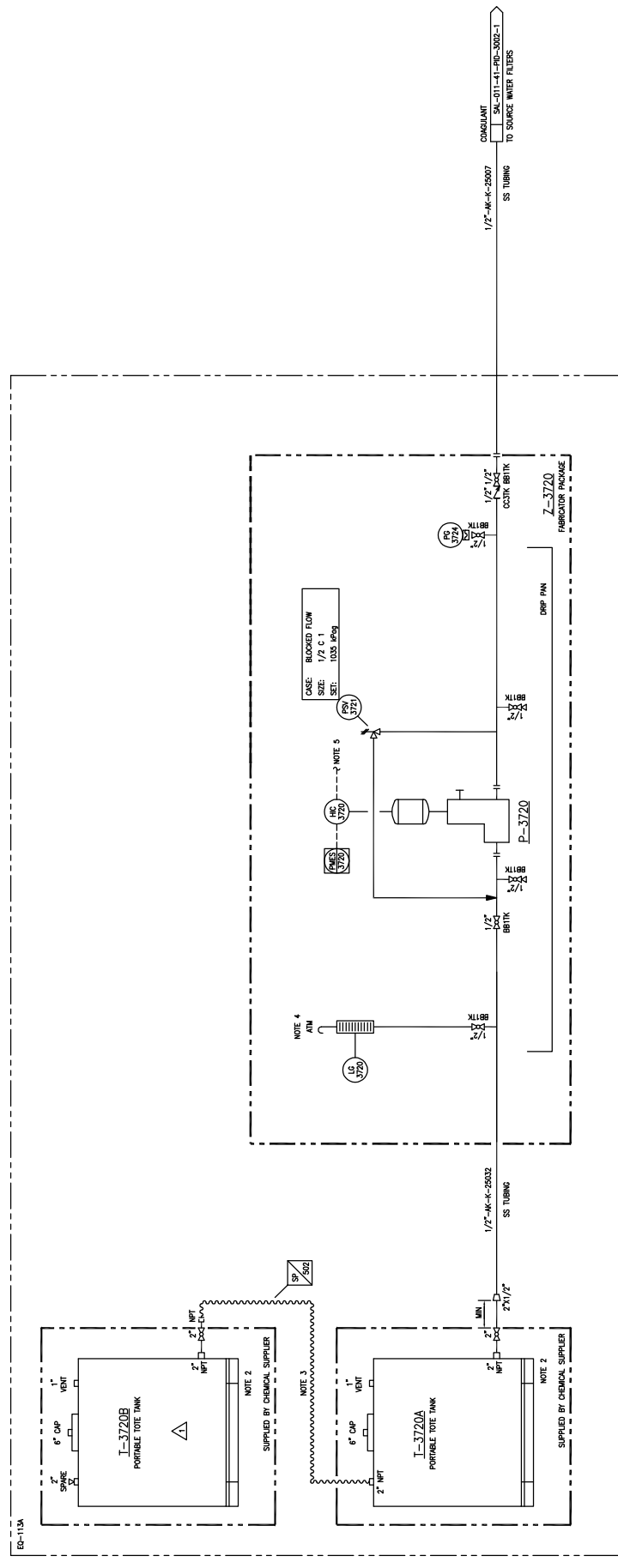
DATE: 09/12/21  
DATE: 09/12/21  
DATE: 09/12/21  
DATE: 09/12/21

REV. 4  
DRAWING NO. SAL-011-41-PID-3003-1

**I-3720A/B**  
**COAGULANT POLYMER TOTE**  
 1000 GAL CAPACITY  
 MAXIMUM HEIGHT 1160 mm HIGH  
 MATERIAL: CARBON STEEL  
 DESIGN: A11 @ 35°C  
 FINISH: GALV. COATING: HDPE / N/A  
 INSULATION: NONE

**P-3720**  
**COAGULANT POLYMER INJECTION PUMP**  
 1000 GAL CAPACITY  
 MOTOR: SOLID STATE DRIVE  
 SPEEDS: 15 / 30 / 60 PH / 60 HZ  
 SEAL PLAN COUPLING: NOT APPLICABLE

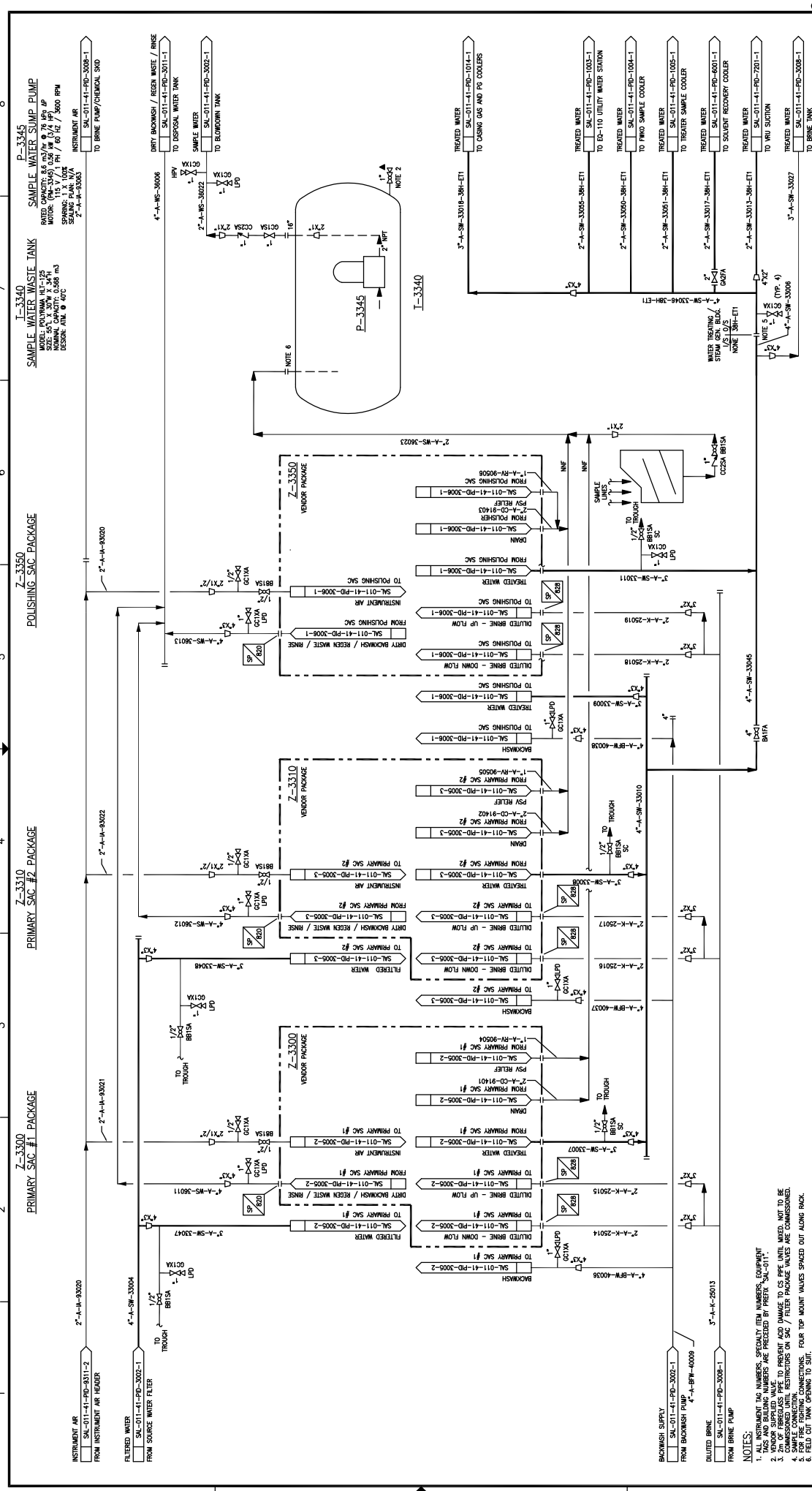
**Z-3720**  
**COAGULANT POLYMER PACKAGE**



- NOTES:**
1. ALL INSTRUMENT TAG NUMBERS, SPECIALTY ITEM NUMBERS, EQUIPMENT TAGS AND BUILDING NUMBERS ARE PRECEDED BY PREFIX "SAL-411".
  2. FLEXIBLE HOSE AND TANK CONNECTIONS POSITIONED TO ALLOW FOR STACKED TANK POSITIONING.
  3. FLEXIBLE HOSE AND TANK CONNECTIONS POSITIONED TO ALLOW FOR STACKED TANK POSITIONING.
  4. VENT HEIGHT SHOWN ABOVE TOTE HEIGHT.
  5. TO LEGEND LIFTING PANEL.

DRAWN: J. CHU DATE: 09/06/17		DESIGNED: L. TURNO DATE: 09/12/16		CHECKED: M. MC DATE: 09/12/16		APPROVED: L. TURNO DATE: 09/12/16		PE: M. CROFT DATE: 09/12/16		SCALE: N.T.S.		JOB NO.: Z08100		DRAWING NO.: SAL-011-PI-3004-1		REV.: 3	
<p><b>LARICINA ENGINEERS LTD.</b></p> <p>SW SECTION 26-85-19 WAM          SALESKI SC SAGD PILOT PROJECT          COAGULANT POLYMER PACKAGE          PIPING AND INSTRUMENTATION DIAGRAM</p>																	
<p><b>IMV Projects Inc. Z08100</b></p> <p>REFERENCE DRAWINGS</p>																	
REV.	DESCRIPTION	BY	DATE	CHK	APP.	PE											
3	AS BUILT - GENERAL REVISION (AUDRIFT LARC-793)	RM	12/06/17	BB	MM	MC											
2	AS BUILT	JOHU	11/06/14	LUR	IP	MC											
1	RE-ISSUED FOR CONSTRUCTION	ABB	10/04/10	LUR	IP	MC											
0	ISSUED FOR CONSTRUCTION	SL	09/12/16	LUR	IT	MC											

SCALE APPLIES IF PLOTTED ON SIZE "A" (22"x34")



DATE	DESCRIPTION	BY	DATE	CHK	APP	PE	REV.
09/06/17							1
09/12/17							2
09/12/17							3

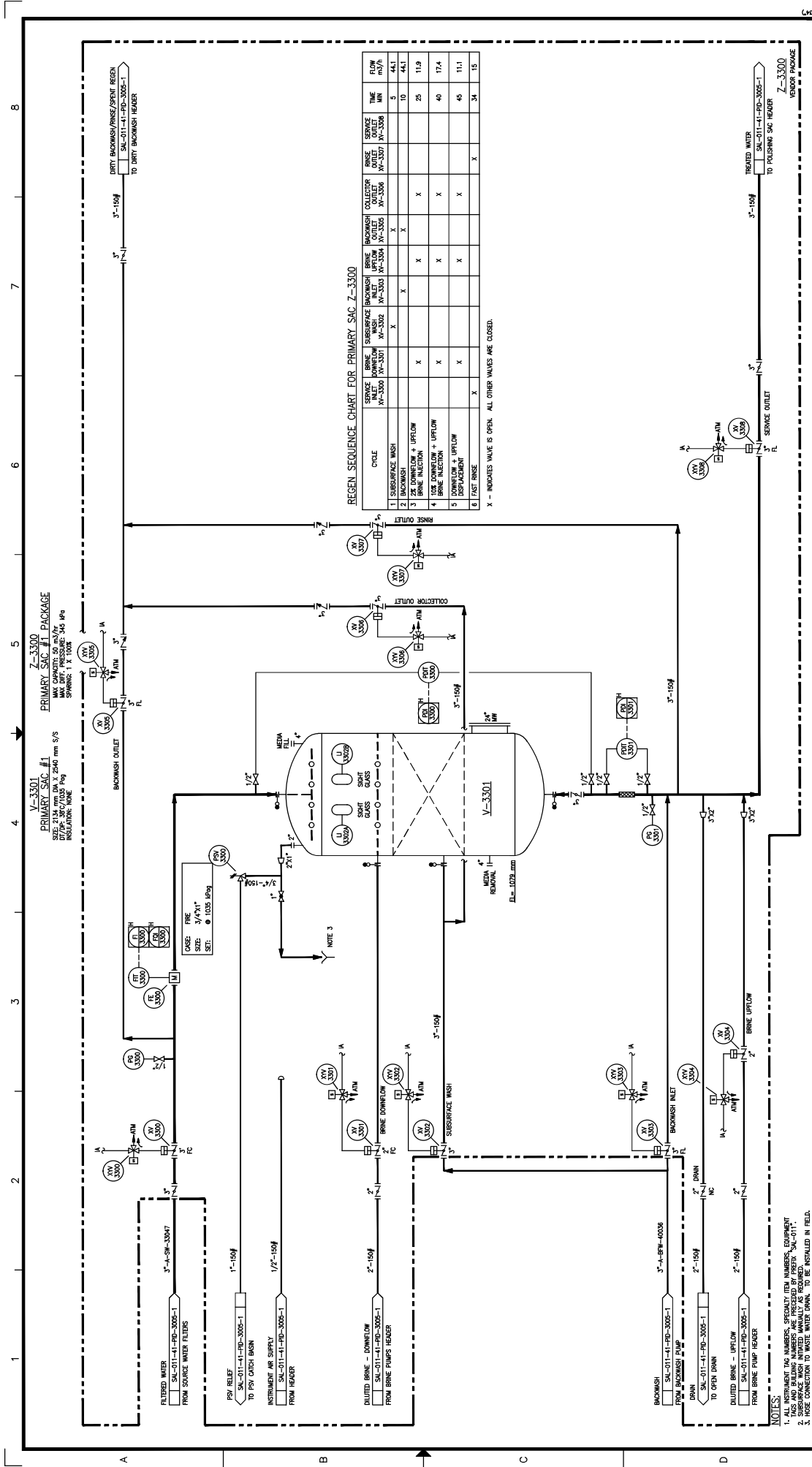
DATE	DRAWN:	DESIGNED:	CHECKED:	APPROVED:	SCALE	JOB NO.	DRAWING NO.	REV.
09/06/17	J. CHU	L. TURNO	L. TURNO	L. TURNO	N.T.S.	SAL-011-41-PD-3005-1	3	3

TITLE	DATE	BY	DATE	CHK	APP	DESCRIPTION
SW SECTION 26-85-19 IWAM	09/12/17					
SALESKI SC SAGD PILOT PROJECT	09/12/17					
PRIMARY SAC & POLISHING SAC HEADERS	09/12/17					
PIPING AND INSTRUMENTATION DIAGRAM	09/12/17					

**NOTES:**  
 1. EQUIPMENT TAG NUMBERS, ESPECIALLY FEED NUMBERS, EQUIPMENT TAG NUMBERS AND BILLING NUMBERS ARE PREFIXED BY PREFIX "SAL-011-".  
 2. VENDOR SHALL BE RESPONSIBLE TO PROVIDE AND MAINTAIN ALL INSTRUMENTATION AND CONTROL VALVES TO PREVENT AND/OR AVOID DAMAGE TO THE UNIT. UNIT SHALL BE COMMISSIONED WITH RESTRICTIONS ON SAC / FILTER PACKAGE VALVES ARE COMMISSIONED.  
 3. FOUR TOP MOUNT VALVES SPACED OUT ALONG RACK.  
 4. FOR FIRE FIGHTING CONNECTIONS, FOUR TOP MOUNT VALVES SPACED OUT ALONG RACK.  
 5. FIELD OUT-TANK OPENING TO SUIT.



V-3301  
PRIMARY SAC #1  
SIZE: 2134 mm DIA X 2640 mm S/S  
MAX CAPACITY: 50 MVA/WT  
MAX OPER. PRESSURE: 345 MPa  
SPRING: 1 X 100#  
INSULATOR: NONE

REGEN SEQUENCE CHART FOR PRIMARY SAC Z-3300

CYCLE	BRINE	SUBSURFACE	BACKWASH	COLLECTOR	RINSE	SERVICE	TIME	FLOW
	W-3300	W-3301	W-3302	W-3303	W-3304	W-3305	MIN	m <sup>3</sup> /h
1	X						5	44.1
2		X					10	44.1
3			X				25	11.9
4				X			40	17.4
5					X		45	11.1
6						X	34	15

X - INDICATES VALVE IS OPEN. ALL OTHER VALVES ARE CLOSED.

- NOTES:
- ALL INSTRUMENT TAG NUMBERS, SECURITY ITEM NUMBERS, EQUIPMENT TAG NUMBERS SHALL BE IDENTICAL TO THE TAG NUMBERS FOR SAC-011.
  - SUBSURFACE WASH INSTALLED MANUALLY AS REQUIRED.
  - HOSE CONNECTION TO WASTE WATER DRAIN. TO BE INSTALLED IN FIELD.

DRAWING NO. #1461		HOCS PROJECTS #1461	
REV.	DESCRIPTION	DATE	BY
4	AS BUILT PER CLIENT MARK-UPS (MOCS #1461)		
3	AS BUILT - GENERAL REVISION (ADRAFT LRC-793)	12/09/07	JB
2	AS BUILT	11/09/14	JCH
1	RE-ISSUED FOR CONSTRUCTION	10/04/20	LR
0	ISSUED FOR CONSTRUCTION	09/12/21	SL

DATE	09/09/17	DESIGNED	J. CHU
DATE	09/12/21	CHECKED	L. TURNO
DATE	09/12/21	APPROVED	L. TURNO
DATE	09/12/21	DATE	09/12/21

SCALE: N.T.S. JOB NO. 1461 DRAWING NO. SAL-011-41-PD-3005-2

TITLE: SW SECTION 26-85-19 WAM SALESKI SC SAGD PILOT PROJECT PRIMARY SAC #1 PIPING AND INSTRUMENTATION DIAGRAM

DATE: 09/12/21

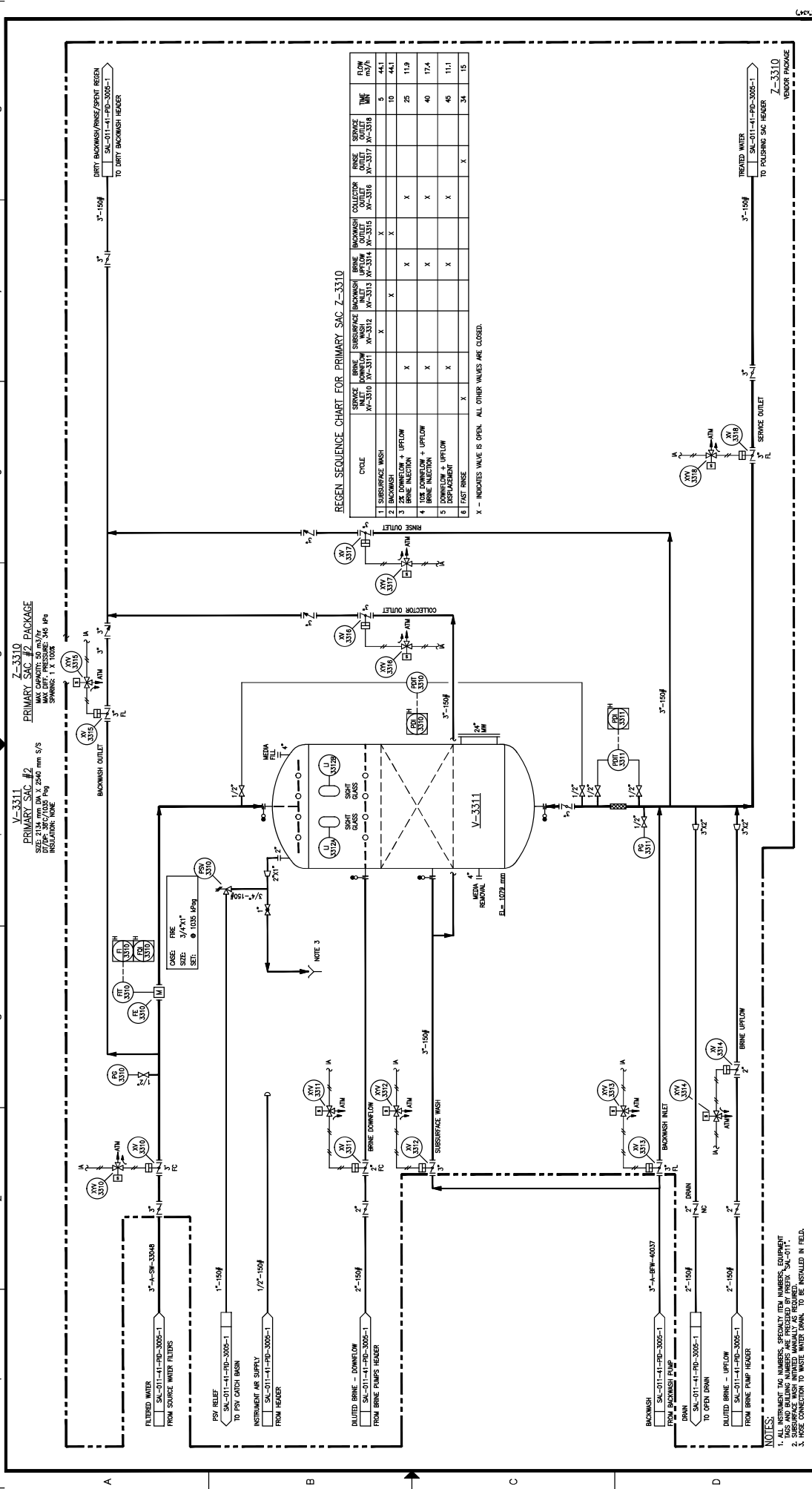
SCALE: N.T.S. JOB NO. 1461 DRAWING NO. SAL-011-41-PD-3005-2

REV. 4

LARICINA  
SOLUTIONS

HOCS PROJECTS





REGEN SEQUENCE CHART FOR PRIMARY SAC Z-3310

CYCLE	SERVICE BRINE WASH	BACKWASH BRINE	COLLECTOR BRINE	RINSE BRINE	SERVICE BRINE	FLOW m <sup>3</sup> /h
1	SUBSURFACE WASH	W-3310	W-3310	W-3310	W-3310	44.1
2	BACKWASH	W-3311	W-3311	W-3311	W-3311	10
3	2X DOWNFLOW + UPFLOW	W-3312	W-3313	W-3314	W-3315	25
4	BRINE INJECTION + UPFLOW	W-3316	W-3317	W-3318	W-3319	40
5	DOWNFLOW + UPFLOW	W-3320	W-3321	W-3322	W-3323	11.1
6	FAST RINSE	W-3324	W-3325	W-3326	W-3327	34

X - INDICATES VALVE IS OPEN. ALL OTHER VALVES ARE CLOSED.

V-3310  
PRIMARY SAC #2  
SIZE: 2134 mm DIA X 2940 mm S/S  
MAX CAPACITY: 50 m<sup>3</sup>/hr  
DI/DF: 38%/105 Ppg  
INSULATOR: NONE

7-Z-3310  
PRIMARY SAC #2  
SIZE: 2134 mm DIA X 2940 mm S/S  
MAX CAPACITY: 50 m<sup>3</sup>/hr  
DI/DF: 38%/105 Ppg  
INSULATOR: NONE

- NOTES:
- ALL INSTRUMENT TAG NUMBERS, SECURITY ITEM NUMBERS, EQUIPMENT IDENTIFICATION NUMBERS, AND IDENTIFICATION NUMBERS FOR SAC-011.
  - SUBSURFACE WASH INJECTED MANUALLY AS REQUIRED.
  - HOSE CONNECTION TO WASTE WATER DRAIN. TO BE INSTALLED IN FIELD.

**LARICINA**  
S.A.  
S.W. SECTION 26-85-19  
SALESKI SC SAGO PILOT PROJECT  
PRIMARY SAC #2  
PIPING AND INSTRUMENTATION DIAGRAM

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
09/12/21	M. KRST	ISSUED FOR CONSTRUCTION	09/12/21	M. KRST	ISSUED FOR CONSTRUCTION
09/12/21	L. TURNO	APPROVED	09/12/21	L. TURNO	APPROVED
09/12/21	L. TURNO	CHECKED	09/12/21	L. TURNO	CHECKED
09/12/21	L. TURNO	DESIGNED	09/12/21	L. TURNO	DESIGNED

REV.	DESCRIPTION
4	AS BUILT PER CLIENT MARK-UPS (MOSS #148)
3	AS BUILT - GENERAL REVISION (DRAFT IFC-793)
2	AS BUILT
1	ISSUED FOR CONSTRUCTION
0	ISSUED FOR CONSTRUCTION

DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION
09/12/21	M. KRST	ISSUED FOR CONSTRUCTION	09/12/21	M. KRST	ISSUED FOR CONSTRUCTION
09/12/21	L. TURNO	APPROVED	09/12/21	L. TURNO	APPROVED
09/12/21	L. TURNO	CHECKED	09/12/21	L. TURNO	CHECKED
09/12/21	L. TURNO	DESIGNED	09/12/21	L. TURNO	DESIGNED

SCALE: APPROX # PLOTTED ON SIZE "C" (22x34)

SCALE: N.T.S. JOB NO. 1461 DRAWING NO. SAL-011-41-PD-3005-3

REV. 4

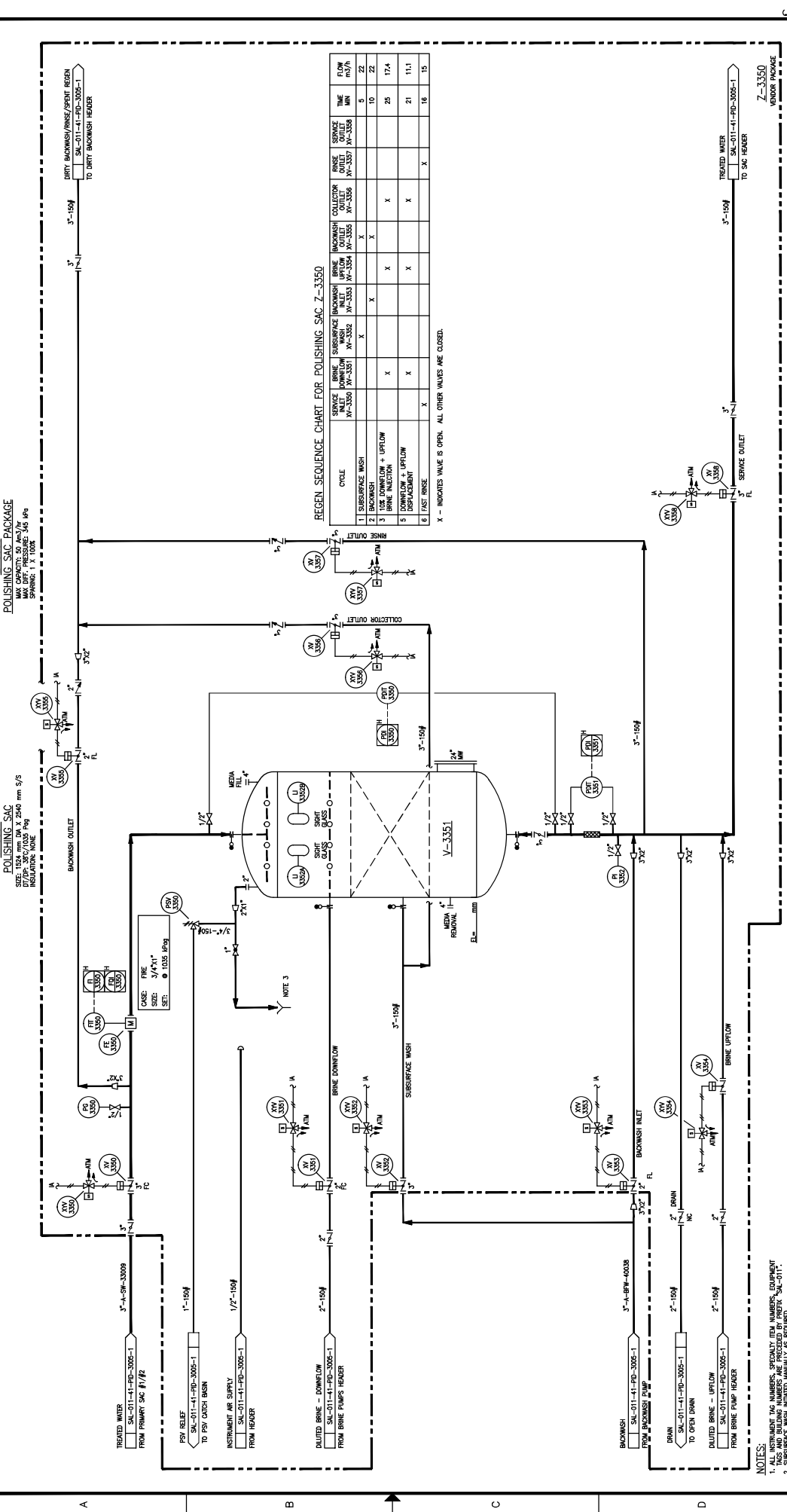
HOCS PROJECTS #1461

REFERENCE DRAWINGS

**HOCS**  
HOCS PROJECTS

V-3351 POLISHING SAC  
 SIZE: 1524 mm Dia. x 2400 mm Hgt  
 MAX OPERATING PRESSURE: 1.0 MPa  
 INSULATION: NONE

Z-3350 POLISHING SAC PACKAGE  
 MAX OPERATING PRESSURE: 1.0 MPa  
 SWING: 1 X 100°



REGEN SEQUENCE CHART FOR POLISHING SAC Z-3350

CYCLE	SERVICE	BRINE	SUBSURFACE	BACKWASH	COLLECTOR	RINSE	SERVICE	TIME	FLOW
	NO. 3350	NO. 3301	NO. 3302	NO. 3303	NO. 3304	NO. 3305	NO. 3306	MIN	m <sup>3</sup> /h
1	SUBSURFACE WASH	X						5	22
2	BACKWASH		X	X				10	5
3	TDR DOWNFLOW + UPFLOW				X			25	17.4
4	BRINE INJECTION	X						21	11.1
5	DISPLACEMENT		X					21	11.1
6	FACE RINSE	X						16	15

X - INDICATES VALVE IS OPEN. ALL OTHER VALVES ARE CLOSED.

- NOTES:
- ALL INSTRUMENT TAG NUMBERS, SPECIFIC TAG NUMBERS, EQUIPMENT TAGS AND BUILDING NUMBERS ARE PROVIDED BY PREFIX "SAL-011".
  - IN CASE OF EMERGENCY, ALL INSTRUMENT TAG NUMBERS ARE TO BE INSTALLED IN FIELD.
  - IN CASE CONNECTION TO WASTE WATER DRAIN, TO BE INSTALLED IN FIELD.

DRAWING NO. <b>#1461</b>				SCALE N.T.S.				JOB NO. 1461				DRAWING NO. SAL-011-41-PD-3006-1			
REFERENCE DRAWINGS				DESIGNED: J. CHU				DATE 09/04/17				DRAWN: J. CHU			
REV.				DATE				CHK				DATE			
4 AS BUILT PER CLIENT MARK-UPS (HCS #1461)				L. TURNO				09/12/21				L. TURNO			
3 AS BUILT - GENERAL REVISION (A/DRAFT I/P-C-793)				L. TURNO				09/12/21				L. TURNO			
2 AS BUILT				L. TURNO				09/12/21				L. TURNO			
1 RE-ISSUED FOR CONSTRUCTION				L. TURNO				09/12/21				L. TURNO			
0 ISSUED FOR CONSTRUCTION				L. TURNO				09/12/21				L. TURNO			

**LARICINA**  
**LABORATORIA**

SALESKI SC SAGD PILOT PROJECT  
 POLISHING SAC  
 PIPING AND INSTRUMENTATION DIAGRAM

SCALE N.T.S. JOB NO. 1461 DRAWING NO. SAL-011-41-PD-3006-1 REV. 4

SCALE APPLIES IF PLOTTED ON SIZE "C" (22"x34")

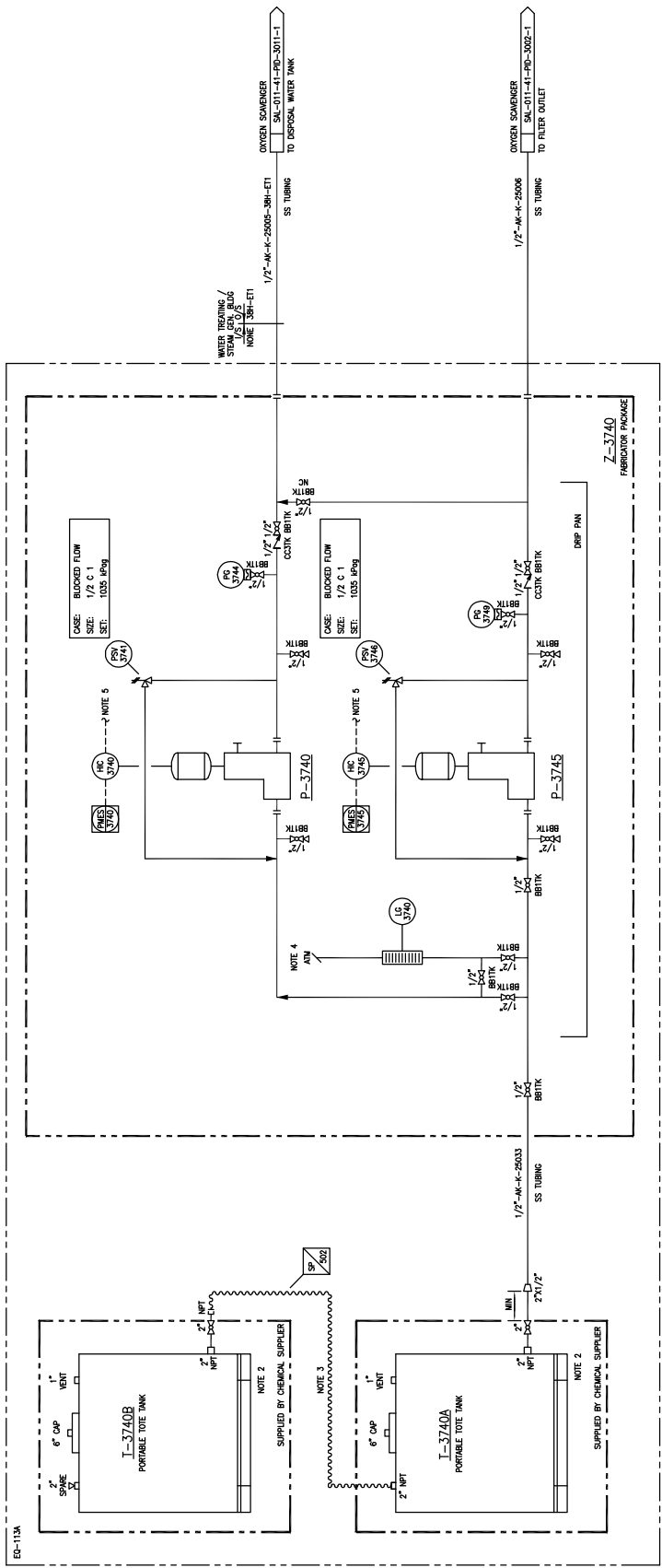
Z-3740  
OXYGEN SCAVENGER PACKAGE

P-3740/3745  
OXYGEN SCAVENGER PUMPS

WATER SCAVENGER PUMPS  
MOTOR: SCAGND 2R4D  
115 V / 1 PH / 60 HZ  
SPLA: PUMP COOLING: NOT APPLICABLE

I-3740A/B  
OXYGEN SCAVENGER TOTES

WARRANTY: 12 MONTHS  
NORMAL CAPACITY: 1150 LITERS  
DESIGN: ATM @ 25°C  
INSULATOR: NONE



- NOTES:**
1. ALL INSTRUMENT TAG NUMBERS, SPECIALTY ITEM NUMBERS, EQUIPMENT TAGS AND SUPPORTING NUMBERS SHALL BE PRECEDED BY PREFIX "SAL-011".
  2. RELEASABLE HOSE AND TANK CONNECTIONS POSITIONED TO ALLOW FOR STOCKED TANK POSITIONING.
  3. RELEASABLE HOSE AND TANK CONNECTIONS POSITIONED TO ALLOW FOR STOCKED TANK POSITIONING.
  4. TO 120V LIGHTING PANEL.
  5. TO 120V LIGHTING PANEL.

	DATE: 09/06/18 DRAWN: J. CHU
	DATE: 09/12/21 DESIGNED: L. TURNO
	DATE: 09/12/21 CHECKED: M. MC
	DATE: 09/12/21 APPROVED: L. TURNO
	DATE: 09/12/21 BY: M. CROFT
	DATE: 09/12/21 APP: PE
	DATE: 09/12/21 CHK: M. CROFT
	DATE: 09/12/21 BY: M. CROFT
	DATE: 09/12/21 APP: PE

REV.	DESCRIPTION	DATE	BY
3	AS BUILT - GENERAL REVISION (AUDRAFT LRC-793)	11/08/21	M. CROFT
2	AS BUILT	11/08/21	M. CROFT
1	RE-ISSUED FOR CONSTRUCTION	09/12/21	M. CROFT
0	ISSUED FOR CONSTRUCTION	09/12/21	M. CROFT

REV.	DESCRIPTION	DATE	BY
3	AS BUILT - GENERAL REVISION (AUDRAFT LRC-793)	11/08/21	M. CROFT
2	AS BUILT	11/08/21	M. CROFT
1	RE-ISSUED FOR CONSTRUCTION	09/12/21	M. CROFT
0	ISSUED FOR CONSTRUCTION	09/12/21	M. CROFT

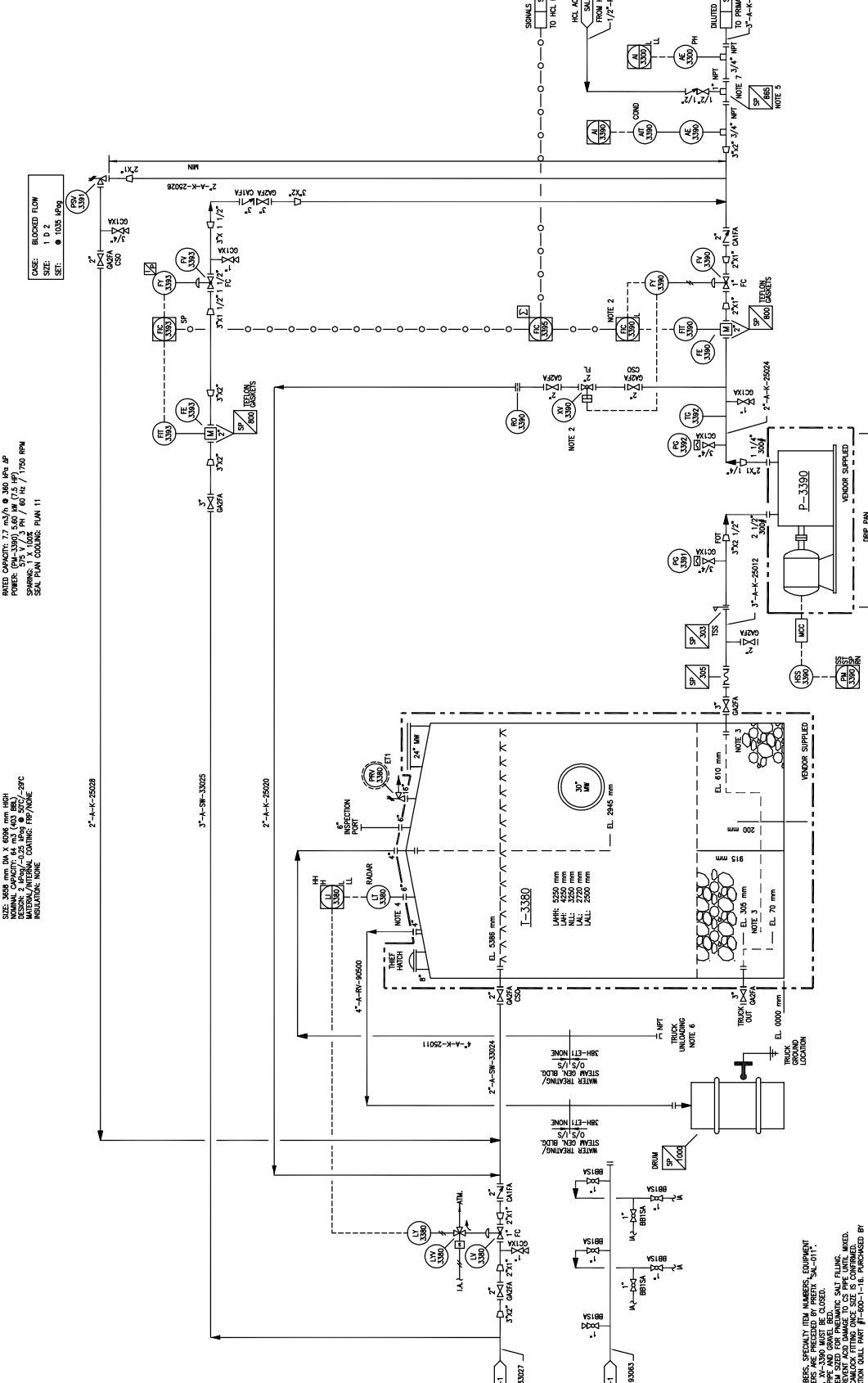
TITLE	SW SECTION 26-85-19 1WAM SALESKI SC SAGD PILOT PROJECT OXYGEN SCAVENGER PACKAGE PIPING AND INSTRUMENTATION DIAGRAM
SCALE	N.T.S.
DRAWING NO.	SAL-011-41-PD-3007-1
REV.	3

ER-11A

Z-3740  
FERROXYDRON PACKAGE

1 2 3 4 5 6 7 8

A B C D



NO.	DATE	DESCRIPTION	BY	CHK	APP.	PE	DATE
	09/12/21						
	09/12/21						
	09/12/21						
	09/12/21						
	09/12/21						

**REFERENCE DRAWINGS**

DRAWING NO.	SCALE	JOB NO.	DRAWING NO.	REV.
SAL-011-41-PD-3005-1	N.T.S.			4

**PROJECT INFORMATION:**

**CLIENT:** LARICINA S.R.L.

**TITLE:** SW SECTION 26-85-19 WAM SALESKI SC SAGD PILOT PROJECT BRINE TANK AND PUMP PIPING AND INSTRUMENTATION DIAGRAM

**DATE:** 09/12/21

**DESIGNED BY:** J. CHU

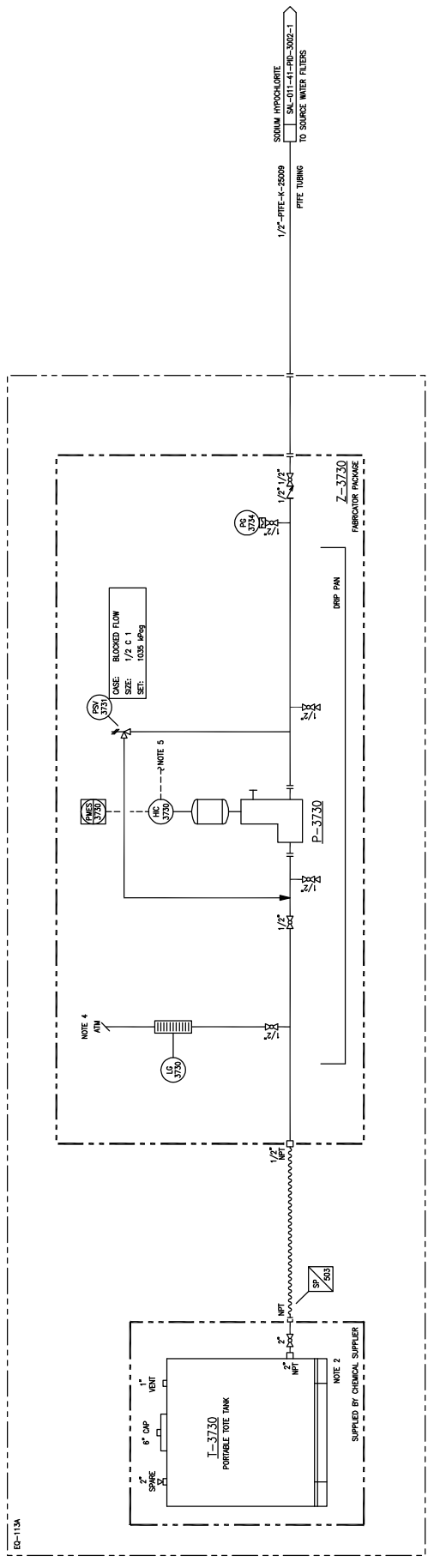
**CHECKED BY:** L. TURNO

**APPROVED BY:** L. TURNO

**T-3730**  
**SODIUM HYPOCHLORITE TANK**  
 NOMINAL CAPACITY: 1100 L  
 NOMINAL HEIGHT: 1160 mm  
 DESIGN: ATM @ 35°C  
 INSULATION: NONE  
 EQUIPMENT TRIM LINE NUMBER: -PTE-K-9902

**P-3730**  
**SODIUM HYPOCHLORITE PUMP**  
 MOTOR: SODIUM HYPOCHLORITE  
 MOTOR SPEED: 1725 RPM  
 SPARING: 15% / 1 PH / 60 HZ  
 SEAL PLAN COUPLING: NOT APPLICABLE

**Z-3730**  
**SODIUM HYPOCHLORITE PACKAGE**



**NOTES:**

1. ALL INSTRUMENT TAG NUMBERS, SPECIALTY ITEM NUMBERS, EQUIPMENT TAGS AND BUILDING NUMBERS AND PRECEDENCE BY PREFIX "SAL-011".
2. ALL INSTRUMENT TAG NUMBERS AND PRECEDENCE BY PREFIX "SAL-011".
3. DELETED INSTRUMENT TAG NUMBERS AND PRECEDENCE BY PREFIX "SAL-011".
4. TO 120VAC LIGHTING PANEL.
5. TO 120VAC LIGHTING PANEL.

REV.	DESCRIPTION	BY	DATE	CHK	APP.	PE
3	AS BUILT - GENERAL REVISION (AUDRIFT LARC-793)	RAI	12/05/07	BB	IM	MC
2	AS BUILT	JOHU	11/06/14	LRI	IP	MC
1	RE-ISSUED FOR CONSTRUCTION	RP	10/04/20	LRI	IP	MC
0	ISSUED FOR CONSTRUCTION	RP	09/12/21	LRI	IT	MC
REV.						

DATE	DATE	DATE	DATE	DATE	DATE
09/09/20	09/12/21	09/12/21	09/12/21	09/12/21	09/12/21

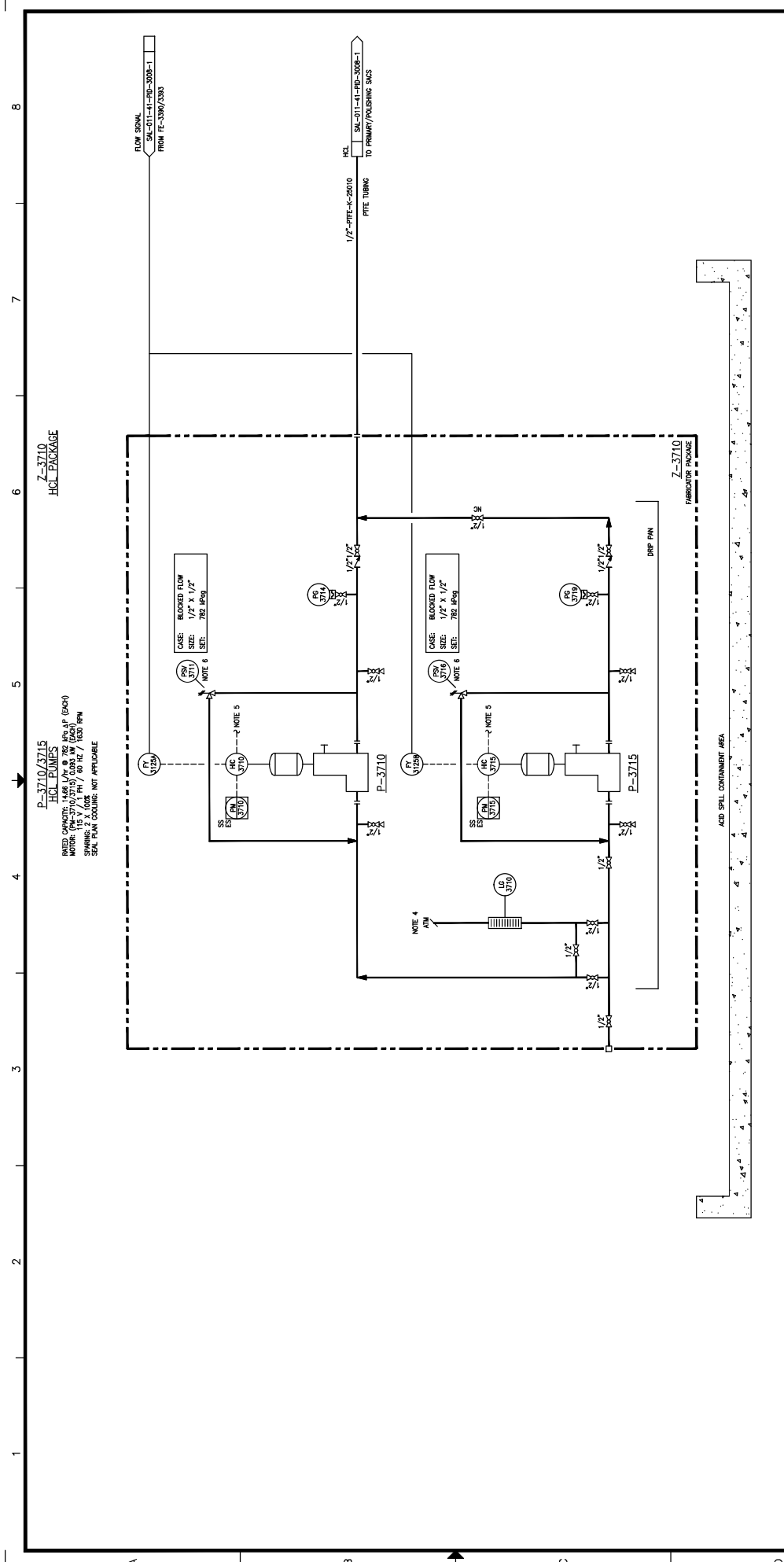
DRAWN:	DESIGNED:	CHECKED:	APPROVED:	SCALE	JOB NO.	DRAWING NO.
J. CHU	L. TURNO	L. RAYNA-REINER	L. TURNO	N.T.S.	SAL-011-41-PID-3008-1	3

**LARICINA**  
 ENGINEERS LTD.

SW SECTION 26-85-19 WAM  
 SALESKI SC SAGD PILOT PROJECT  
 SODIUM HYPOCHLORITE PACKAGE  
 PIPING AND INSTRUMENTATION DIAGRAM

DATE	DATE	DATE	DATE	DATE	DATE
09/09/20	09/12/21	09/12/21	09/12/21	09/12/21	09/12/21

REV.	DESCRIPTION	BY	DATE	CHK	APP.	PE
3	AS BUILT - GENERAL REVISION (AUDRIFT LARC-793)	RAI	12/05/07	BB	IM	MC
2	AS BUILT	JOHU	11/06/14	LRI	IP	MC
1	RE-ISSUED FOR CONSTRUCTION	RP	10/04/20	LRI	IP	MC
0	ISSUED FOR CONSTRUCTION	RP	09/12/21	LRI	IT	MC
REV.						



**NOTES:**

1. ALL INSTRUMENT TAG NUMBERS, SPECIFIC ITEM NUMBERS, EQUIPMENT TAGS AND BUILDING NUMBERS ARE PRECEDED BY PREFIX "SAL-011".
2. O.D.E.F.E.D.
3. O.D.E.F.E.D.
4. UNIT HEIGHT SHOWN ABOVE TIDE HEIGHT.
5. PS/S SUPPLIED BY E.L.
6. PS/S SUPPLIED BY E.L.

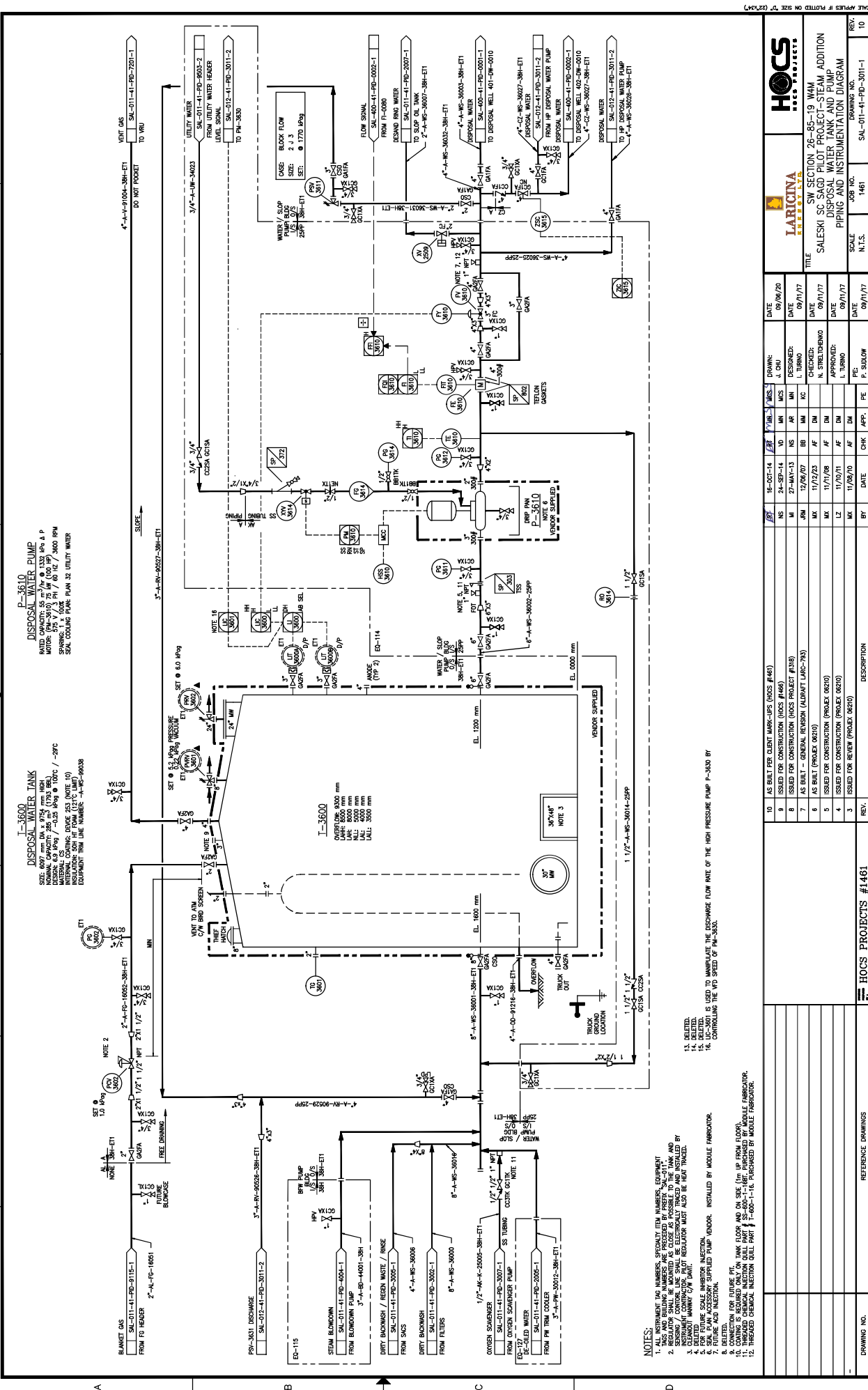
REV.	DESCRIPTION	DATE	CHK	APP.	FE	MC	PE	M. CRFT
4	AS BUILT PER CLIENT MARK-UPS (MOS #140)	12/09/14	BT					
3	AS BUILT - GENERAL PERSON (ADRAFT LINC-793)	12/09/14	BT					
2	AS BUILT	11/05/14	BT					
1	ISSUED FOR CONSTRUCTION	10/04/10	BT					
0	ISSUED FOR CONSTRUCTION	09/12/11	BT					
REV.	DESCRIPTION	DATE	CHK	APP.	FE	MC	PE	M. CRFT

SCALE APPLIES IF PLOTTED ON SIZE "D" (22x34)	DATE	DESIGNED	CHECKED	APPROVED
	09/09/20	J. CHU	L. TURNO	L. TURNO
	09/12/21			
	09/12/21			
	09/12/21			

<b>LARICINA</b> CORPORATION	<b>HOCS PROJECTS #1461</b>
SW SECTION 26-85-19 WAM SALESKI SC SAGO PILOT PROJECT HCL PACKAGE PIPING AND INSTRUMENTATION DIAGRAM	
DRAWING NO. SAL-011-41-PID-3010-1 JOB NO. 1461 N.T.S.	REV. 4 09/12/21 M. CRFT



10. AS BUILT PER CLIENT MARK-UPT (NOS #48)
11. ISSUED FOR CONSTRUCTION (NOS #49)
12. ISSUED FOR CONSTRUCTION (NOS #50)
13. AS BUILT - GENERAL SENSOR (AUDIART LRC-733)
14. AS BUILT (PROJECT 0620)
15. ISSUED FOR CONSTRUCTION (PROJECT 0620)
16. ISSUED FOR CONSTRUCTION (PROJECT 0620)

17. BLANKET GAS FROM PG HEADER
18. DRAINAGE WATER FROM OVEN SWAPENER PUMP
19. DIRTY BACKWASH / REFIN WASTE / RINSE FROM BLOWDOWN
20. DIRTY BACKWASH FROM BLOWDOWN PUMP
21. DIRTY BACKWASH FROM SACS
22. DIRTY BACKWASH FROM FILTERS
23. OXYGEN SWAPENER
24. E-COILED WATER FROM PH TRUCK COOLER
25. DIRTY BACKWASH / REFIN WASTE / RINSE FROM BLOWDOWN
26. DIRTY BACKWASH FROM BLOWDOWN PUMP
27. DIRTY BACKWASH FROM SACS
28. DIRTY BACKWASH FROM FILTERS
29. CONNECTION FOR FUTURE PIT
30. TRUCK FLOOR HAS TO BE (IN TRUCK FLOOR)
31. TRUCK FLOOR HAS TO BE (IN TRUCK FLOOR)
32. TRUCK FLOOR HAS TO BE (IN TRUCK FLOOR)
33. TRUCK FLOOR HAS TO BE (IN TRUCK FLOOR)
34. TRUCK FLOOR HAS TO BE (IN TRUCK FLOOR)
35. TRUCK FLOOR HAS TO BE (IN TRUCK FLOOR)
36. TRUCK FLOOR HAS TO BE (IN TRUCK FLOOR)
37. TRUCK FLOOR HAS TO BE (IN TRUCK FLOOR)
38. TRUCK FLOOR HAS TO BE (IN TRUCK FLOOR)
39. TRUCK FLOOR HAS TO BE (IN TRUCK FLOOR)
40. TRUCK FLOOR HAS TO BE (IN TRUCK FLOOR)
41. TRUCK FLOOR HAS TO BE (IN TRUCK FLOOR)
42. TRUCK FLOOR HAS TO BE (IN TRUCK FLOOR)
43. TRUCK FLOOR HAS TO BE (IN TRUCK FLOOR)
44. TRUCK FLOOR HAS TO BE (IN TRUCK FLOOR)
45. TRUCK FLOOR HAS TO BE (IN TRUCK FLOOR)
46. TRUCK FLOOR HAS TO BE (IN TRUCK FLOOR)
47. TRUCK FLOOR HAS TO BE (IN TRUCK FLOOR)
48. TRUCK FLOOR HAS TO BE (IN TRUCK FLOOR)
49. TRUCK FLOOR HAS TO BE (IN TRUCK FLOOR)
50. TRUCK FLOOR HAS TO BE (IN TRUCK FLOOR)

NOTES:

1. INSTRUMENT TAG NUMBERS, SPECIALLY ITEM NUMBERS, EQUIPMENT TAGS AND BILLING NUMBERS ARE PRECEDED BY PREFIX 'SA-0111'.

2. SENSING / CONTROL LINE SHALL BE ELECTRICALLY TRIMMED AND INSTALLED BY INSTRUMENT VENDOR.

3. CONTROL LINE SHALL BE ELECTRICALLY TRIMMED AND INSTALLED BY INSTRUMENT VENDOR.

4. UNLUBRICATED LOW VISCOSITY OIL SHALL BE USED FOR ALL MOVING PARTS.

5. SEAL PUMP ACCESSORY SUPPLIED VENDOR. INSTALLED BY MODULE FABRICATOR.

6. INSTRUMENT VENDOR SHALL BE RESPONSIBLE FOR THE PROPER INSTRUMENTATION OF THE PUMP.

7. INSTRUMENT VENDOR SHALL BE RESPONSIBLE FOR THE PROPER INSTRUMENTATION OF THE PUMP.

8. INSTRUMENT VENDOR SHALL BE RESPONSIBLE FOR THE PROPER INSTRUMENTATION OF THE PUMP.

9. CONNECTION FOR FUTURE PIT

10. TRUCK FLOOR HAS TO BE (IN TRUCK FLOOR)

11. TRUCK FLOOR HAS TO BE (IN TRUCK FLOOR)

12. TRUCK FLOOR HAS TO BE (IN TRUCK FLOOR)

# HCS PROJECTS #1461

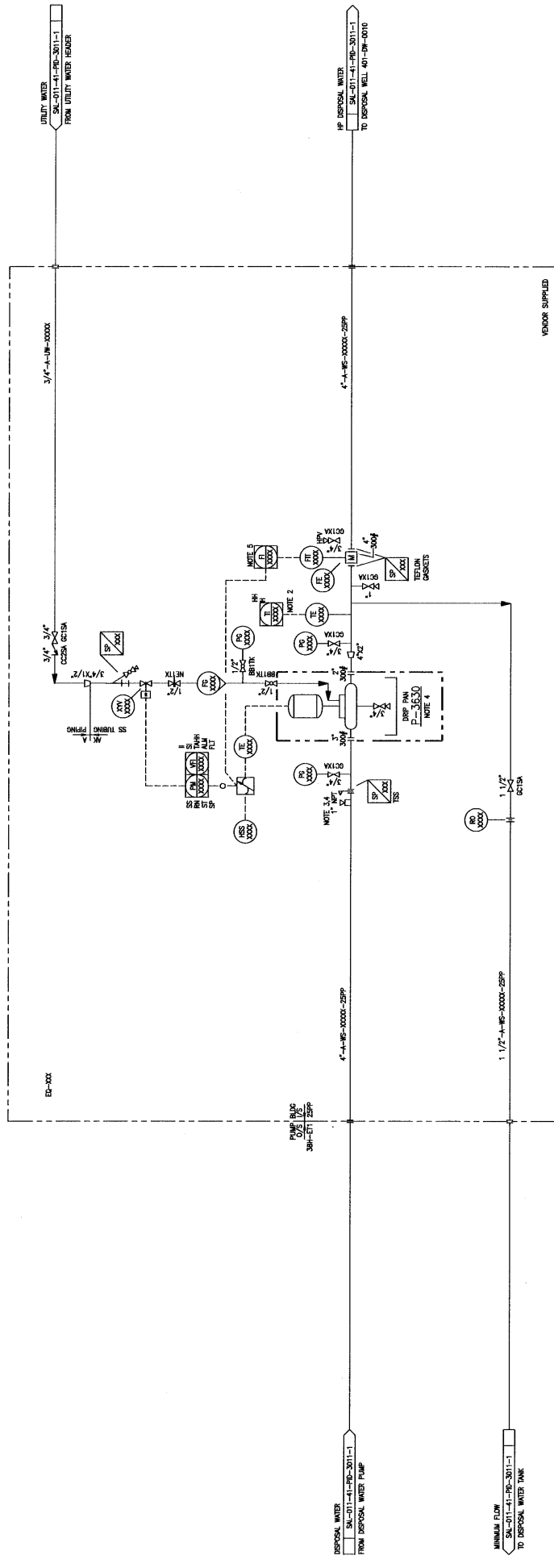
SALESKI SC SAGD PILOT PROJECT - STEAM ADDITION DISPOSAL WATER TANK AND PUMP PIPING AND INSTRUMENTATION DIAGRAM

DATE	BY	CHK	APP.	FE	PE	SCALE	JOB NO.	REV.
09/09/20	L. CHU					N.T.S.	1461	10
09/11/17	L. TURNO							9
09/11/17	N. STELBOSCH							8
09/11/17	P. SULLOW							7
09/11/17								6
09/11/17								5
09/11/17								4
09/11/17								3
09/11/17								2
09/11/17								1

NO	DESCRIPTION	REV.
10	AS BUILT PER CLIENT MARK-UPT (NOS #48)	
11	ISSUED FOR CONSTRUCTION (NOS #49)	
12	ISSUED FOR CONSTRUCTION (NOS #50)	
13	AS BUILT - GENERAL SENSOR (AUDIART LRC-733)	
14	AS BUILT (PROJECT 0620)	
15	ISSUED FOR CONSTRUCTION (PROJECT 0620)	
16	ISSUED FOR CONSTRUCTION (PROJECT 0620)	

8  
7  
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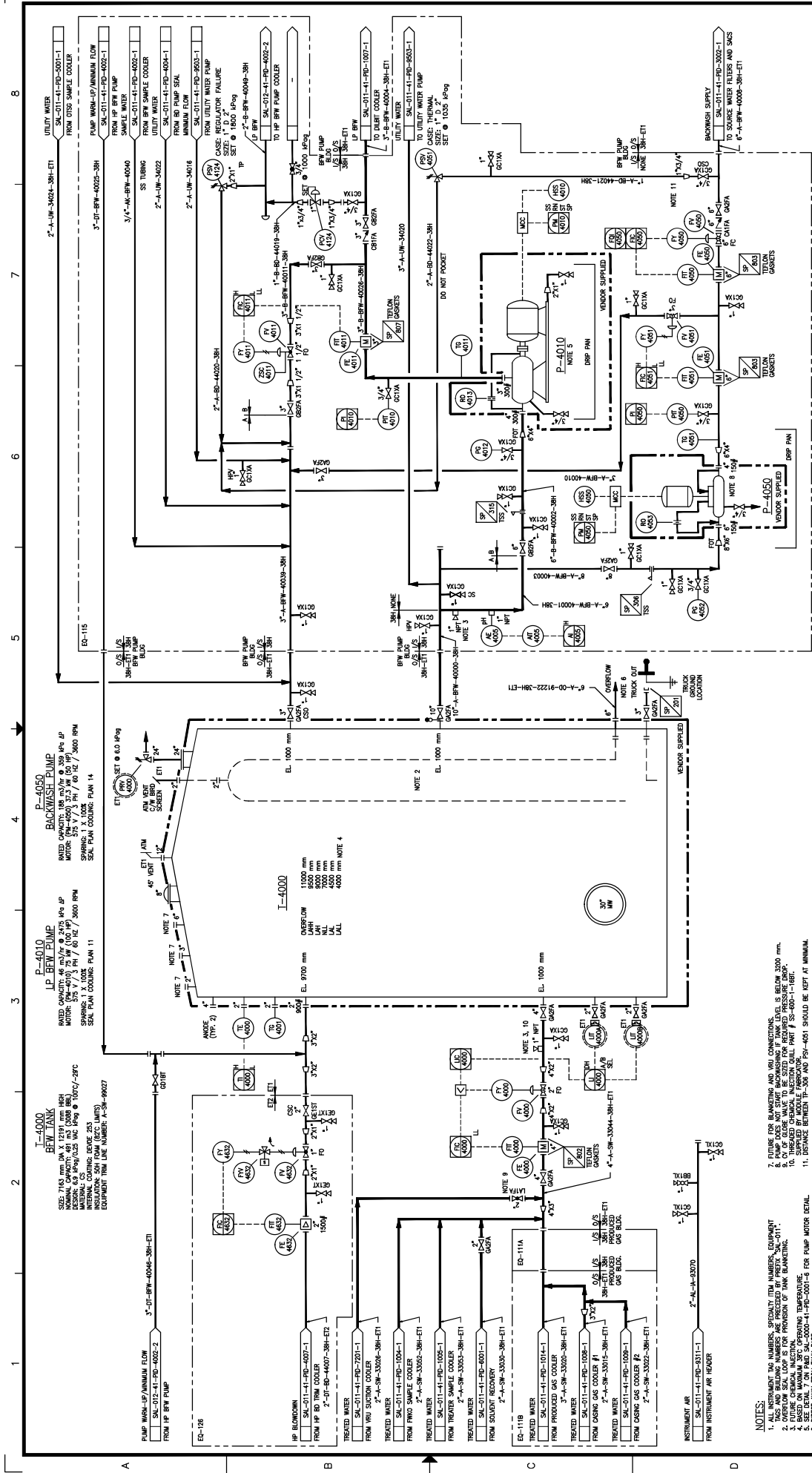
**P-3630**  
**HP DISPOSAL WATER PUMP**  
 PUMP CHARACTERISTICS:  
 MODEL: 3630  
 MOTOR: 575 V / 3 PH / 60 HZ / 3600 RPM  
 SHAFT COUPLING: FPMAL-XXXX



- NOTES:**
1. DIMENSIONS AND NUMBERS, UNLESS OTHERWISE SPECIFIED, ARE IN INCHES.
  2. DIMENSIONS AND BUILDING NUMBERS ARE PRECEDED BY PREFIX "SAL-011".
  3. DIMENSIONS AND BUILDING NUMBERS ARE PRECEDED BY PREFIX "SAL-011".
  4. SIA PLANT ACCESSORY SUPPLIER PUMP VENDOR. INSTALLED BY MODULE FABRICATOR.
  5. FLOW SETPOINT LIMITS REQUIRED TO KEEP PUMP WITHIN OPERATING RANGE.
  6. THROUGH CHEMICAL INJECTION GULL PART # SS-004-1-1811. PURCHASED BY MODULE FABRICATOR.

DRAWING NO.		PROJECT		06210		REFERENCE DRAWINGS	
REV. A		USED FOR REVIEW (PROJECT REVIEW)		DATE		BY	
DATE		11/28/10		CHK		APP.	
PE		PE		APP.		PE	
APPROVED:		DATE		DATE		DATE	
CHECKED:		DATE		DATE		DATE	
DESIGNED:		DATE		DATE		DATE	
DRAWN:		DATE		DATE		DATE	
LARTICINA		SCALE		JOB NO.		DRAWING NO.	
N.T.S.		06210		SAL-011-41-PID-3011-2		A	
TITLE		SW SECTION 26-85-19 WAM		SALESKI SC SAGO PILOT PROJECT		HP DISPOSAL WATER PUMP	
PIPING AND INSTRUMENTATION DIAGRAM		PROJECT NO.		SAL-011-41-PID-3011-1		REV. A	





NO.	DATE	DESCRIPTION	BY	DATE	CHK	APP.	FE	MC	PE	IL	M	CRFT
10	13-SEP-14	AS BUILT PER CLIENT MARK-UPS (NO. #48)	JBA									
9	12/09/15	ISSUED FOR CONSTRUCTION (PAGES 0322)	JBA									
8	12/09/15	AS BUILT - GENERAL REVISION (ADAPT LPR-793)	JBA									
7	11/27/15	AS BUILT (PROJECT 0621)	MX	09/12/15								
6	11/27/15	RE-DESIGNED FOR CONSTRUCTION (PROJECT 0621)	MX	09/12/15								
5	11/27/15	ISSUED FOR CONSTRUCTION (PROJECT 0621)	LZ	09/12/15								
4	11/27/15	ISSUED FOR REVIEW (PROJECT 0621)	MX	09/12/15								
3	AS BUILT	AS BUILT	JOSU	11/27/13	DRP	IP	MC	PE				

DATE	DESIGNED	CHECKED	APPROVED
09/09/14	J. CHU		
09/12/15	L. TURNO		
09/12/15	L. BATANA-REINSHI		
09/12/15	L. TURNO		
09/12/15	FE		

REV.	NO.	DATE	DESCRIPTION
1	1461	09/12/15	SALESKI SC SAGD PILOT PROJECT - STEAM ADDITION BFW TANK AND LP BFW PUMP PIPING AND INSTRUMENTATION DIAGRAM
2	1461	09/12/15	
3	1461	09/12/15	
4	1461	09/12/15	
5	1461	09/12/15	
6	1461	09/12/15	
7	1461	09/12/15	
8	1461	09/12/15	
9	1461	09/12/15	
10	1461	09/12/15	



**HCS PROJECTS**  
**LARICINA CONSULTING**

SW SECTION 26-85-19 WAM  
 SALESKI SC SAGD PILOT PROJECT - STEAM ADDITION  
 BFW TANK AND LP BFW PUMP  
 PIPING AND INSTRUMENTATION DIAGRAM

SCALE: N.T.S.  
 JOB NO.: 1461  
 DRAWING NO.: SAL-011-41-PD-4001-1

DATE: 09/09/14  
 DATE: 09/12/15  
 DATE: 09/12/15  
 DATE: 09/12/15  
 DATE: 09/12/15

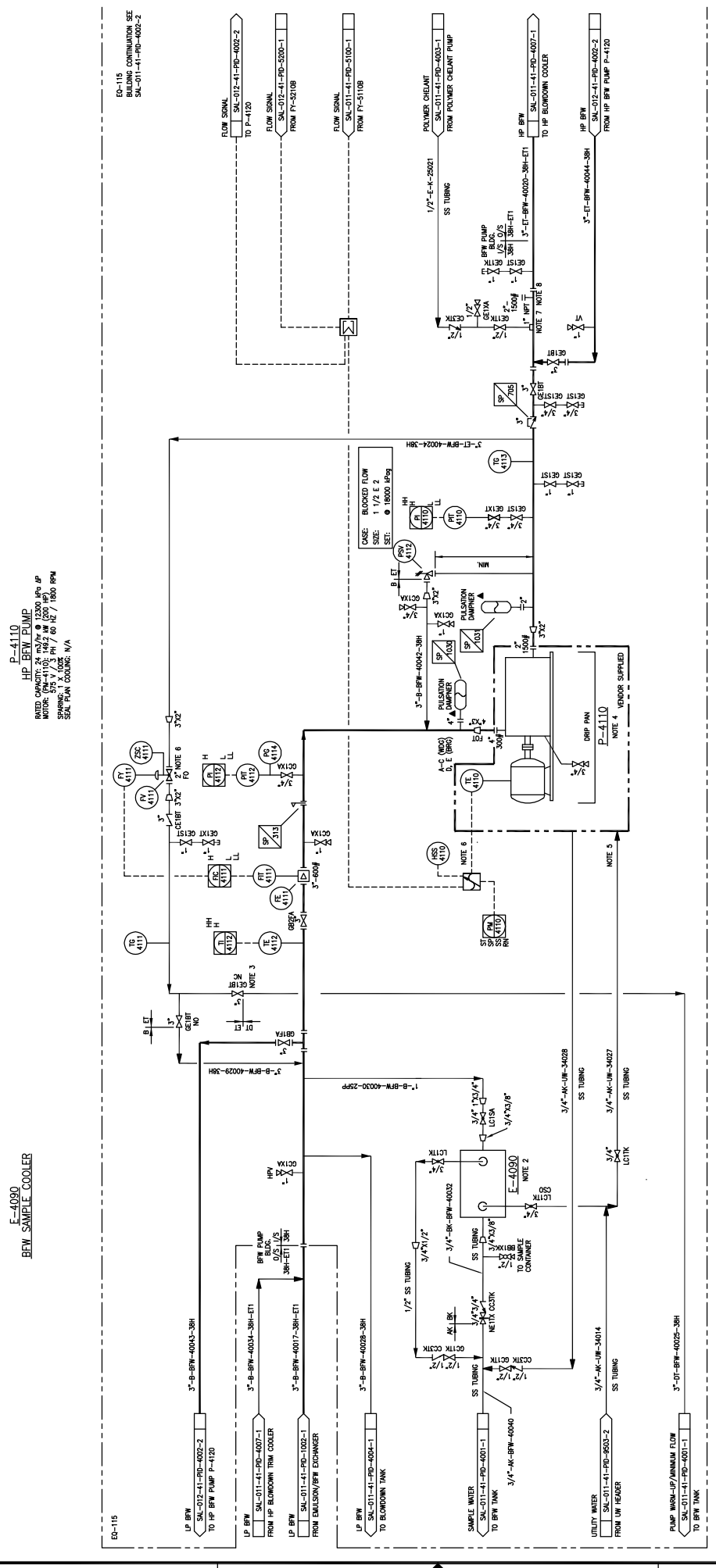
DESIGNED: J. CHU  
 CHECKED: L. TURNO  
 APPROVED: L. BATANA-REINSHI  
 DATE: 09/09/14  
 DATE: 09/12/15  
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 DATE: 09/12/15



E-4090  
BEW SAMPLE COOLER

P-4110  
HP-BFW PUMP

NOTES:  
1. ALL INSTRUMENT TAGS AND INSTRUMENT SYMBOLS TO BE PLACED IN FIELD NUMBERS, EQUIPMENT TAGS  
2. E-4090 SUPPLIED BY OTDS, YONKOR.  
3. PUMP COMMISSIONING IN LOW BFW TEMPERATURE (LESS THAN 20°C).  
4. PUMP COMPLEX PUMP (AT PD PUMP) C/W POWER AND AUXILIARY LUBE PACKAGE.  
5. TURN DOWN OF THE FLOW RATE OF BFW TO THE STEAM GENERATOR OCCURS VIA ICS-5108 AND P-4110. P-4110 IS NOT REQUIRED TO OPEN OR PRESSURIZE UP. TURN START-UP OF P-4110 WHEN THE STEADY IS FIRST PRESSURIZED UP.  
6. THE INJECTION CHILL PART (IJS-810-6-BW-BF) PURCHASED BY MARLBOR FABRICATION.  
7. F. FLANGE FOR FUTURE INJECTION CHILL.

ED-115  
BUILDING CONTINUATION SEE  
SAL-011-41-PD-4002-2

**NOTES:**

1. ALL INSTRUMENT TAGS AND INSTRUMENT SYMBOLS TO BE PLACED IN FIELD NUMBERS, EQUIPMENT TAGS
2. E-4090 SUPPLIED BY OTDS, YONKOR.
3. PUMP COMMISSIONING IN LOW BFW TEMPERATURE (LESS THAN 20°C).
4. PUMP COMPLEX PUMP (AT PD PUMP) C/W POWER AND AUXILIARY LUBE PACKAGE.
5. TURN DOWN OF THE FLOW RATE OF BFW TO THE STEAM GENERATOR OCCURS VIA ICS-5108 AND P-4110. P-4110 IS NOT REQUIRED TO OPEN OR PRESSURIZE UP. TURN START-UP OF P-4110 WHEN THE STEADY IS FIRST PRESSURIZED UP.
6. THE INJECTION CHILL PART (IJS-810-6-BW-BF) PURCHASED BY MARLBOR FABRICATION.
7. F. FLANGE FOR FUTURE INJECTION CHILL.

REV.	DESCRIPTION	DATE	BY	CHK	APP.	PE	DATE
7	AS-BUILT - GENERAL REVISIONS (AUBRAT-LARC-783)	12/11/05	MC	12/11/05	BR	MC	09/09/21
6	AS-BUILT - GENERAL REVISIONS (AUBRAT-LARC-783)	12/06/07	JM	12/06/07	BR	MC	09/12/21
5	AS-BUILT (PROJECT 06210)	11/22/03	AK	11/22/03	AF	MC	09/12/21
4	ISSUED FOR CONSTRUCTION (PROJECT 06210)	11/20/01	LZ	11/20/01	AF	MC	09/12/21
3	ISSUED FOR REVIEW (PROJECT 06210)	11/09/00	MI	11/09/00	AF	MC	09/12/21
2	AS-BUILT FOR CONSTRUCTION	10/04/00	DOB	10/04/00	UR	IP	09/12/21
1	RE-ISSUED FOR CONSTRUCTION	10/04/00	DOB	10/04/00	UR	IP	09/12/21

DATE	DRAWN:	DATE	DESIGNED:	DATE	CHECKED:	DATE	APPROVED:	SCALE	JOB NO.	DRAWING NO.	REV.
09/09/21	J. CHU	09/09/21	L. TURNO	09/12/21	L. BAYAMA-REMSER	09/12/21	L. TURNO	N.T.S.	SAL-011-41-PD-4002-1	7	

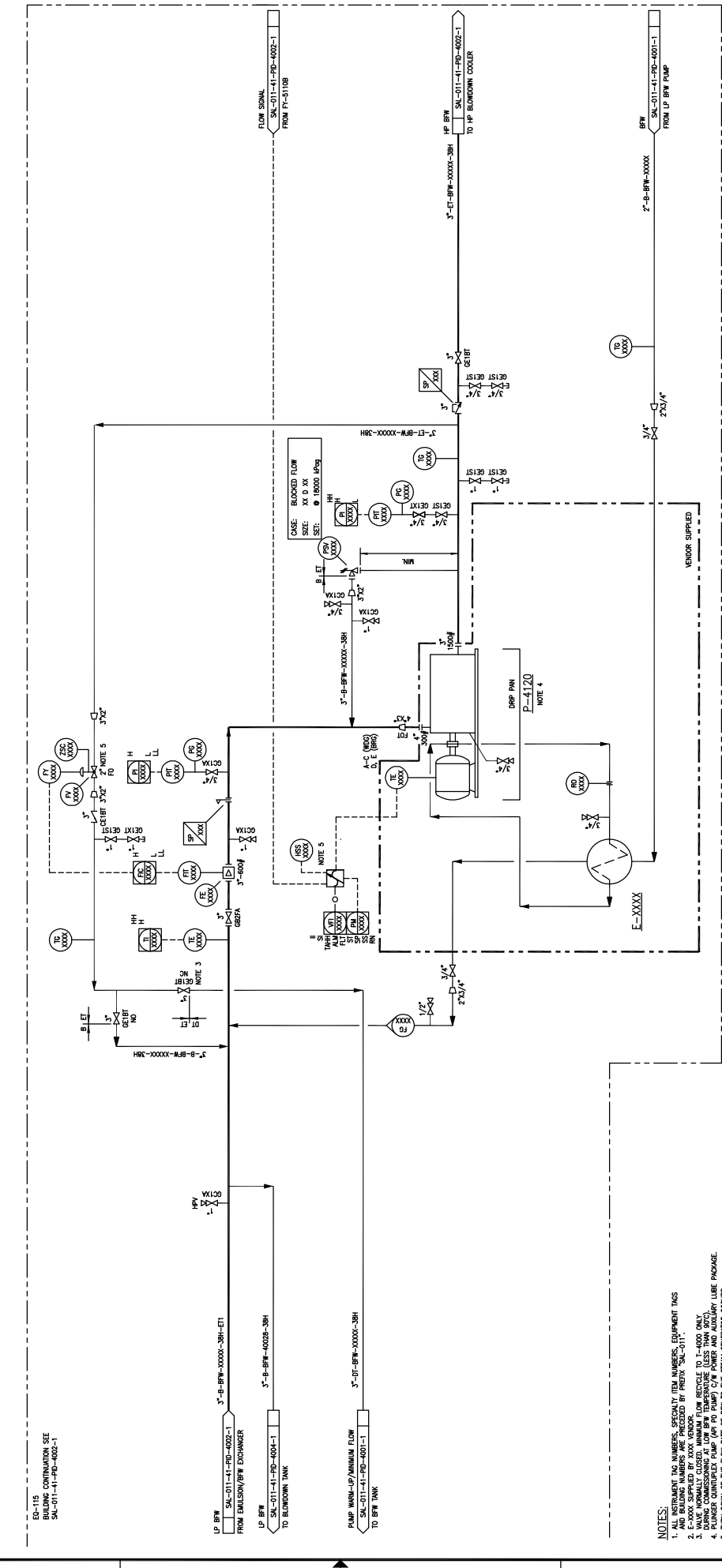


SW SECTION 26-85-19 WAW  
SALESKI SC SAGO PILOT PROJECT - STEAM ADDITION  
HP BFW PUMP  
PIPING AND INSTRUMENTATION DIAGRAM

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E-XXXX

**P-4120**  
**HP BFW PUMP**  
 BFW CAPACITY: 18000 GPM @ 1800 RPM  
 MOTOR (FM-4050): 375 HP / 60 HZ / 5600 RPM  
 SPACING: 575 X 173 PH / 60 HZ / 5600 RPM  
 SEAL PLAN COOLING



- NOTES:**
1. ALL INSTRUMENT TAG NUMBERS, SPECIFIC TAG NUMBERS, EQUIPMENT TAGS AND BUILDING NUMBERS ARE PRECEDED BY PREFIX "SAL-0".
  2. E-XXXX SUPPLIED BY XXXX VENDOR.
  3. ALL INSTRUMENT TAG NUMBERS SHALL BE TO SCALE UNLESS OTHERWISE NOTED.
  4. PUMPER COMPRESSOR PUMP (FOR PUMP C/W POWER AND AUXILIARY LUBE PACKAGE) IS NOT REQUIRED TO OPEN OR CLOSE EXCEPT UPON START-UP OF P-4110 WHEN THE SYSTEM IS FIRST PRESSURED UP.
  5. VV FC-51108 AND P-4110 VFD, P-4111 IS NOT REQUIRED TO OPEN OR PRESSURE UP.

DRAWING NO.	PROJECT		REFERENCE DRAWINGS	
	06210		A	
REV.	DESCRIPTION			
A	ISSUED FOR REVIEW (PROJECT 06210)			
	BY	DATE	CHK	APP.
		11/06/20		
	PE	DATE	DATE	DATE
	DESIGNED:	DATE		
	CHECKED:	DATE		
	APPROVED:	DATE		
	SCALE	N.T.S.		
	JOB NO.	06210		
	TITLE	SW SECTION 26-85-19 WAM SALESKIT SC SAGO PILOT PROJECT HP BFW PUMP PIPING AND INSTRUMENTATION DIAGRAM		
	DRAWING NO.	SAL-011-41-PD-4002-2		
	REV.	A		



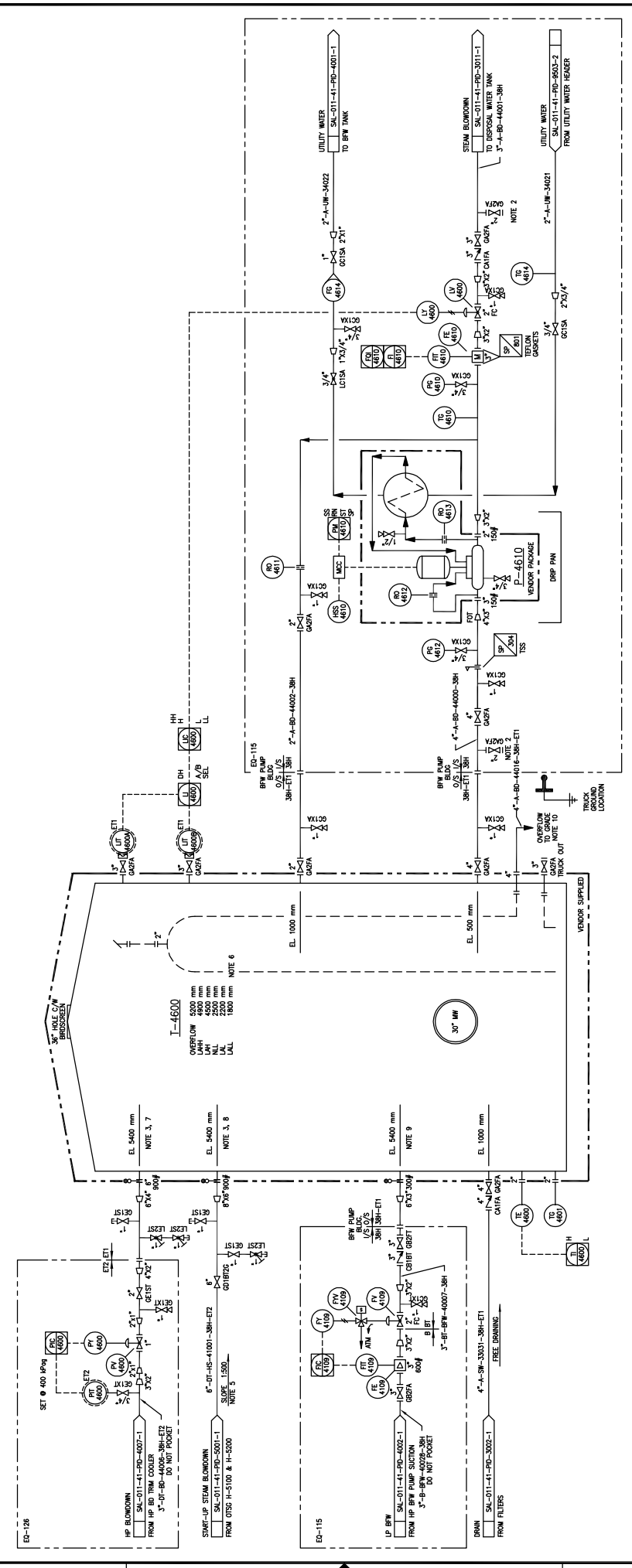


### I-4600 BLOWDOWN TANK

SIZE: 4600 mm DIA X 7,320 mm HGT  
 DESIGN: 6.89 MPa @ 2.5 MVA LP/SP @ 120°C/-28°C  
 INTERNAL COATING: NONE  
 INSULATION: 50M HT FOAM (127% UMI)  
 COMPACTOR: TIM UTE, NUMBER: 4F-BD-99028

### P-4610 BLOWDOWN PUMP

MODEL: CAVOTEC 35  
 11.3 HP @ 3300 RPM, 1P  
 SPEED: 3750 RPM / 50 HZ / 1800 RPM  
 SEAL: PAIN COOLING, PLAN 2/1/13 UTILITY WATER



- NOTES:**
1. ALL INSTRUMENT TAG NUMBERS, SPECIFICITY ITEM NUMBERS, EQUIPMENT TAGS AND BUILDING NUMBERS ARE PRECEDED BY PREFIX 'SAL-011'.
  2. INSTRUMENT TAG NUMBERS ARE PRECEDED BY PREFIX 'SAL-011'.
  3. NOZZLE TO HAVE INSTANTIAL ENTRY WITH A WEAR PLATE.
  4. SEEDED.
  5. NOZZLES TO BE USED FOR HP BLOWDOWN LINE.
  6. SALL BASED ON 98.2°C MAXIMUM OPERATING TEMPERATURE.
  7. SALL BASED ON 98.2°C MAXIMUM OPERATING TEMPERATURE.
  8. NOZZLE IS SIZED FOR 25% BFW FLOW (VAPOUR FRACTION = 0.2); VELOCITY = 18.8 m/s (MACH = 0.22).
  9. NOZZLE IS SIZED FOR 100% BFW FLOW (VAPOUR FRACTION = 0.0); VELOCITY = 48.8 m/s (MACH = 0.1).
  10. DIRECT RAMP FROM TANK BASE.

REV.	DESCRIPTION	BY	DATE	CHK	APP.	FE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	
6	AS BUILT - GENERAL REASON (AURAPT LARC-793)	JM	12/08/07	BB	MM	KC														
5	AS BUILT (PROXY 06210)	MM	11/23/05	AF	DM															
4	ISSUED FOR CONSTRUCTION (PROXY 06210)	LZ	11/30/01	AF	DM															
3	ISSUED FOR REVIEW (PROXY 06210)	ML	11/09/00	AF	DM															
2	AS BUILT FOR CONSTRUCTION	JCHU	11/07/13	LRR	IP	MC														
1	RE-ISSUED FOR CONSTRUCTION	RP	10/04/20	LRR	IP	MC														

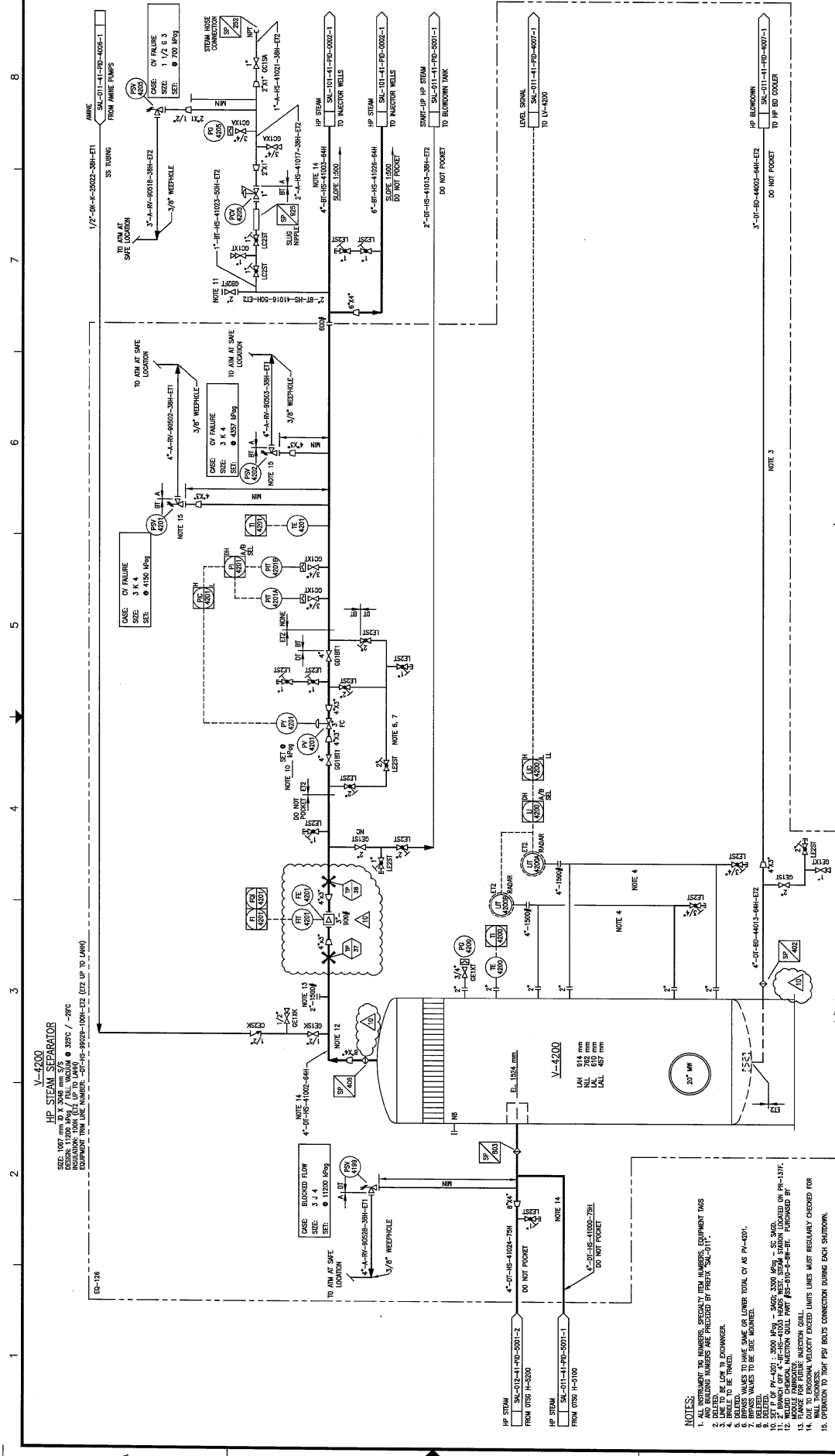
DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE
09/09/21	09/17/15	09/17/15	09/17/15	09/17/15	09/17/15	09/17/15	09/17/15	09/17/15	09/17/15

DRAWN:	DESIGNED:	CHECKED:	APPROVED:	SCALE	JOB NO.	DRAWING NO.
J. CHU	L. TURNO	L. BAYAMA-BREMSER	L. TURNO	N.T.S.	SAL-011-41-PD-4004-1	6

TITLE	SCALE	JOB NO.	DRAWING NO.
SW SECTION 26-85-19 WAM BLOWDOWN TANK AND PUMP PIPING AND INSTRUMENTATION DIAGRAM	N.T.S.	SAL-011-41-PD-4004-1	6



REV.	DESCRIPTION	DATE	CHK	APP.	FE	M.	GRFT	DATE	BY	REV.
10	ISSUED FOR CONSTRUCTION (MOCS #107)	09/29/15	J. GUN							
9	AS-BUILT - GENERAL REVISION (ADUMPT-LAC-793)	12/17/15	MM	MM	MM	MM	MM	MM	MM	
8	AS-BUILT - GENERAL REVISION (ADUMPT-LAC-793)	12/09/15	BB	MM	MM	MM	MM	MM	MM	
7	AS-BUILT (PROJEX 02010)	11/22/15	AD	MM	MM	MM	MM	MM	MM	
6	ISSUED FOR CONSTRUCTION (MOCS #106/110)	11/27/15	AD	MM	MM	MM	MM	MM	MM	
5	RE-ISSUED FOR CONSTRUCTION (PROJEX 02010)	11/17/15	AF	MM	MM	MM	MM	MM	MM	
4	ISSUED FOR CONSTRUCTION (PROJEX 02010)	11/10/15	AF	MM	MM	MM	MM	MM	MM	

DATE	DESIGNED	CHECKED	APPROVED
09/29/15	J. GUN	MM	MM
12/17/15	MM	MM	MM
12/09/15	BB	MM	MM
11/22/15	AD	MM	MM
11/27/15	AD	MM	MM
11/17/15	AF	MM	MM
11/10/15	AF	MM	MM

SCALE	JOB NO.	DRAWING NO.
N.T.S.	1471	SAL-011-41-PD-4005-1

DATE	BY	REV.
09/29/15	J. GUN	10
12/17/15	MM	9
12/09/15	BB	8
11/22/15	AD	7
11/27/15	AD	6
11/17/15	AF	5
11/10/15	AF	4

DRAWING NO.	REFERENCE DRAWINGS	REV.
SAL-011-41-PD-4005-1		



- NOTES:**
1. ALL DIMENSIONS TO UNLESS OTHERWISE SPECIFIED.
  2. ALL DIMENSIONS TO UNLESS OTHERWISE SPECIFIED.
  3. ALL DIMENSIONS TO UNLESS OTHERWISE SPECIFIED.
  4. BRASS VALVES TO BE SAME OR LOWER TOTAL CV AS PI-4001.
  5. BRASS VALVES TO BE SAME OR LOWER TOTAL CV AS PI-4001.
  6. BRASS VALVES TO BE SAME OR LOWER TOTAL CV AS PI-4001.
  7. BRASS VALVES TO BE SAME OR LOWER TOTAL CV AS PI-4001.
  8. BRASS VALVES TO BE SAME OR LOWER TOTAL CV AS PI-4001.
  9. BRASS VALVES TO BE SAME OR LOWER TOTAL CV AS PI-4001.
  10. BRASS VALVES TO BE SAME OR LOWER TOTAL CV AS PI-4001.
  11. 2" BRASS VALVE TO BE SAME OR LOWER TOTAL CV AS PI-4001.
  12. BRASS VALVES TO BE SAME OR LOWER TOTAL CV AS PI-4001.
  13. FLANGE FOR FINE INJECTION SHALL BE 150#.
  14. WALL THICKNESS SHALL BE 1/2" FOR ALL CONNECTIONS.
  15. OPERATION TO TEST FSW BOLTS CONNECTION DURING SHUTDOWN.

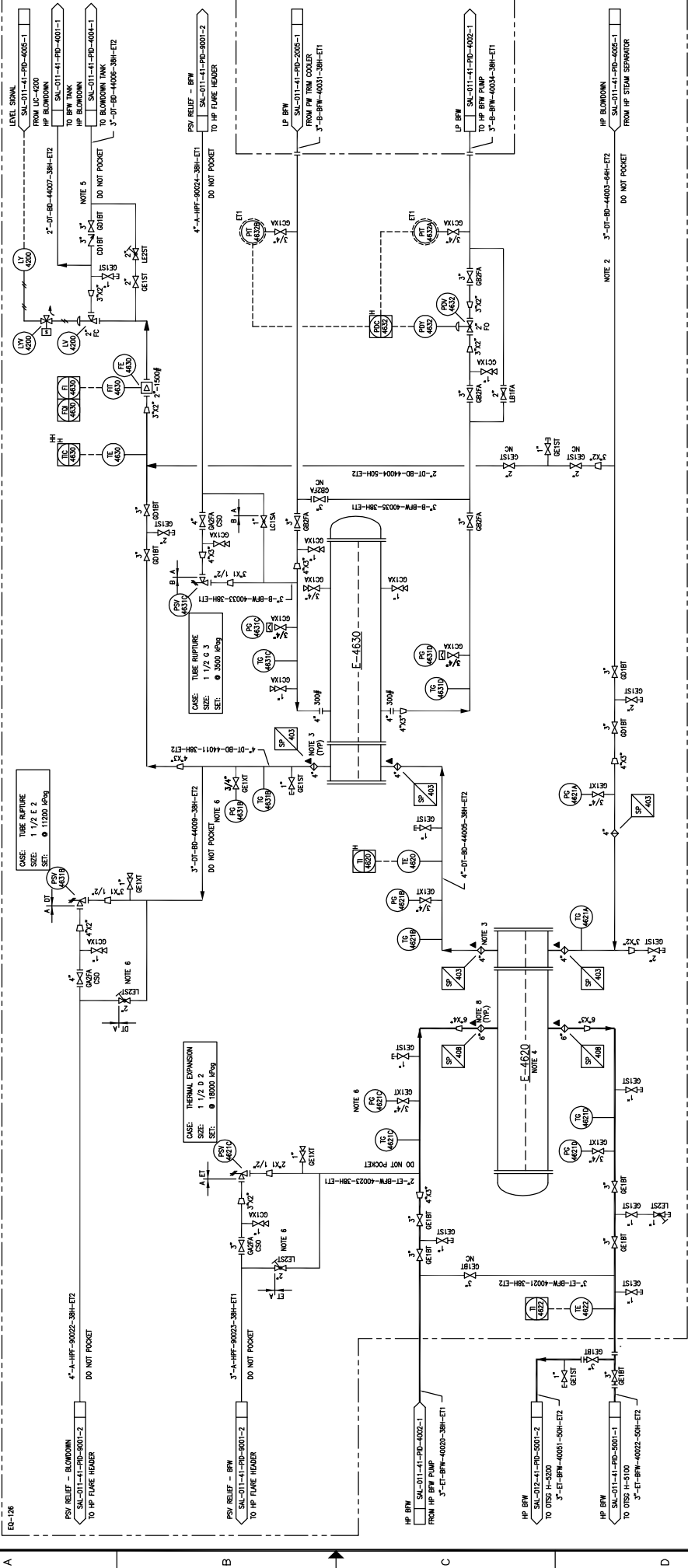


**E-4620  
HP BLOWDOWN COOLER**

NET SURFACE AREA 41.5 m<sup>2</sup>  
 SIZE: DIA/TUBE LENGTH: 343 mm x 7.317 mm (13.126" BFU)  
 TUBE DESIGN: 11200 MPa/FULL WALL VOLUME @ 325°C / 29°C  
 EQUIPMENT ITEM NUMBER: SS - E-4620-0001-1  
 TS - 01-BD-9003-50H-EZ

**E-4630  
HP BLOWDOWN TRIM COOLER**

NET SURFACE AREA 56.8 m<sup>2</sup>  
 SIZE: DIA/TUBE LENGTH: 397 mm x 6.096 mm (15.646" BFU)  
 TUBE DESIGN: 11200 MPa/FULL WALL VOLUME @ 325°C / 29°C  
 EQUIPMENT ITEM NUMBER: SS - E-4630-0001-1  
 TS - 01-BD-9003-50H-EZ



- NOTES:**
1. ALL INSTRUMENT TAG NUMBERS, SPECIFICITY ITEM NUMBERS, EQUIPMENT TAGS AND BLOWDOWN NUMBERS ARE PREFIXED BY PREFIX "SA-01".
  2. PRESSURE GAUGES MUST BE VISIBLE AT BYPASS VALVE.
  3. MATING NIBS, SEAL RING AND CLAMP BY EXCHANGER VENDOR (SCH 120).
  4. E-4620'S TOP TO BE BELOW V-4200'S LALL.
  5. GATE VALVE MUST BE CLOSED DURING EXCHANGER BYPASS.
  6. PRESSURE GAUGE MUST BE VISIBLE AT BYPASS VALVE.
  7. MATING NIBS, SEAL RING AND CLAMP BY EXCHANGER VENDOR (SCH 120).
  8. E-4620'S TOP TO BE BELOW V-4200'S LALL.

REV.	DESCRIPTION	DATE	CHK	APP.	PE	MC	IB	MM	MC	DATE	DRAWN:	DATE
7	AS-BUILT - GENERAL REVISION (AUBRAT-1402-783)	12/11/05	BR	MM	MC	J. CHU				09/09/21		
6	AS-BUILT - GENERAL REVISION (AUBRAT-1402-783)	12/08/07	BR	MM	MC	J. CHU				09/12/15		
5	AS-BUILT (PROXEX 06210)	11/02/03	AF	DM	MC	L. TURNO				09/12/15		
4	ISSUED FOR CONSTRUCTION (PROXEX 06210)	11/09/01	AF	DM	MC	L. TURNO				09/12/15		
3	ISSUED FOR REVIEW (PROXEX 06210)	11/09/01	AF	DM	MC	L. TURNO				09/12/15		
2	AS-BUILT	10/07/03	UR	IP	MC	L. TURNO				09/12/15		
1	RE-ISSUED FOR CONSTRUCTION	10/04/00	UR	IP	MC	L. TURNO				09/12/15		

**LARICINA**  
ENGINEERS

DATE: 09/09/21  
 DESIGNED: J. CHU  
 CHECKED: L. TURNO  
 APPROVED: L. TURNO

---

SCALE: N.T.S.

JOB NO. SA-01-41-PD-4001-1

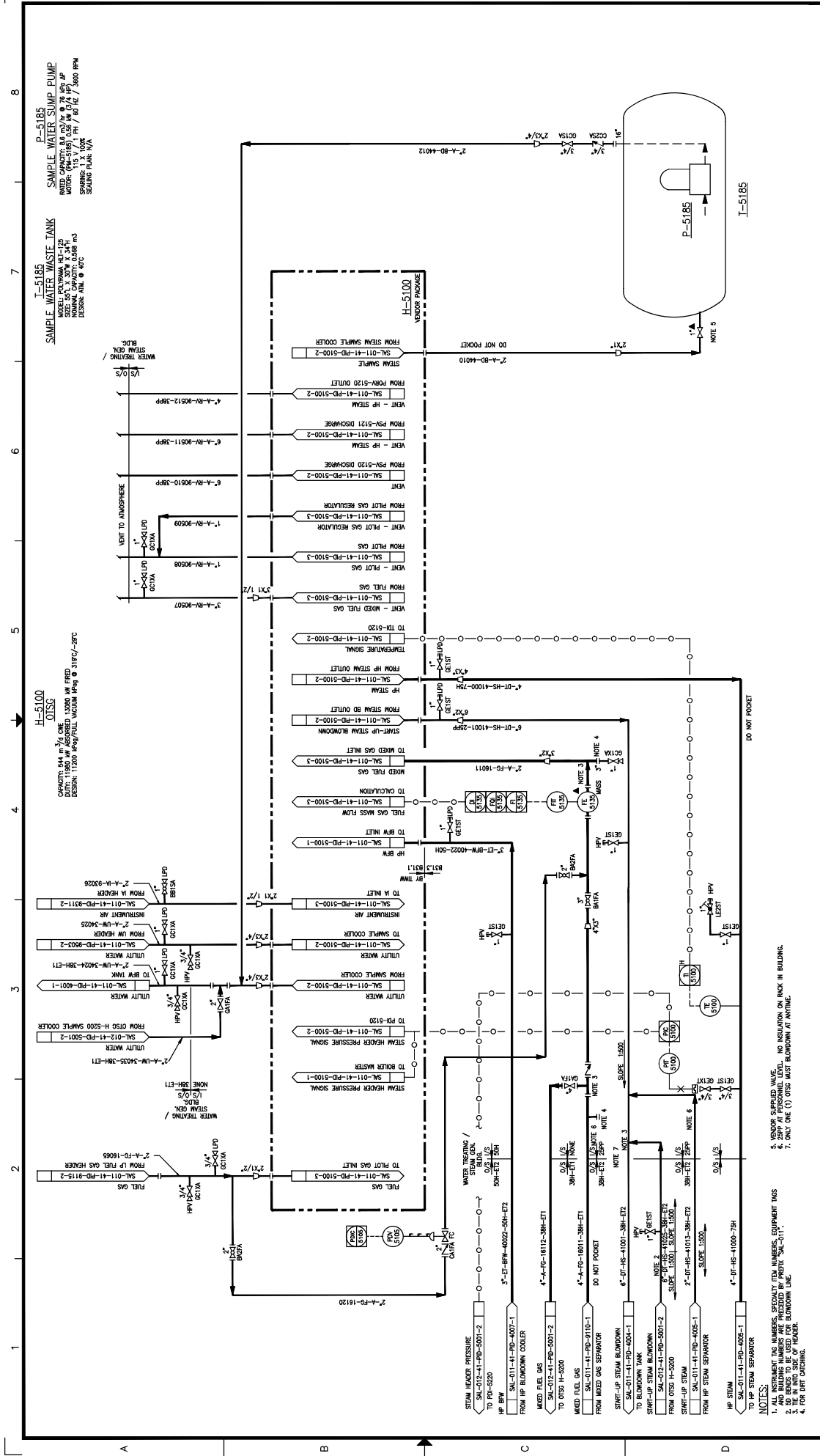
REV. 7

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**REFERENCE DRAWINGS**

**TITLE**  
 SW SECTION 26-85-19 WAM  
 SALESKI SC SAGO PILOT PROJECT-STEAM ADDITION  
 HP BFW/HP BD EXCHANGER AND HP BD TRIM COOLER  
 PIPING AND INSTRUMENTATION DIAGRAM





**H-5100**  
**OTSG**  
 CAPACITY: 644 m<sup>3</sup> / 170,000 GAL @ 13000 KW PRESS.  
 MODEL: P-5100-1000-1000  
 NOMINAL CAPACITY: 0.588 m<sup>3</sup>  
 DESIGN: AT 110 °C / 230 °F

**P-5185**  
**SAMPLE WATER SUMP PUMP**  
 MODEL: P-5185-1000-1000  
 NOMINAL CAPACITY: 0.588 m<sup>3</sup>  
 DESIGN: AT 110 °C / 230 °F

**H-5100**  
**OTSG**  
 CAPACITY: 644 m<sup>3</sup> / 170,000 GAL @ 13000 KW PRESS.  
 MODEL: P-5100-1000-1000  
 NOMINAL CAPACITY: 0.588 m<sup>3</sup>  
 DESIGN: AT 110 °C / 230 °F

**P-5185**  
**SAMPLE WATER SUMP PUMP**  
 MODEL: P-5185-1000-1000  
 NOMINAL CAPACITY: 0.588 m<sup>3</sup>  
 DESIGN: AT 110 °C / 230 °F

NO.	DATE	BY	CHK	APP.	REV.	DESCRIPTION
1	12/09/14	JCH				AS BUILT PER CLIENT MARK-UPS (NCS #140)
2	12/09/14	JCH				GENERAL REVISION (ALZAFAT LARC-793)
3	12/09/14	JCH				AS BUILT - GENERAL REVISION (ALZAFAT LARC-793)
4	12/09/14	JCH				AS BUILT (PROXY 0610)
5	11/27/13	JCH				RE-DESIGNED FOR CONSTRUCTION (PROXY 0610)
6	11/27/13	JCH				ISSUED FOR CONSTRUCTION (PROXY 0610)
7	11/27/13	JCH				ISSUED FOR CONSTRUCTION - ADDED START-UP FG JUMPER LINE - (HACS-#140)
8	09/12/21	JCH				AS BUILT
9	09/12/21	JCH				

DATE	DRAWN	INSTR.	DESIGNED	CHECKED	APPROVED
08/09/22	J. CHU	MM	MM	MM	MM
09/12/21	L. TURNO	MM	MM	MM	MM
09/12/21	L. TURNO	MM	MM	MM	MM
09/12/21	L. TURNO	MM	MM	MM	MM
09/12/21	L. TURNO	MM	MM	MM	MM

SCALE	JOB NO.	DRAWING NO.	REV.
N.T.S.	1461	SAL-011-41-PID-5001-1	9

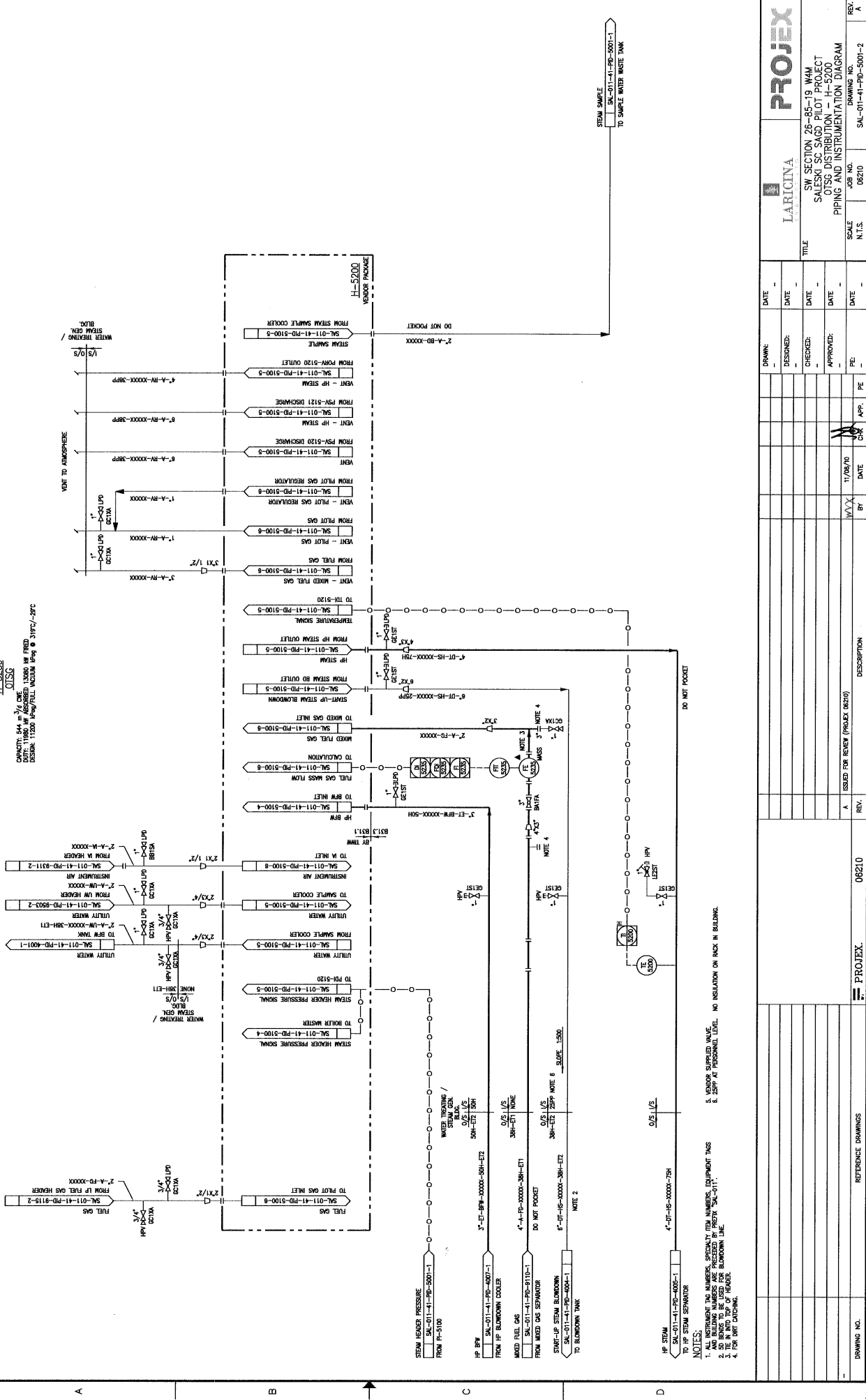
**HOCS PROJECTS #1461**

**HOCS PROJECTS**

5. VENTURES SUPPLIED VALUE  
 6. 25PP AT PERFORMANCE LEVEL. NO INSULATION ON RACK IN BUILDING.  
 7. ONLY ONE (1) OTSG MUST BLOWDOWN AT ANYTIME.

**NOTES:**  
 1. INSTRUMENT TAG NUMBERS, SEQUENCE TAG NUMBERS, EQUIPMENT TAGS  
 AND BUILDING NUMBERS ARE PRECEDED BY PREFIX "SAL-011-"  
 2. 25 PP BEANS TO BE USED FOR BLOWDOWN LINE.  
 3. 25 PP BEANS TO BE USED FOR BLOWDOWN LINE.  
 4. FOR BURT CATCHING.

0 1 2 3 4 5 6 7 8



CHARACT: 544 3/4 OUNCE  
 DATE: 11/28/10 W/ ASSIGNED 1.2680 W/ PRED  
 DESIG: 11520 W/ FULL VOLUME W/ 0.319/-29C

- NOTES:
- 1. ALL INSTRUMENT TAG NUMBERS, SPECIFIC TAG NUMBERS, EQUIPMENT TAGS
  - 2. DO NOT REMOVE OR MODIFY ANY INSTRUMENT TAGS
  - 3. THE INSTRUMENT TAG NUMBERS ARE PRECEDED BY PREFIX 'SA-011'.
  - 4. FOR BMT DRAWING.
  - 5. VENDOR SUPPLIED WAIVE.
  - 6. 25PP AT PERSONNEL LEVEL. NO INSULATION ON RACK IN BUILDING.

REV.	DESCRIPTION	DATE	BY	CHK	APP.	PE
A	ISSUED FOR REVIEW (PROJECT 8810)	11/28/10	JAV	X		

DRAWING NO. 06210  
 REFERENCE DRAWINGS

PROJECT: PROJEX

SCALE: N.T.S.  
 JOB NO.: 06210  
 DRAWING NO.: SA-011-41-PD-5001-2

TITLE: SW SECTION 26-85-19 W/M SALESKI SC SA6D PILOT PROJECT OTSG DISTRIBUTION - H=5200 PIPING AND INSTRUMENTATION DIAGRAM

LARICINA  
 PROJEX

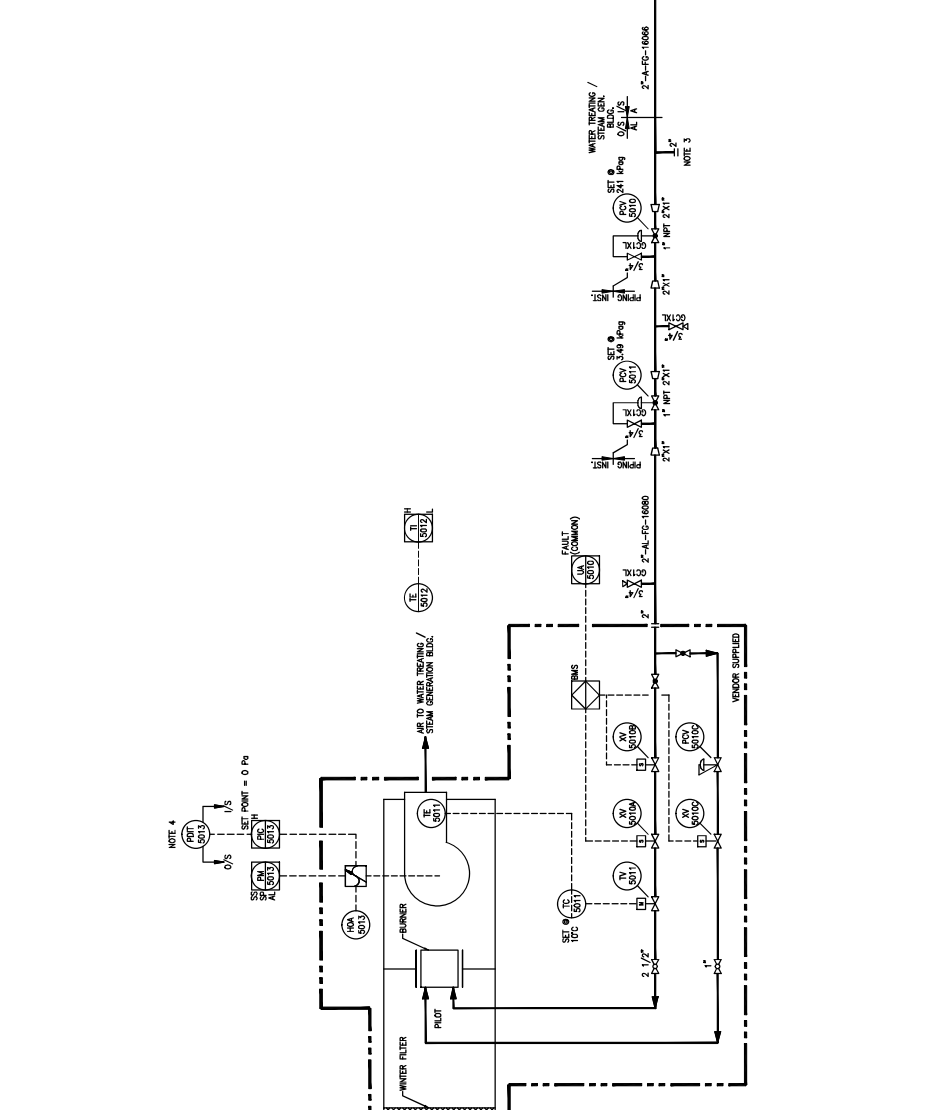
DATE	DATE	DATE	DATE	DATE	DATE

REV. A

**AH-5010**  
**SG AIR MAKE-UP UNIT**

DUTY : 300 MM BURNER  
 MOTOR: (AH-5010) 5.8 KW (7.5 HP)  
 600 V / 3 PH / 60 HZ  
 SPRINK: 1 X 100A (WATER CASE)

DESIGN PRESSURE: 0.125 MPa @ MAX (0.5" WG EXTERNAL SUPPLY PRESSURE)



**NOTES:**

1. ALL INSTRUMENT TAG NUMBERS, SECURITY TAGS AND BUILDING NUMBERS ARE PRECEDED BY PREFIX "SA-011".
2. FOR BURNER CATCHING.
3. LOCATE POT INSIDE BUILDING AND TUBE TO OUTSIDE.

REV.	DESCRIPTION	DATE	CHK	APP.	BY
5	AS BUILT PER CLIENT MARK-UPS (NOCS #1461)	12/09/20	MC		
4	AS-BUILT - GENERAL REVISIONS (AS-BUILT LARC-793)	12/09/20	SW		
3	AS-BUILT - GENERAL REVISIONS (AS-BUILT LARC-793)	11/26/20	JCH		
2	AS BUILT	10/04/20	LR		
1	ISSUED FOR CONSTRUCTION	09/12/21	RP		
0	ISSUED FOR CONSTRUCTION				

DATE	DESIGNED:	CHECKED:	APPROVED:
09/12/21	L. TURNO	L. BATINA-REANBERG	L. TURNO
09/12/21	J. CHU		

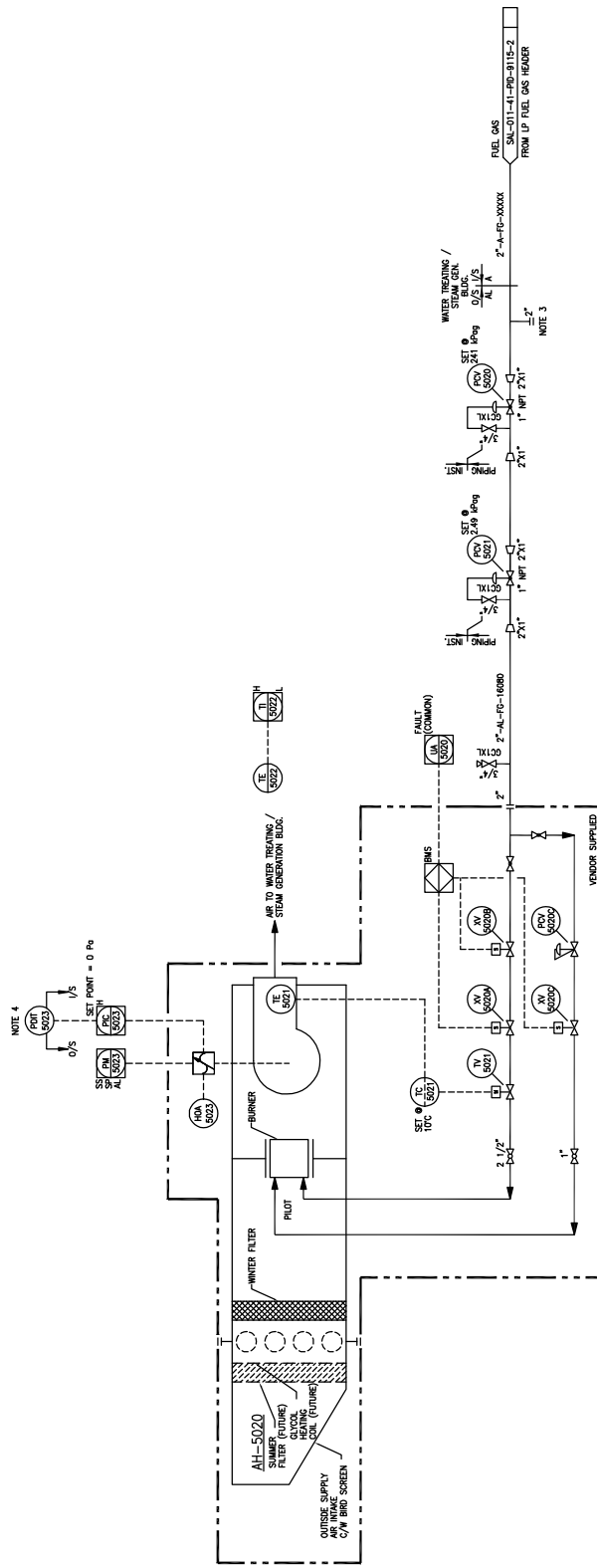
DATE	DESIGNED:	CHECKED:	APPROVED:
09/12/21	J. CHU		

DATE	DESIGNED:	CHECKED:	APPROVED:
09/12/21	J. CHU		

DATE	DESIGNED:	CHECKED:	APPROVED:
09/12/21	J. CHU		

**AH-5020  
SG AIR MAKE-UP UNIT**

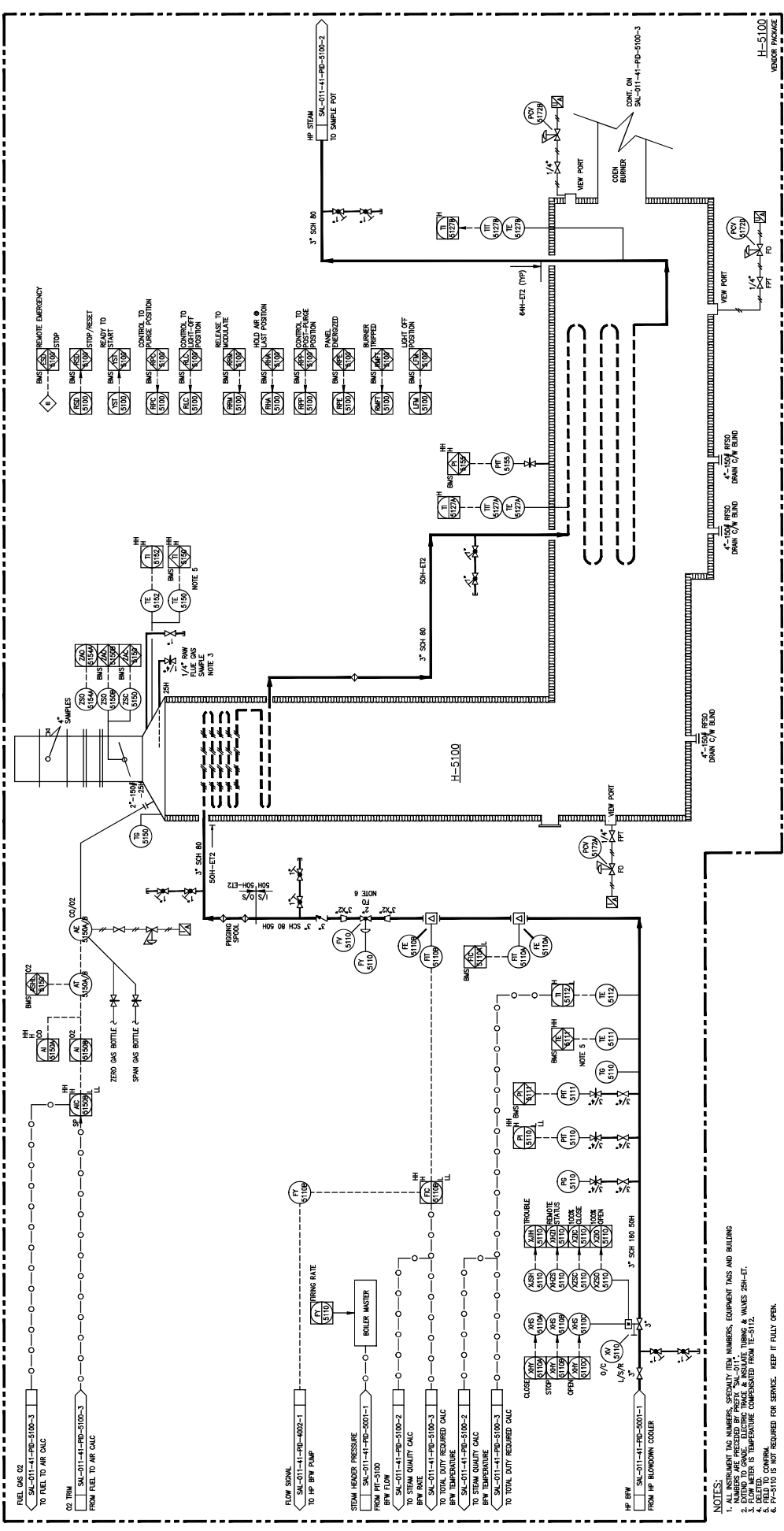
UNIT: 500 W/ BURNER  
 FUEL: 2600 BTU/HR (9650 CH4) @ 0.125 I/P @ MAX (0.5" WG EXTERNAL SUPPLY PRESSURE).  
 MOTOR: (AH-5020) 5.5 HP (7.5 HP)  
 600 V / 3 PH / 60 HZ  
 SPARKING: 1 A / 10A (MINI-CIR)



- NOTES:**
1. ALL INSTRUMENT TAG NUMBERS, SPECIALTY ITEM NUMBERS, EQUIPMENT TAGS AND BUILDING NUMBERS TO BE PROVIDED BY PREFIX "SAL-011".
  2. REFER TO THE SPECIFICATIONS FOR THE INSTRUMENTS.
  3. FOR DIRT CATCHING.
  4. LOCATE PORT INSIDE BUILDING AND TUBE TO OUTSIDE.

DRAWN: M/BU		DATE: 11/08/09		
DESIGNED:		DATE:		
CHECKED:		DATE:	TITLE: SW SECTION 26-85-19 WAM SALESKI SC SAGD PILOT PROJECT SG AIR MAKE-UP UNIT	
APPROVED:		DATE:	SCALE: N.T.S.	
PE:		DATE:	JOB NO.: 06210	DRAWING NO.: SAL-011-41-PID-5002-2
BY:		DATE:	REV. A	
DESCRIPTION:		DATE:	REV. A	
IMV Projects Inc. Z08100		DATE:	REV. A	
REFERENCE DRAWINGS		DATE:	REV. A	

**H-5100**  
**HP STEAM GENERATOR**  
 DUTY: 1400 MW  
 STEAM PRESSURE: 1000 I.P.S.



- NOTES:**
1. INSTRUMENT TAG NUMBERS, SERIALITY TAG NUMBERS, EQUIPMENT TAGS AND BUILDING NUMBERS ARE PRESENTED BY PREFIX "SAI-011".
  2. EXTEND TO GRADE. ELECTRIC TRAIL & INSULATE TRIM & VALVES 25#-ET.
  3. ALL INSTRUMENTS TO BE TEMPERATURE COMPENSATED FROM 10-5111.
  4. BLENDED.
  5. FV-5110 IS NOT REQUIRED FOR SERVICE. KEEP IT FULLY OPEN.
  6. FV-5110 IS NOT REQUIRED FOR SERVICE. KEEP IT FULLY OPEN.

REV.	DESCRIPTION	DATE	BY	CHK	APP.	FE	IT	MC	PE	M	CRFT
4	AS BUILT PER CLIENT MARK-UPS (MCS #148)	12/09/07	RB	MM	NC						
3	AS-BUILT - GENERAL REVISION (AS-BUILT PRC-793)	11/07/07	JCH	MM	IP	MC					
2	AS BUILT	10/04/05	RB	IP	MC						
1	RE-ISSUED FOR CONSTRUCTION	09/12/01	RB	IT	MC	FE					
0	ISSUED FOR CONSTRUCTION	08/12/01	RB	IT	MC	FE					

SCALE	JOB NO.	DRAWING NO.	REV.
N.T.S.	1461	SAL-011-41-PD-5100-1	4

DATE	DESIGNED	CHECKED	APPROVED
06/09/02	J. CHU	L. TURNO	L. BATINA-BUEMWER
09/12/01			
09/12/01			
09/12/01			



**LARICINA**  
**ENGINEERS**

**HCS PROJECTS**  
**INDUSTRIAL**

SW SECTION 26-85-19 WAM  
 SALESKI SC SAGD PILOT PROJECT  
 HP STEAM GENERATOR - H-5100  
 PIPING AND INSTRUMENTATION DIAGRAM

DATE: 06/09/02  
 DESIGNED: J. CHU  
 CHECKED: L. TURNO  
 APPROVED: L. BATINA-BUEMWER

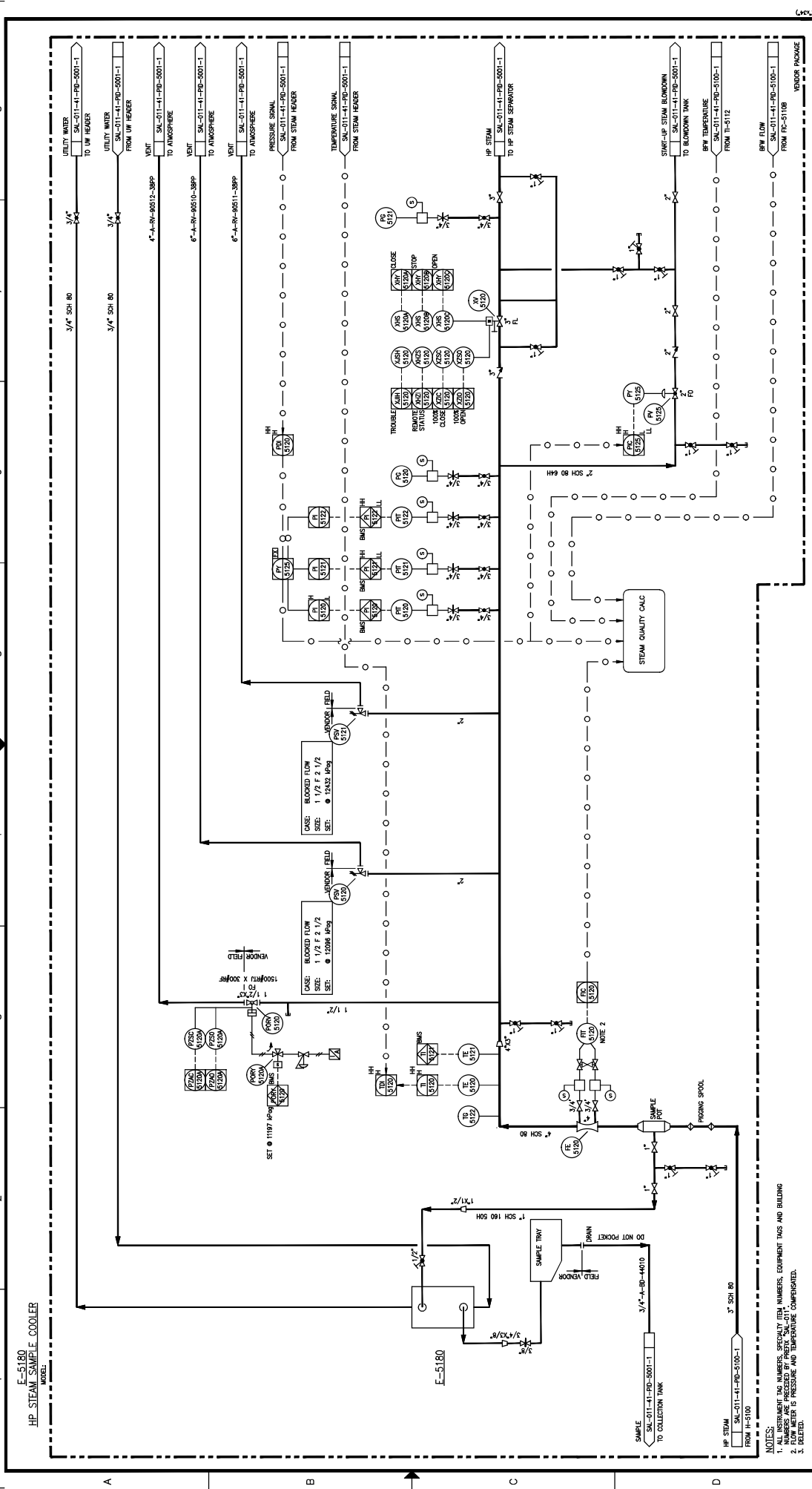
DATE: 09/12/01  
 DATE: 09/12/01  
 DATE: 09/12/01

SCALE: N.T.S.  
 JOB NO.: 1461  
 DRAWING NO.: SAL-011-41-PD-5100-1  
 REV.: 4

REFERENCE DRAWINGS

HCS PROJECTS #1461

DRAWING NO.



DRAWING NO.		REV.		DATE		DESCRIPTION	
HOCS PROJECTS #1461							
4	AS BUILT PER CLIENT MARK-UP (MOS #146)	10-SEP-14	JST	MM	NC		
3	AS-BUILT - GENERAL REVISION (ADAPT LARC-793)	12/09/07	RB	MM	NC		
2	AS BUILT	11/07/03	JAH	IP	MC		
1	RE-ISSUED FOR CONSTRUCTION	10/04/00	LR	IP	MC		
0	ISSUED FOR CONSTRUCTION	09/12/01	LR	IT	MC		

DATE	BY	CHK	APP.	FE	MC	PE	IT	MC	FE	MC	PE	IT	MC	FE
09/12/01	LR	IT	MC	FE	MC	PE	IT	MC	FE	MC	PE	IT	MC	FE

SCALE	JOB NO.	DRAWING NO.	REV.
N.T.S.	1461	SAL-011-41-RD-5100-2	4

DATE	DESIGNED BY	CHECKED BY	APPROVED BY
09/12/01	L. TURNO	L. TURNO	L. TURNO
09/12/01	L. TURNO	L. TURNO	L. TURNO
09/12/01	L. TURNO	L. TURNO	L. TURNO

DATE	BY	CHK	APP.	FE	MC	PE	IT	MC	FE	MC	PE	IT	MC	FE
09/12/01	LR	IT	MC	FE	MC	PE	IT	MC	FE	MC	PE	IT	MC	FE

DATE	BY	CHK	APP.	FE	MC	PE	IT	MC	FE	MC	PE	IT	MC	FE
09/12/01	LR	IT	MC	FE	MC	PE	IT	MC	FE	MC	PE	IT	MC	FE

DATE	BY	CHK	APP.	FE	MC	PE	IT	MC	FE	MC	PE	IT	MC	FE
09/12/01	LR	IT	MC	FE	MC	PE	IT	MC	FE	MC	PE	IT	MC	FE

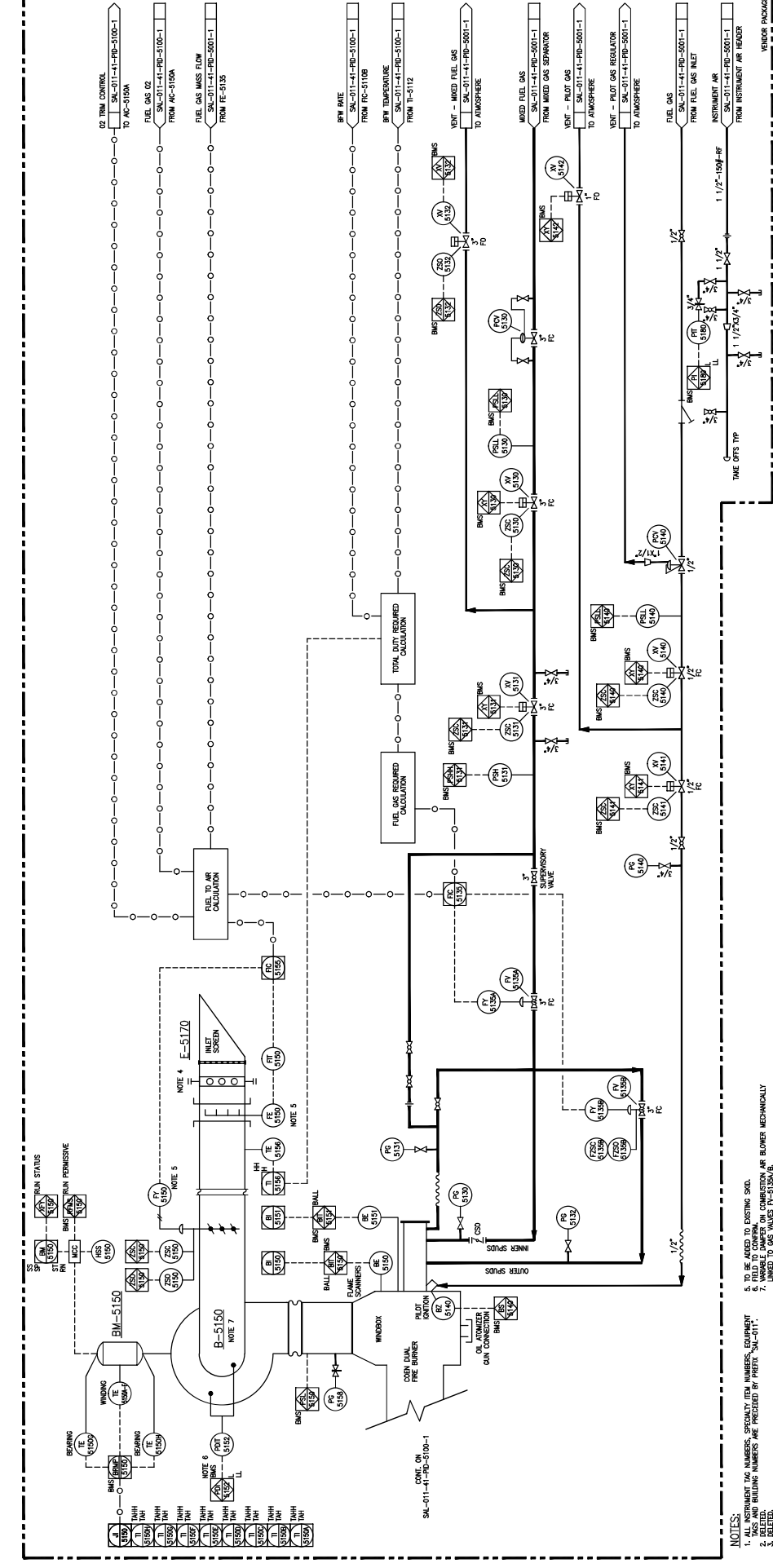
DATE	BY	CHK	APP.	FE	MC	PE	IT	MC	FE	MC	PE	IT	MC	FE
09/12/01	LR	IT	MC	FE	MC	PE	IT	MC	FE	MC	PE	IT	MC	FE

NOTES:  
 1. ALL INSTRUMENT TAG NUMBERS, SPECIFICITY TAG NUMBERS, EQUIPMENT TAGS AND BUILDING TAGS AND BUILDING TAGS ARE TO BE COMPENSATED.  
 2. FLOW METER IS PRESSURE AND TEMPERATURE COMPENSATED.  
 3. ILLUSTRATED.

**B-M-5150**  
 COMBUSTION AIR BLOWER MOTOR  
 MAKE: MOTORWIND  
 FRAME: 575 V / 3 PH / 60 HZ / 3600 RPM

**B-5150**  
 COMBUSTION AIR BLOWER  
 MAKE: COMBUSTOR  
 MODEL: B-5150  
 SPEED: 3400 RPM  
 TYPE: AIR COOLED  
 TUBE DESIGN: 1400 HP/MTY FPA (DOT) @ 180C/-29C  
 INSULATION: NONE

**E-5170**  
 COMBUSTION AIR HEATER  
 SIZE: 224 GAL, 1223 IN2 (TOTAL)  
 TYPE: AIR COOLED  
 TUBE DESIGN: 1400 HP/MTY FPA (DOT) @ 180C/-29C  
 INSULATION: NONE



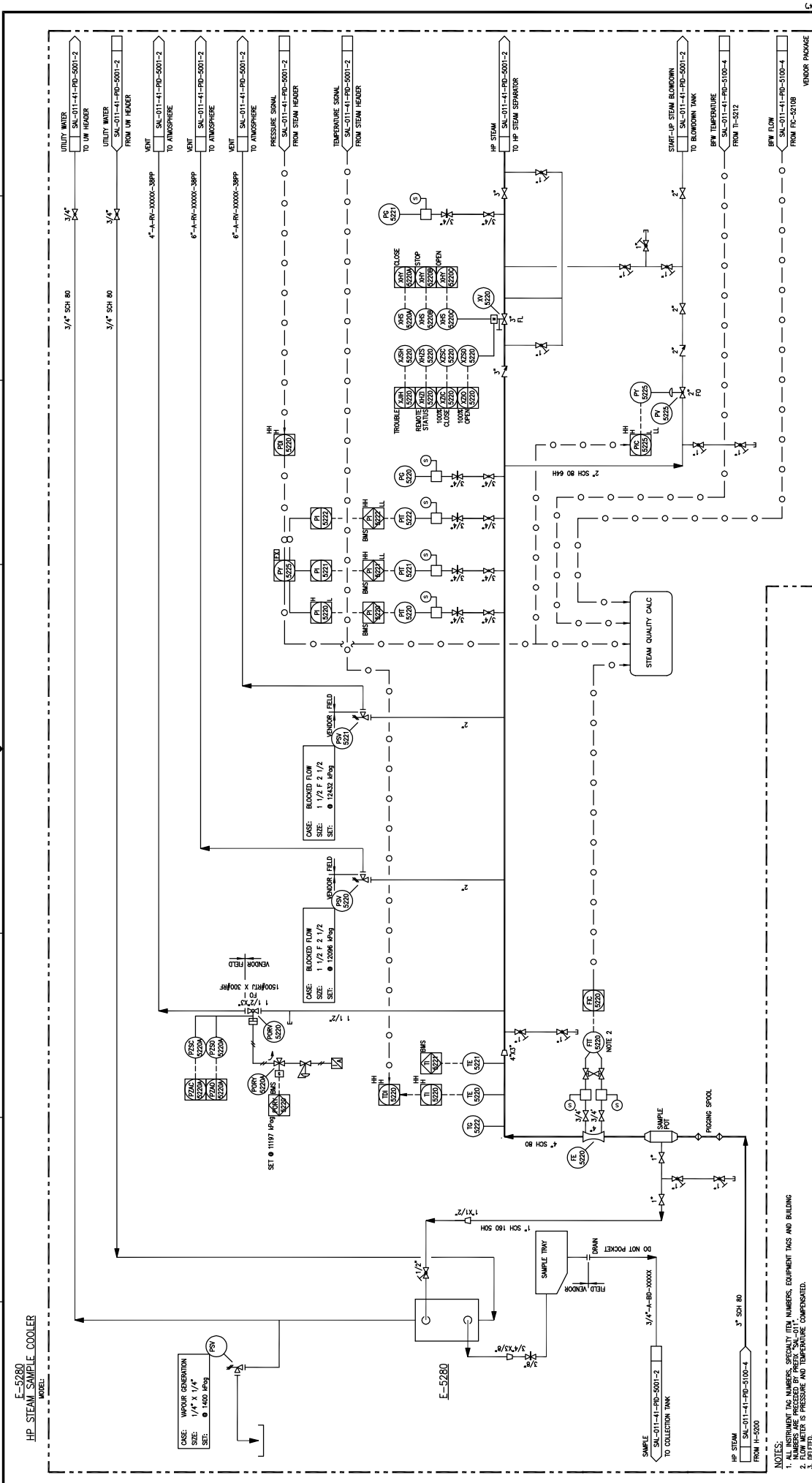
**NOTES:**  
 1. ALL INSTRUMENT TAG NUMBERS, EQUIPMENT TAG NUMBERS, SPEAKY TAG NUMBERS, EQUIPMENT TAG NUMBERS AND PIPE TAG NUMBERS ARE PRECEDED BY PREFIX 'SAL-011-'.  
 2. DELFTED.  
 3. 4. SCALE ONLY TO BE CAPPED OFF IN THE FIELD.

5. TO BE ADDED TO EXISTING SMO.  
 6. INSTRUMENT TAG NUMBERS ON COMBUSTION AIR BLOWER MECHANICALLY LINKED TO GAS VALVES PV-4135A/B/R.

<b>HOC'S PROJECTS</b> SALESKI SC SAGD PILOT PROJECT HP STEAM GENERATOR - H-5100 PIPING AND INSTRUMENTATION DIAGRAM	DATE	06/09/21	DRAWN	J. CHU	
	DATE	09/12/21	DESIGNED	L. TURNO	
	DATE	09/12/21	CHECKED	L. TURNO	
	DATE	09/12/21	APPROVED	L. TURNO	
DATE	09/12/21	SCALE	N.T.S.	JOB NO.	1461
DATE	09/12/21	DRAWING NO.	SAL-011-41-PID-5100-3	REV.	5







**E-5280**  
**HP STEAM SAMPLE COOLER**  
**MODEL:**

CASE: VAPOR GENERATION  
 SIZE: 1/4" X 1/4"  
 SET: 1480 PSIG

CASE: BLOCKED FLOW  
 SIZE: 1 1/2" X 2 1/2"  
 SET: 15208 PSIG

CASE: BLOCKED FLOW  
 SIZE: 1 1/2" X 2 1/2"  
 SET: 15208 PSIG

SET: 11197 PSIG

CASE: BLOCKED FLOW  
 SIZE: 1 1/2" X 2 1/2"  
 SET: 15208 PSIG

CASE: BLOCKED FLOW  
 SIZE: 1 1/2" X 2 1/2"  
 SET: 15208 PSIG

CASE: BLOCKED FLOW  
 SIZE: 1 1/2" X 2 1/2"  
 SET: 15208 PSIG

CASE: BLOCKED FLOW  
 SIZE: 1 1/2" X 2 1/2"  
 SET: 15208 PSIG

**E-5280**

SAMPLE SKL-011-41-PD-5100-2 TO COLLECTION TANK

HP STEAM FROM H-5900

HP STEAM SKL-011-41-PD-5100-2 TO HP STEAM SEPARATOR

STEAM UP STEAM DOWN TO BURNER TANK

BFW TEMPERATURE FROM TI-9212

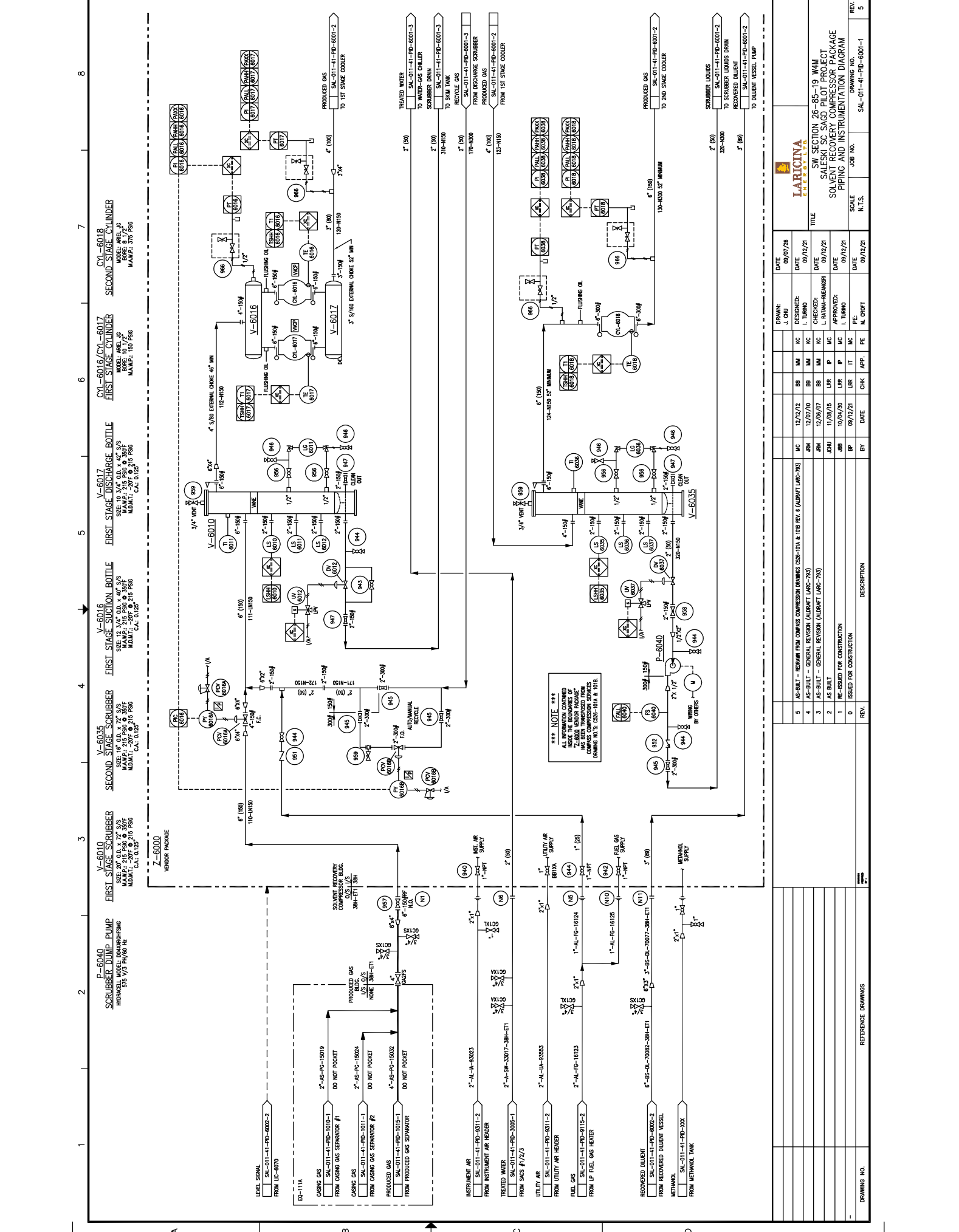
BFW FLOW FROM FC-9210B

**NOTES:**  
 1. INSTRUMENT TAG NUMBERS, GASKETS, (ETC), NUMBERS, EQUIPMENT TAGS AND BUILDING NUMBERS ARE PRECEDED BY PREFIX 'SKL-011'  
 2. FLOW METER IS PRESSURE AND TEMPERATURE COMPENSATED.  
 3. ELEV.

DATE		DESIGNED:		DRAWN:		DATE	
DATE		CHECKED:		DESIGNED:		DATE	
DATE		APPROVED:		CHECKED:		DATE	
DATE		PE:		APPROVED:		DATE	
DATE		APP:		APPROVED:		DATE	
DATE		CHK		APPROVED:		DATE	
DATE		BY		APPROVED:		DATE	
DATE		DESCRIPTION		APPROVED:		DATE	
DATE		DESCRIPTION		APPROVED:		DATE	
DATE		DESCRIPTION		APPROVED:		DATE	
DATE		DESCRIPTION		APPROVED:		DATE	

LARICINA ENERGY LTD  
**PROJEX**  
 LRR  
 SALESKI SC SAGD PILOT PROJECT  
 HP STEAM GENERATOR - H-5200  
 PIPING AND INSTRUMENTATION DIAGRAM  
 TITLE  
 SCALE: N.T.S.  
 JOB NO.: 06210  
 DRAWING NO.:  
 REV. A  
 SALESKI-011-41-PD-5100-5

DRAWING NO. 06210  
 REFERENCE DRAWINGS



**V-6010**  
**SECOND STAGE SCRUBBER**  
 3" I.D.  
 30' H  
 M.A.M.P.: 215 PSIG @ 300 F  
 M.O.M.T.: 200 @ 215 PSIG  
 I.C.: 0.0125

**V-6011**  
**FIRST STAGE SCRUBBER**  
 3" I.D.  
 30' H  
 M.A.M.P.: 215 PSIG @ 300 F  
 M.O.M.T.: 200 @ 215 PSIG  
 I.C.: 0.0125

**V-6012**  
**FIRST STAGE SUGCTION BOTTLE**  
 3" I.D.  
 30' H  
 M.A.M.P.: 215 PSIG @ 300 F  
 M.O.M.T.: 200 @ 215 PSIG  
 I.C.: 0.0125

**V-6016**  
**FIRST STAGE DISCHARGE BOTTLE**  
 3" I.D.  
 30' H  
 M.A.M.P.: 215 PSIG @ 300 F  
 M.O.M.T.: 200 @ 215 PSIG  
 I.C.: 0.0125

**V-6017**  
**SECOND STAGE SCRUBBER**  
 3" I.D.  
 30' H  
 M.A.M.P.: 215 PSIG @ 300 F  
 M.O.M.T.: 200 @ 215 PSIG  
 I.C.: 0.0125

**V-6018**  
**SECOND STAGE CONDENSER**  
 3" I.D.  
 30' H  
 M.A.M.P.: 215 PSIG @ 300 F  
 M.O.M.T.: 200 @ 215 PSIG  
 I.C.: 0.0125

REV.	DESCRIPTION	BY	DATE	CHK	APP.	PE	M	C	DATE
5	AS-BUILT - REMOVED FROM COMPRESSOR DRAWING (COR-100 & 100 REV. 6 (ALUAFAT URC-793))	MC	12/12/12	BB	AM	AC			09/07/26
4	AS-BUILT - GENERAL REVISION (ALUAFAT URC-793)	JMU	12/07/10	BB	AM	AC			09/12/21
3	AS-BUILT - GENERAL REVISION (ALUAFAT URC-793)	JMU	12/02/10	BB	AM	AC			09/12/21
2	AS BUILT	JOHN	11/09/15	LR	IP	MC			09/12/21
1	RE-ISSUED FOR CONSTRUCTION	ABB	10/04/20	LR	IT	MC			09/12/21
0	ISSUED FOR CONSTRUCTION	BP	09/12/21	LR	IT	MC			09/12/21

**DATE** 09/07/26  
**DESIGNED** J. CHU  
**CHECKED** I. TURNO  
**APPROVED** L. TURNO

**DRAWING NO.** SAL-01-41-PID-6001-1  
**SCALE** N.T.S.  
**JOB NO.** SAL-01-41-PID-6001-1

**TITLE** SW SECTION 26-85-19 WAM SALESKI SC SAGD PILOT PROJECT SOLVENT RECOVERY COMPRESSOR PACKAGE PIPING AND INSTRUMENTATION DIAGRAM

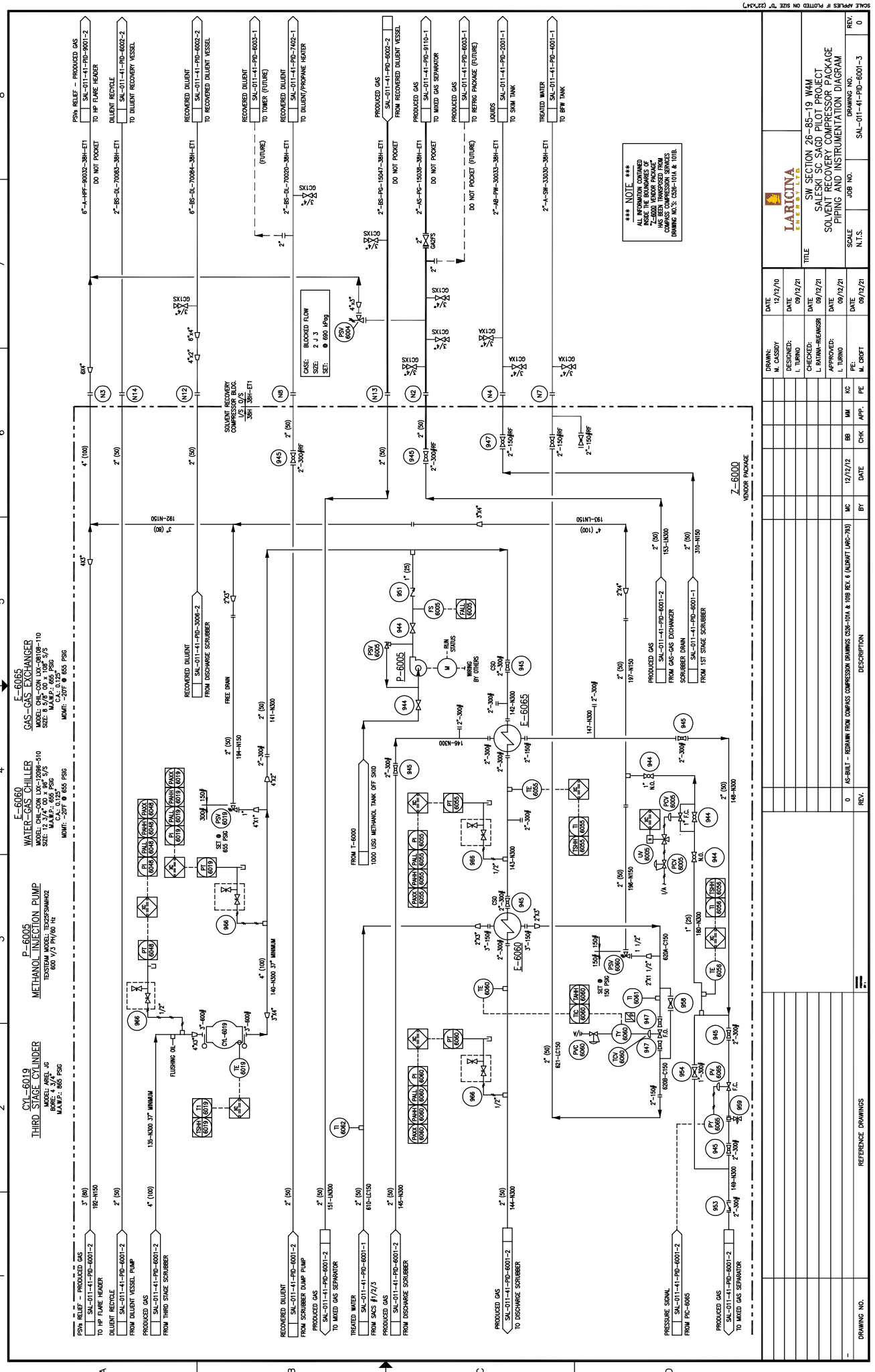
**COMPRESSOR SERVICES**

**REV.**  
**DESCRIPTION**

**REFERENCE DRAWINGS**

**DRAWING NO.**





**CYL-6019**  
**THIRD STAGE SCRUBBER**  
 MODEL: AVEL-JP  
 MAKE: 850 PSIG

**P-6005**  
**METHANOL INJECTION PUMP**  
 TEST ITEM MODEL: PERFORMANCE  
 SIZE: 1/2" DI, 1/2" BE, 3/8" S/S  
 C.A.S. 0.125"  
 MAKE: 850 PSIG

**E-6006**  
**WATER-GAS EXCHANGER**  
 MODEL: CHL-COM LIX-2098-510  
 SIZE: 8" ID, 10' H, 10" BE, 3/8" S/S  
 C.A.S. 0.125"  
 MAKE: 850 PSIG

**E-6005**  
**GAS-GAS EXCHANGER**  
 MODEL: CHL-COM LIX-2098-510  
 SIZE: 8" ID, 10' H, 10" BE, 3/8" S/S  
 C.A.S. 0.125"  
 MAKE: 850 PSIG

\*\*\* NOTE \*\*\*  
 ALL INFORMATION CONTAINED  
 HEREIN IS THE PROPERTY OF  
 LARICINA ENERGY LTD.  
 HAS BEEN TRANSMITTED FROM  
 COMPASS COMPRESSION SERVICES  
 DRAWING NO. S.03-1014 & 1018

DATE	BY	DESCRIPTION	REV.
12/12/19 <td>M. CASSIDY <td>AS-BUILT - REDRAWN FROM COMPASS DRAWING 103-1014 &amp; 1018 REV. 6 (AUBREY LARC-793) <td>0</td> </td></td>	M. CASSIDY <td>AS-BUILT - REDRAWN FROM COMPASS DRAWING 103-1014 &amp; 1018 REV. 6 (AUBREY LARC-793) <td>0</td> </td>	AS-BUILT - REDRAWN FROM COMPASS DRAWING 103-1014 & 1018 REV. 6 (AUBREY LARC-793) <td>0</td>	0
09/12/21 <td>L. TURNO <td>DESIGNED</td> <td>1</td> </td>	L. TURNO <td>DESIGNED</td> <td>1</td>	DESIGNED	1
09/12/21 <td>L. BATMAN-BRUMBER <td>CHECKED</td> <td>2</td> </td>	L. BATMAN-BRUMBER <td>CHECKED</td> <td>2</td>	CHECKED	2
09/12/21 <td>L. TURNO <td>APPROVED</td> <td>3</td> </td>	L. TURNO <td>APPROVED</td> <td>3</td>	APPROVED	3
09/12/21 <td>M. CROFT <td>DATE</td> <td>4</td> </td>	M. CROFT <td>DATE</td> <td>4</td>	DATE	4
09/12/21 <td>M. CROFT <td>DATE</td> <td>5</td> </td>	M. CROFT <td>DATE</td> <td>5</td>	DATE	5

SCALE	JOB NO.	DRAWING NO.	REV.
N.T.S.	SAL-011-41-PD-6001-3	0	0

DRAWN:	M. CASSIDY	DATE:	12/12/19
DESIGNED:	L. TURNO	DATE:	09/12/21
CHECKED:	L. BATMAN-BRUMBER	DATE:	09/12/21
APPROVED:	L. TURNO	DATE:	09/12/21
PE:	M. CROFT	DATE:	09/12/21

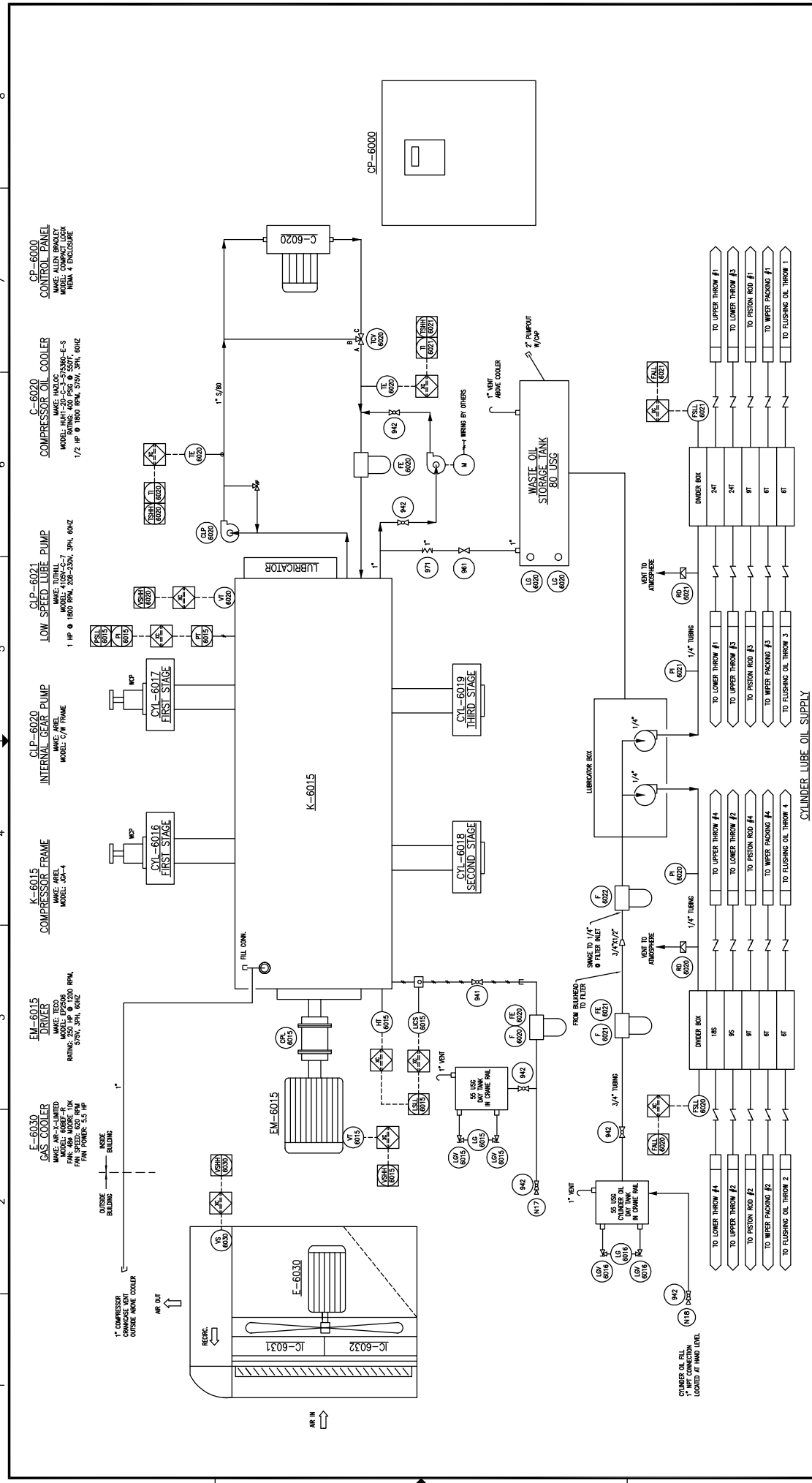
  

DRAWING NO.		REFERENCE DRAWINGS	
SAL-011-41-PD-6001-2		SAL-011-41-PD-6001-1	

LARICINA ENERGY LTD.		SW SECTION 26-85-19 WAM	
SALESKI SC SAGD PILOT PROJECT		SOLVENT RECOVERY COMPRESSOR PACKAGE	
PIPING AND INSTRUMENTATION DIAGRAM		TITLE	

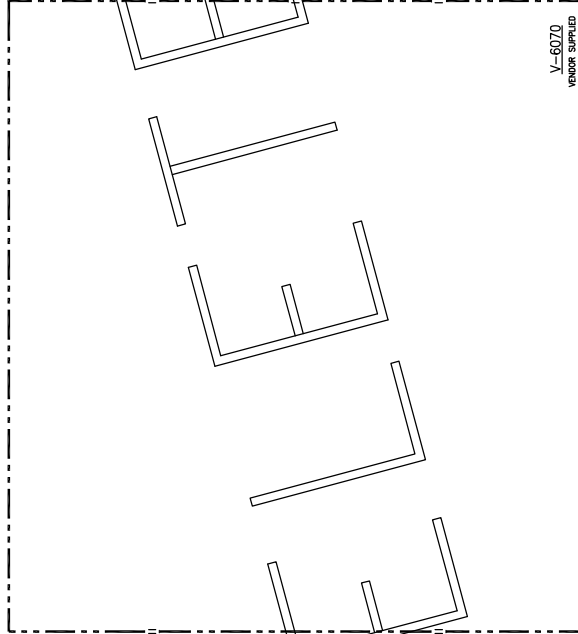
<b>E-6030</b> GAS COOLER MAKE: AMP-SH-WHEAT MODEL: 6030E-K RATING: 1500 RPM, 250-250V, 3PH, 60HZ FAN POWER: 5.5 HP	<b>EM-6015</b> DRIVER MAKE: TECO MODEL: P2506 RATING: 1500 RPM, 250-250V, 3PH, 60HZ	<b>K-6015</b> COMPRESSOR FRAME MAKE: WABCO MODEL: J04-4	<b>CI-P-6020</b> INTERNAL GEAR PUMP MAKE: WABCO	<b>CIP-6021</b> LOW SPEED LUBE PUMP MAKE: TURBIL MODEL: A1091-C-7 1 HP @ 1800 RPM, 200-250V, 3PH, 60HZ	<b>C-6020</b> COMPRESSOR OIL COOLER MAKE: MIZOLC MODEL: NHT-20-C-3-37600E-S 1/2 HP @ 1800 RPM, 250V, 3PH, 60HZ	<b>CP-6000</b> CONTROL PANEL MAKE: MURPHY MODEL: COMPACT LOGIX NEMA 4 ENCLOSURE
---	---	--	---	--	--	---



<b>LARICINA ENERGY LTD.</b>			
DATE: 12/17/09	DATE: 09/12/21	DATE: 09/12/21	DATE: 09/12/21
DRAWN: M. CASSIDY	DESIGNED: I. TURNO	CHECKED: L. BAYAMA-BEAMER	APPROVED: I. TURNO
SCALE: N.T.S.	JOB NO: SW-01-41-PI-6001-4	REV. NO: 0	DRAWING NO: SW-01-41-PI-6001-4
TITLE: SW SECTION 26-85-19 WAM SALESKI SC SAGD PILOT PROJECT SOLVENT RECOVERY COMPRESSOR PACKAGE PIPING AND INSTRUMENTATION DIAGRAM			
REV.	DESCRIPTION	BY	DATE
0	AS-BUILT - REDRAWN FROM COMPASS COMPRESSION DRAWING CSSE-102. REV. 4. (NORTH LARC-793)	MC	12/27/20
REFERENCE DRAWINGS			

1 2 3 4 5 6 7 8

V-6070  
 RECOVERED DILUENT VESSEL  
 SIZE: \_\_\_\_\_  
 DESIGN: \_\_\_\_\_  
 INTERNAL COATING: \_\_\_\_\_  
 EQUIPMENT FROM LINE NUMBER: BS-DL-9000-38H-ET1



RECOVERED DILUENT  
 SAL-011-41-PD-6001-1  
 FROM SOLVENT RECOVERY COMPRESSOR PACKAGE

6" A-HPT-90003-38H-ET1  
 DO NOT POCKET

PSY RELIEF - PRODUCED GAS  
 SAL-011-41-PD-3001-2  
 TO HPT HEADER

PRODUCED GAS  
 SAL-011-41-PD-6001-1  
 TO MIXED GAS SEPARATOR

2" AS-PC-15037-38H-ET1  
 DO NOT POCKET

RECOVERED DILUENT  
 SAL-011-41-PD-6001-1  
 TO SOLVENT RECOVERY COMPRESSOR PACKAGE

2" BS-DL-70021-38H-ET1

V-6070  
 VENDOR SUPPLIED

A B C D

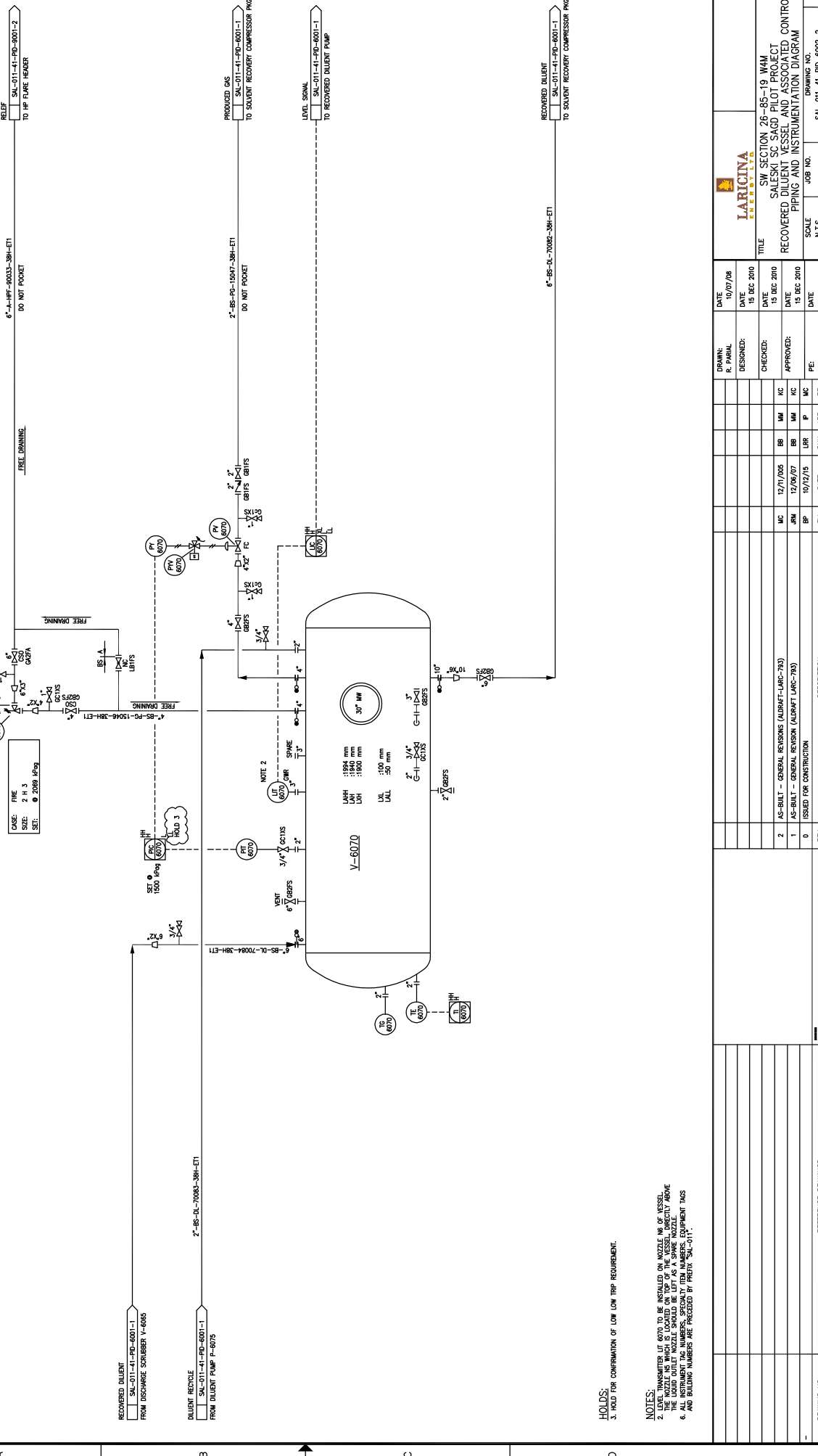
DRAWN: K. FORSTER		DATE: 09/09/24	IMV Projects	
DESIGNED: L. TURNO		DATE: 09/12/21	L.ARICINA ENGINEERS	
CHECKED: L. RAYANA-RUEMSER		DATE: 09/12/21	SW SECTION 26-85-19 WAM	
APPROVED: L. TURNO		DATE: 09/12/21	SALESKI SC SAGD PILOT PROJECT	
DATE: 09/12/21		DATE: 09/12/21	RECOVERED DILUENT VESSEL	
DATE: 09/12/21		DATE: 09/12/21	PIPING AND INSTRUMENTATION DIAGRAM	
DATE: 09/12/21		DATE: 09/12/21	SCALE: N.T.S.	
DATE: 09/12/21		DATE: 09/12/21	JOB NO.: Z08100	
DATE: 09/12/21		DATE: 09/12/21	DRAWING NO.: SAL-011-41-PD-6002-1	
DATE: 09/12/21		DATE: 09/12/21	REV. 3	

SCALE APPLIES IF PLOTTED ON SIZE "D" (22"x34")

V-6070  
RECOVERED DILUENT VESSEL

SIZE: 2183 mm ID x 7411 mm S/S  
DESIGN: 2089 kPa @ 50°C SET (AS-BUILT BOTTOM)  
INSULATION: MR 38H ETT PARTIAL  
EQUIPMENT ITEM LINE NUMBER: -RS-DL-90066

CLASS: FIRE  
SIZE: 2 m x 3 m  
SET: 2089 kPa



DATE: 10/07/08

DATE: 15 DEC 2010

DATE: 15 DEC 2010

DATE: 15 DEC 2010

DATE: 15 DEC 2010

10/07/08

15 DEC 2010

15 DEC 2010

15 DEC 2010

15 DEC 2010

**LARICINA**  
ENGINEERS LTD.

SW SECTION 26-85-19 WAM  
SALESKI SC SAGD PILOT PROJECT  
RECOVERED DILUENT VESSEL AND ASSOCIATED CONTROLS  
PIPING AND INSTRUMENTATION DIAGRAM

SCALE: N.T.S.  
JOB NO.: SAL-011-41-PD-6002-2  
DRAWING NO.: 2

RECOVERED DILUENT  
SAL-011-41-PD-5001-1  
FROM DISCHARGE SCRUMBER V-6065

DILUENT RECYCLE  
SAL-011-41-PD-5001-1  
FROM DILUENT PUMP P-6075

NOTES:  
1. LEVEL TRANSMITTER LIT 6070 TO BE INSTALLED ON NOZZLE NR. OF VESSEL.  
2. THE NOZZLE NR. WHICH IS LOCATED ON TOP OF THE VESSEL IS IDENTIFIED ABOVE.  
3. ALL INSTRUMENT TAG NUMBERS, SPECIFICITY ITEM NUMBERS, EQUIPMENT TAGS AND BUILDING NUMBERS ARE PRECEDED BY PREFIX "SAL-011".

3. HOLD FOR CONFIRMATION OF LOW LOW TRIP REQUIREMENT.

REV.	DESCRIPTION	BY	DATE	CHK	APP.	PE
2	AS-BUILT - GENERAL REVISION (ALDRIFT-LARC-783)	MC	12/11/05	BB	MM	MC
1	AS-BUILT - GENERAL REVISION (ALDRIFT-LARC-793)	JM	12/06/07	BB	MM	MC
0	ISSUED FOR CONSTRUCTION	BP	10/12/05	LRR	P	MC

DRAWING NO. REFERENCE DRAWINGS

RELIEF VALVE TO HP PUMP HEADER  
6"-HF-30033-38H-ETI  
DO NOT POCKET

PRODUCED GAS TO SOLVENT RECOVERY COMPRESSOR PMP  
SAL-011-41-PD-5001-1  
DO NOT POCKET

LEVEL SIGNAL TO RECOVERED DILUENT PUMP  
SAL-011-41-PD-5001-1

RECOVERED DILUENT TO SOLVENT RECOVERY COMPRESSOR PMP  
SAL-011-41-PD-5001-1

6"-DS-DL-70067-38H-ETI

FREE DRAINING

VENT 6" 304 SS  
3/4" GAUGES

NOTE 2  
LIT (6070) OVER SPARE  
3/4" GAUGES

3/4" GAUGES

2" 304 SS

2" 304 SS

2" 304 SS

2" 304 SS

2" 304 SS

2" 304 SS

2" 304 SS

2" 304 SS

2" 304 SS

2" 304 SS

2" 304 SS

2" 304 SS

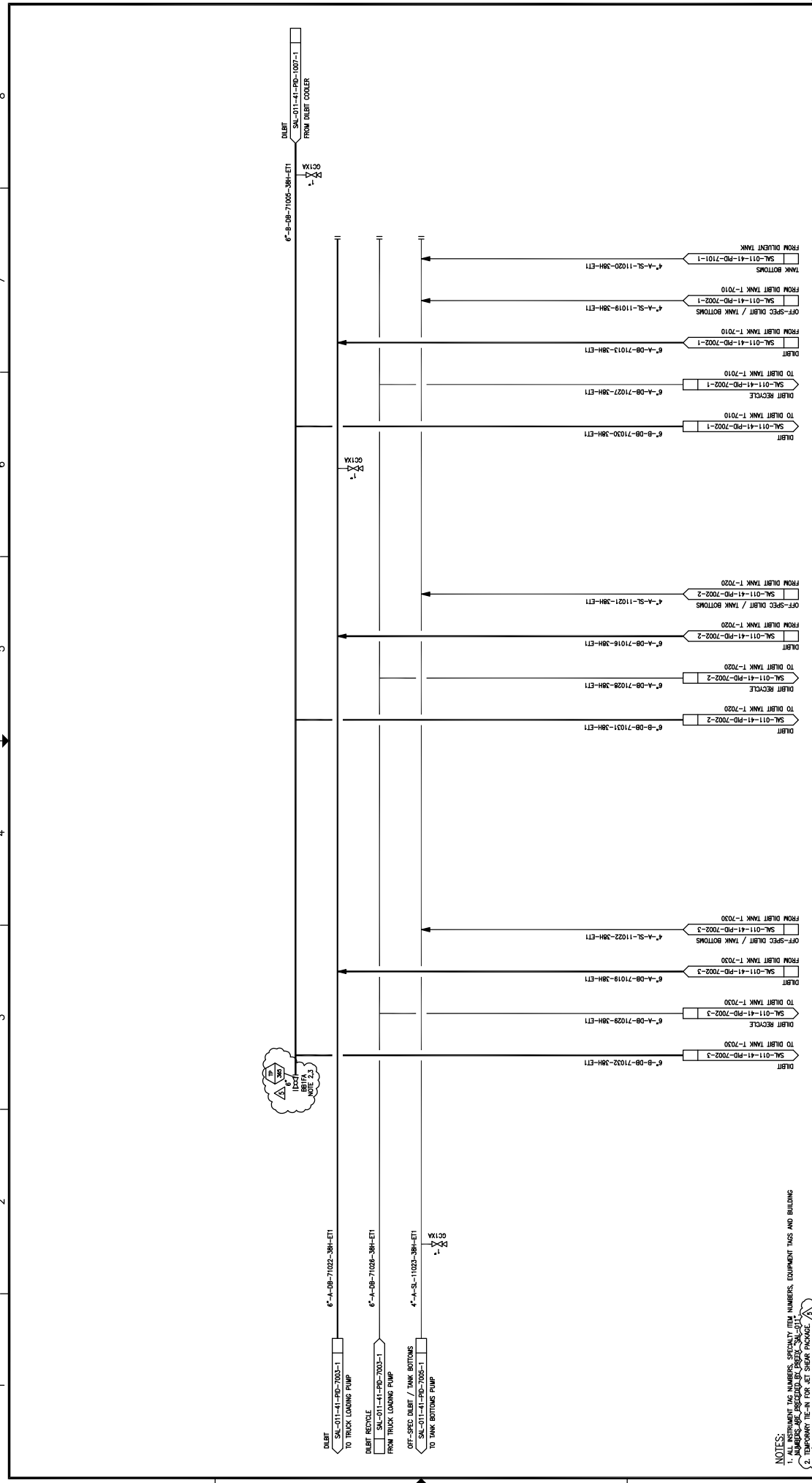
2" 304 SS

2" 304 SS

2" 304 SS

2" 304 SS

2" 304 SS



REV.	DESCRIPTION	DATE	CHK	APP.	FE	PE	M. DRET
5	RE-ISSUED FOR CONSTRUCTION (HCCS PROJECT # 1313)	31-MAY-13	NS	AR	AM	AM	J. CHU
4	ISSUED FOR CONSTRUCTION (HCCS PROJECT #1313)	27-MAY-13	NS	AR	AM	AM	L. TURNO
3	AS BUILT - GENERAL REVISION (DRAFT (LIC-793))	12/09/07	BB	MM	MC	MC	L. RAYANA-REAGERS
2	AS BUILT	11/09/07	LRR	IP	MC	MC	L. TURNO
1	RE-ISSUED FOR CONSTRUCTION	10/04/00	LRR	IP	MC	MC	L. TURNO
0	ISSUED FOR CONSTRUCTION	09/12/01	LRR	IT	MC	MC	M. DRET

DATE	09/07/15
DRAWN	J. CHU
DESIGNED	L. TURNO
CHECKED	L. RAYANA-REAGERS
DATE	09/12/01
APPROVED	L. TURNO
DATE	09/12/01
SCALE	N.T.S.
JOB NO.	1313
DRAWING NO.	SAL-011-41-PID-7001-1

DATE	09/07/15
DRAWN	J. CHU
DESIGNED	L. TURNO
CHECKED	L. RAYANA-REAGERS
DATE	09/12/01
APPROVED	L. TURNO
DATE	09/12/01
SCALE	N.T.S.
JOB NO.	1313
DRAWING NO.	SAL-011-41-PID-7001-1

REV.	DESCRIPTION
5	RE-ISSUED FOR CONSTRUCTION (HCCS PROJECT # 1313)
4	ISSUED FOR CONSTRUCTION (HCCS PROJECT #1313)
3	AS BUILT - GENERAL REVISION (DRAFT (LIC-793))
2	AS BUILT
1	RE-ISSUED FOR CONSTRUCTION
0	ISSUED FOR CONSTRUCTION

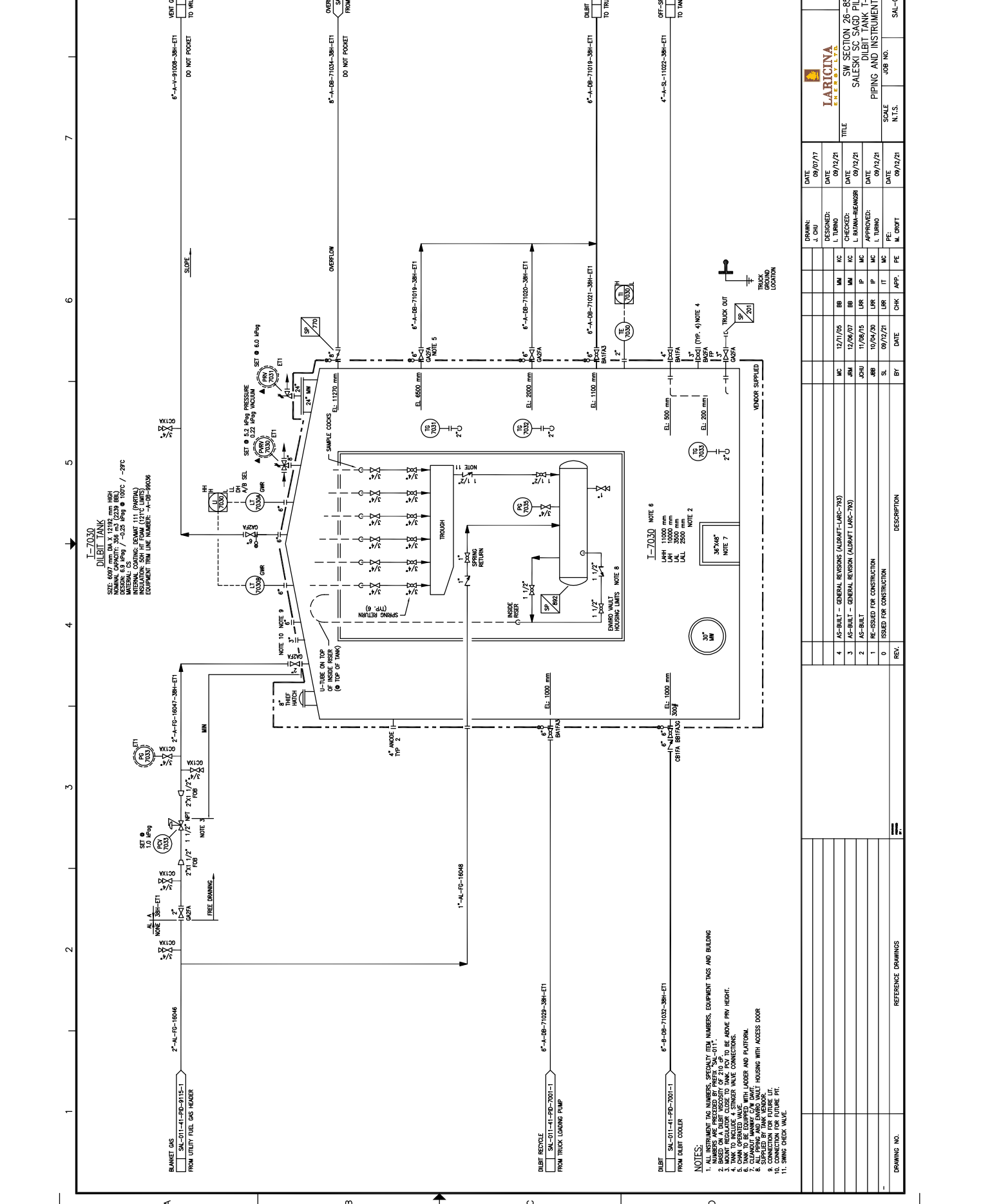
NOTES:  
 1. ALL INSTRUMENT TAG NUMBERS, SPECIALTY ITEM NUMBERS, EQUIPMENT TAGS AND BUILDING NUMBERS ARE PRECEDED BY PREFIX 'SAL-SUIT'.  
 2. 1/4" TURN BALL VALVE

NOTE 23  
 6" DIAMETER  
 1/4" TURN BALL VALVE









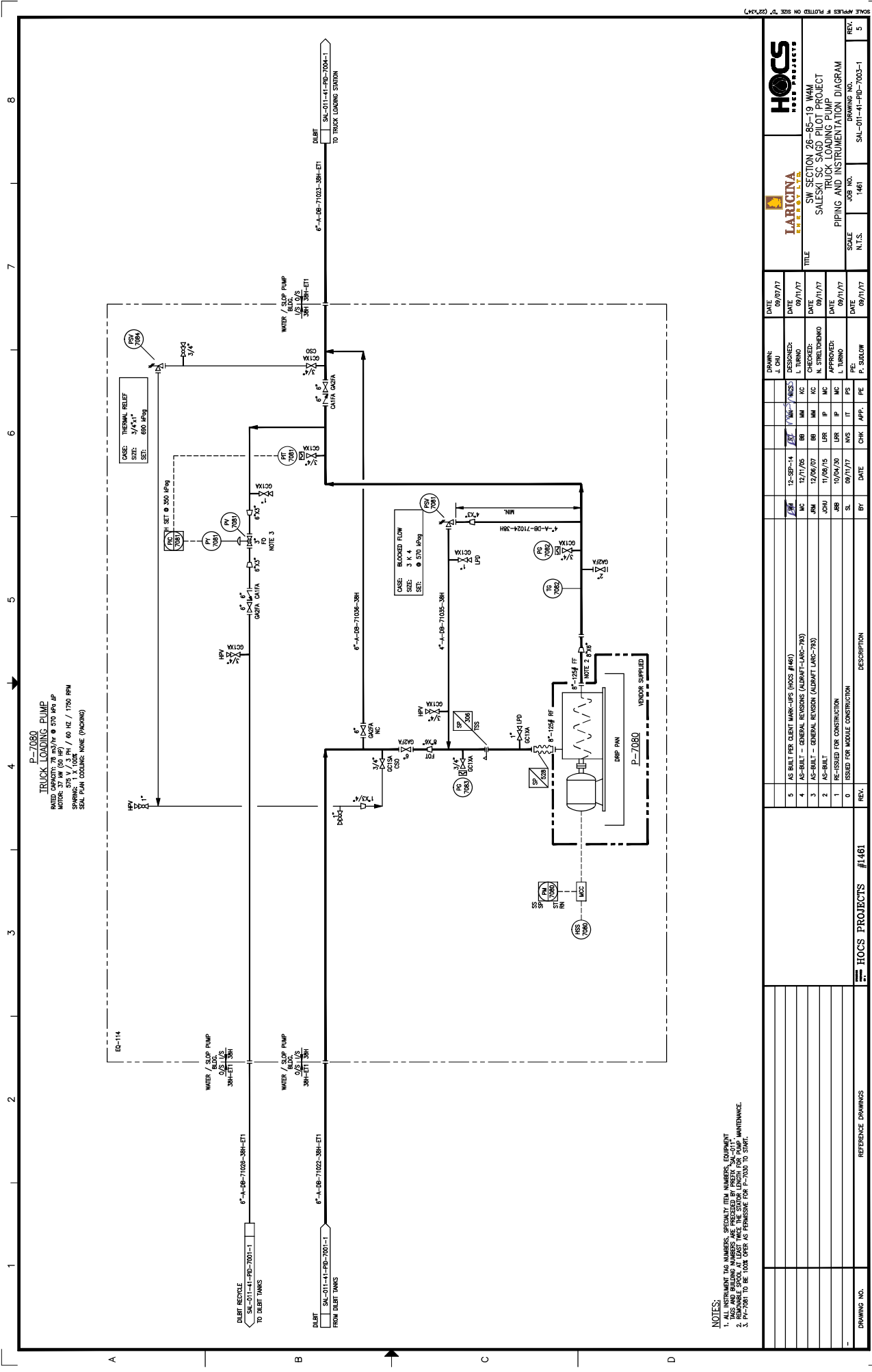
**I-7030**  
**DILBIT TANK**  
 SET @ 6.0 MPa PRESSURE  
 MAXIMUM CAPACITY: 258,133 (2,230 BBL)  
 DESIGN: 6.0 MPa / -0.25 MPa @ 100°C / -29°C  
 INTERNAL COATING: REMAT 111 (PARTIAL)  
 INSULATION: 50MM FROM 127°C LIMITS  
 EQUIPMENT TAG LINE NUMBER: 7495-880306

- NOTES:**
- ALL INSTRUMENT TAG NUMBERS, ASSAY TAG NUMBERS, EQUIPMENT TAGS AND BUILDING NUMBERS ARE PRECEDED BY PREFIX "SNL-011-41-PD-7001-1".
  - BASED ON A DILBIT VISCOSITY OF 210 cP.
  - BASED ON A DILBIT TEMPERATURE OF 100°C.
  - TANK TO INCLUDE A STRINGER WAVE CONNECTIONS.
  - ALL WELDS TO BE WELDED WITH LAUNDER AND PLATFORM.
  - ALL WELDS TO BE WELDED WITH LAUNDER AND PLATFORM.
  - CLEARANCE MINIMUM 2.1M DAVIT.
  - SUPPLIED BY TANK VENDOR.
  - CONNECTION FOR FUTURE UT.
  - CONNECTION FOR FUTURE UT.
  - SWING CHECK VALVE.

DATE	DRAWN	DESIGNED	CHECKED	APPROVED	SCALE	TITLE
09/07/17	J. CHU	L. TURNO	L. TURNO	L. TURNO	N.T.S.	SW SECTION 26-85-19 WAM SALESKI SC SAGD PILOT PROJECT DILBIT TANK T-7030 PIPING AND INSTRUMENTATION DIAGRAM
09/12/17	M. CRIFT	M. CRIFT	M. CRIFT	M. CRIFT	N.T.S.	REV. NO. 4

REV.	DESCRIPTION
4	AS-BUILT - GENERAL REVISION (AURAT-LARC-703)
3	AS-BUILT - GENERAL REVISION (AURAT-LARC-703)
2	AS-BUILT
1	RE-ISSUED FOR CONSTRUCTION
0	ISSUED FOR CONSTRUCTION



**P-7080**  
**TRUCK LOADING PUMP**  
 RATED: 150 HP @ 370 RPM JP  
 MOTOR: 37 kW (50 HP)  
 SHAFT: 5/8" x 3.5" / 60 Hz / 1750 RPM  
 SEAL PLAN COOLING: NONE (PACKING)

**NOTES:**  
 1. ALL INSTRUMENT TAG NUMBERS, SPECIALLY ITEM NUMBERS, EQUIPMENT TAG NUMBERS, AND INSTRUMENT TAG NUMBERS SHALL BE IDENTIFIED IN THE INSTRUMENT TAGS.  
 2. REMOVABLE SPOOLS AT LEAST THREE TIMES THE STATOR LENGTH FOR PUMP MAINTENANCE.  
 3. P-7080 TO BE 100% OPEN AS PERMITS FOR P-7030 TO START.

REV.	DESCRIPTION	DATE	BY	CHK	APP.	PE	DATE	DATE	DATE	DATE	DATE	DATE	DATE
5	AS-BUILT FOR CLIENT MARK-UPS (MOCS #1461)	09/17/17											
4	AS-BUILT - GENERAL REVISION (AURMFT-LARC-793)	12/28/16	JCH	MM	MC								
3	AS-BUILT - GENERAL REVISION (AURMFT-LARC-793)	12/06/16	JCH	MM	MC								
2	AS-BUILT	11/09/15	JCH	LRR	IP	MC							
1	RE-ISSUED FOR CONSTRUCTION	10/04/15	SS	LRR	IP	MC							
0	ISSUED FOR MODULE CONSTRUCTION	09/17/17	S	LWS	IT	PS							

DRAWING NO.	SCALE	JOB NO.	SCALE	DRAWING NO.	DATE
#1461	N.T.S.	1461	N.T.S.	SAL-01-41-PD-7003-1	09/17/17

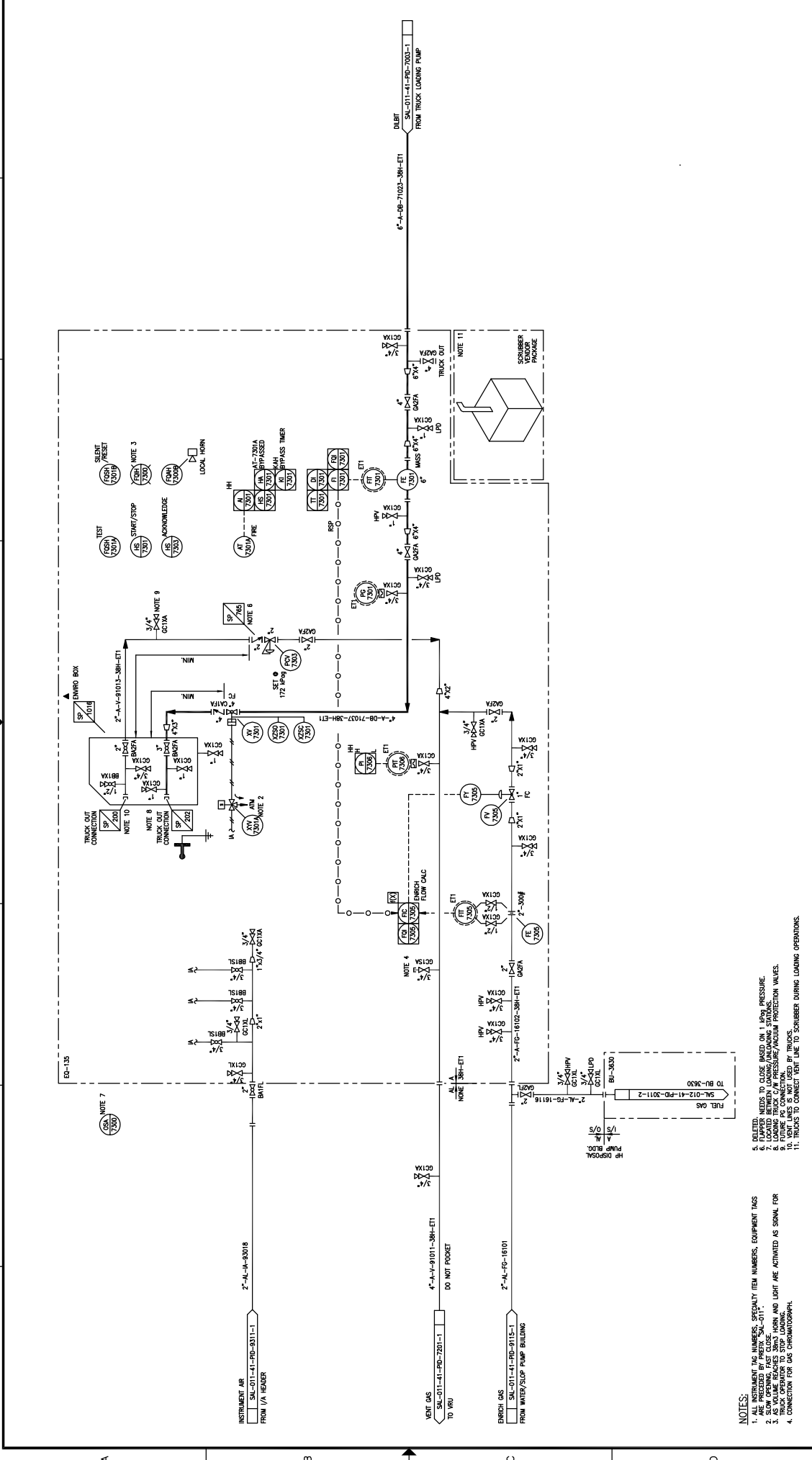
  

DRAWN	DESIGNED	CHECKED	DATE	DATE	DATE	DATE	DATE
J. CHU	I. TURNO	MM KC	09/17/17	09/17/17	09/17/17	09/17/17	09/17/17

SCALE	JOB NO.	SCALE	DRAWING NO.	DATE
N.T.S.	1461	N.T.S.	SAL-01-41-PD-7003-1	09/17/17

1 2 3 4 5 6 7 8



REV.	DESCRIPTION	DATE	BY	CHK	APP.	FE	MC	MM	KC	DATE	DRAWN:	DATE
7	AS BUILT - GENERAL REVISIONS (ALDRIFT-LARC-793)	12/1/05	MM	KC						09/07/17	J. CHU	09/07/17
6	AS BUILT - GENERAL REVISIONS (ALDRIFT-LARC-793)	12/04/07	MM	KC						09/12/21	L. TURNO	09/12/21
5	AS BUILT (PROXY 0210)	11/12/23	AF	DM						09/12/21	L. TURNO	09/12/21
4	RE-ASSUED FOR CONSTRUCTION (PROXY 0610)	11/12/06	AF	DM						09/12/21	L. TURNO	09/12/21
3	ISSUED FOR CONSTRUCTION (PROXY 0610)	11/12/06	AF	DM						09/12/21	L. TURNO	09/12/21
2	AS BUILT	11/12/06	AF	DM						09/12/21	L. TURNO	09/12/21
1	RE-ISSUED FOR CONSTRUCTION	10/24/00	LR	IP						09/12/21	L. TURNO	09/12/21
0	ISSUED FOR CONSTRUCTION	09/12/21	LR	IT						09/12/21	L. TURNO	09/12/21

DATE	REVISION	DESCRIPTION
09/12/21	7	AS BUILT - GENERAL REVISIONS (ALDRIFT-LARC-793)
09/12/21	6	AS BUILT - GENERAL REVISIONS (ALDRIFT-LARC-793)
09/12/21	5	AS BUILT (PROXY 0210)
09/12/21	4	RE-ASSUED FOR CONSTRUCTION (PROXY 0610)
09/12/21	3	ISSUED FOR CONSTRUCTION (PROXY 0610)
09/12/21	2	AS BUILT
09/12/21	1	RE-ISSUED FOR CONSTRUCTION
09/12/21	0	ISSUED FOR CONSTRUCTION

DATE	BY	CHK	APP.	FE	MC	MM	KC
09/07/17	J. CHU						
09/12/21	L. TURNO						
09/12/21	L. TURNO						
09/12/21	L. TURNO						
09/12/21	L. TURNO						
09/12/21	L. TURNO						
09/12/21	L. TURNO						
09/12/21	L. TURNO						
09/12/21	L. TURNO						
09/12/21	L. TURNO						

DATE	REVISION	DESCRIPTION
09/07/17	7	AS BUILT - GENERAL REVISIONS (ALDRIFT-LARC-793)
09/12/21	6	AS BUILT - GENERAL REVISIONS (ALDRIFT-LARC-793)
09/12/21	5	AS BUILT (PROXY 0210)
09/12/21	4	RE-ASSUED FOR CONSTRUCTION (PROXY 0610)
09/12/21	3	ISSUED FOR CONSTRUCTION (PROXY 0610)
09/12/21	2	AS BUILT
09/12/21	1	RE-ISSUED FOR CONSTRUCTION
09/12/21	0	ISSUED FOR CONSTRUCTION

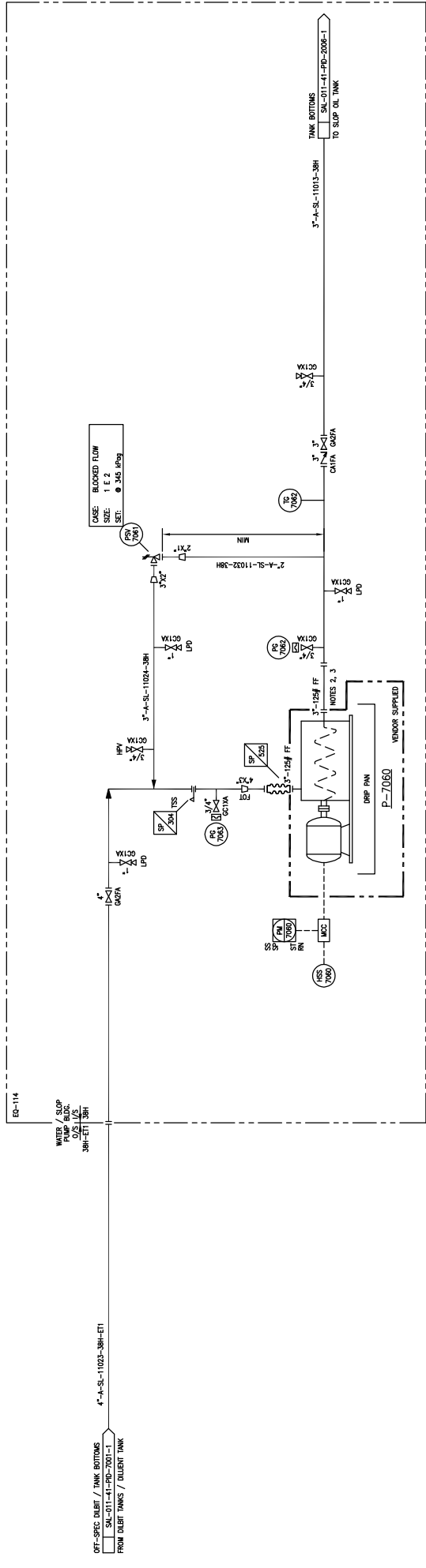
**NOTES:**  
 1. EQUIPMENT TAG NUMBERS, OCCUPANT TAG NUMBERS, EQUIPMENT TAGS  
 2. SLOW OPENING, FAST CLOSE  
 3. TRUCK OPERATOR TO STOP LOADING  
 4. CONNECTION FOR GAS CHROMATOGRAPH

REVISIONS:  
 1. AS BUILT - GENERAL REVISIONS (ALDRIFT-LARC-793)  
 2. AS BUILT - GENERAL REVISIONS (ALDRIFT-LARC-793)  
 3. AS BUILT (PROXY 0210)  
 4. RE-ASSUED FOR CONSTRUCTION (PROXY 0610)  
 5. AS BUILT  
 6. ISSUED FOR CONSTRUCTION (PROXY 0610)  
 7. AS BUILT  
 8. RE-ISSUED FOR CONSTRUCTION  
 9. ISSUED FOR CONSTRUCTION

**NOTES:**  
 1. AS BUILT - GENERAL REVISIONS (ALDRIFT-LARC-793)  
 2. AS BUILT - GENERAL REVISIONS (ALDRIFT-LARC-793)  
 3. AS BUILT (PROXY 0210)  
 4. RE-ASSUED FOR CONSTRUCTION (PROXY 0610)  
 5. AS BUILT  
 6. ISSUED FOR CONSTRUCTION (PROXY 0610)  
 7. AS BUILT  
 8. RE-ISSUED FOR CONSTRUCTION  
 9. ISSUED FOR CONSTRUCTION

REFERENCE DRAWINGS

**P-7060**  
**TANK BOTTOMS PUMP**  
 1.5" DIA. VERTICAL  
 MOTOR 3.7 HP @ 345 RPM  
 575 V / 3 PH / 60 HZ / 1750 RPM  
 SEAL FLUID COUPLING: NONE (PACKING)

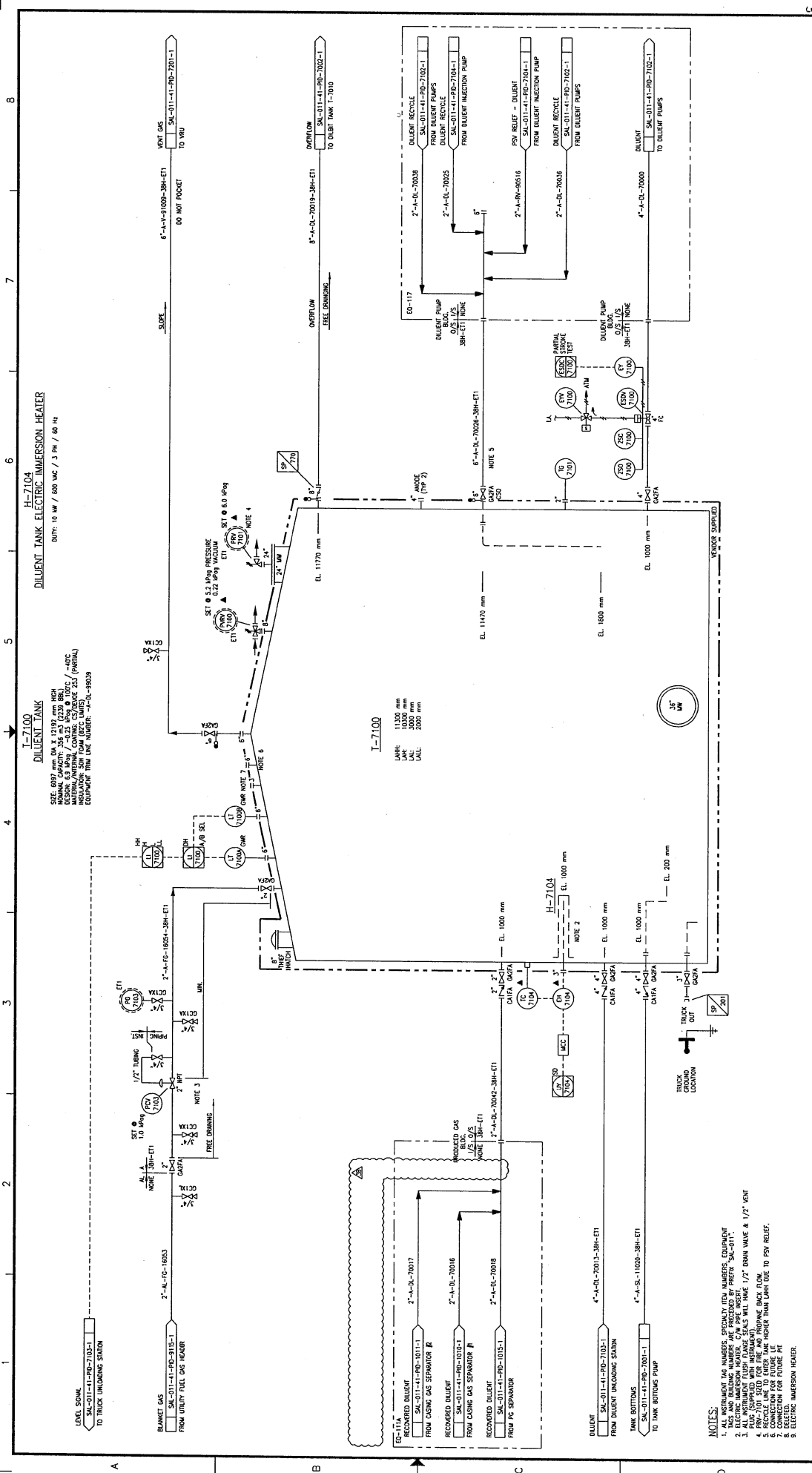


**NOTES:**  
 1. ALL INSTRUMENT TAG NUMBERS, SPECIALTY ITEM NUMBERS, EQUIPMENT TAGS AND BUILDING NUMBERS ARE PRECEDED BY PREFIX "SA-011".  
 2. CORROSION MONITORING SPICOL 65-46.  
 3. CORROSION MONITORING SPICOL 65-46.

DRAWING NO.		JOB NO.		SCALE		DATE		DRAWN		DATE	
SA-011-41-PID-7005-1		SA-011-41-PID-7005-1		N.T.S.		09/11/17		J. CHU		09/07/17	
REV.		BY		DATE		CHK		APP.		DATE	
0		SL		09/11/17		INS		IT		FS	
1		JBB		10/04/20		LRR		IP		MC	
2		JOHN		7/07/15		LRR		IP		MC	
3		RML		12/09/07		BB		MC		MC	
AS BUILT - GENERAL REVISION (AUDRIFT LARC-793)											
AS BUILT											
ISSUED FOR CONSTRUCTION											
RE-ISSUED FOR MODULAR CONSTRUCTION											
DESCRIPTION											
DRP PUMP											
P-7060											
VERDOOR SUPPLIED											
NOTES 2, 3											
3\"/>											



**SW SECTION 26-85-19 WAM**  
**SALESKI SC SAGD PILOT PROJECT**  
**OFF-SPEC / TANK BOTTOMS PUMP**  
**PIPING AND INSTRUMENTATION DIAGRAM**



**H-7104**  
**DILUENT TANK ELECTRIC IMMERSION HEATER**

DUTY: 10 MW / 600 WAC / 3 PH / 60 Hz

SIZE: 6097 mm DIA X 12199 mm HIGH  
 WEIGHT: 15000 kg  
 MATERIAL: ALUMINUM  
 COATING: CS/ALC/253 (PARIAL)  
 EQUIPMENT ITEM LINE NUMBER: 4-UL-49029

**I-7100**  
**DILUENT TANK**

SIZE: 11000 mm DIA X 20000 mm HIGH  
 WEIGHT: 15000 kg  
 MATERIAL: ALUMINUM  
 COATING: CS/ALC/253 (PARIAL)  
 EQUIPMENT ITEM LINE NUMBER: 4-UL-49029

**I-7100**  
 LMR: 11000 mm  
 LAR: 20000 mm  
 LAK: 2000 mm  
 LAL: 2000 mm

- NOTES:**
1. ALL INSTRUMENT TAG NUMBERS, SPECIALTY TAG NUMBERS, CONNECTION TAGS AND BIDDING NUMBERS ARE PRECEDED BY PREFIX "SM-011-41"
  2. ELECTRIC IMMERSION HEATER C/W PIPE INSERT
  3. ALL INSTRUMENT TAG NUMBERS ARE PRECEDED BY PREFIX "I-7100"
  4. FLOW DIRECTION INDICATED BY ARROW IN THE 1/2" DRAIN VALVE & 1/2" COKE
  5. RECYCLE LINE TO ENTER TANK HIGHER THAN LIFT TO PSV RELIEF.
  6. CONNECTION FOR FUTURE USE
  7. ALL INSTRUMENT TAG NUMBERS ARE PRECEDED BY PREFIX "I-7100"
  8. DELETED
  9. ELECTRIC IMMERSION HEATER

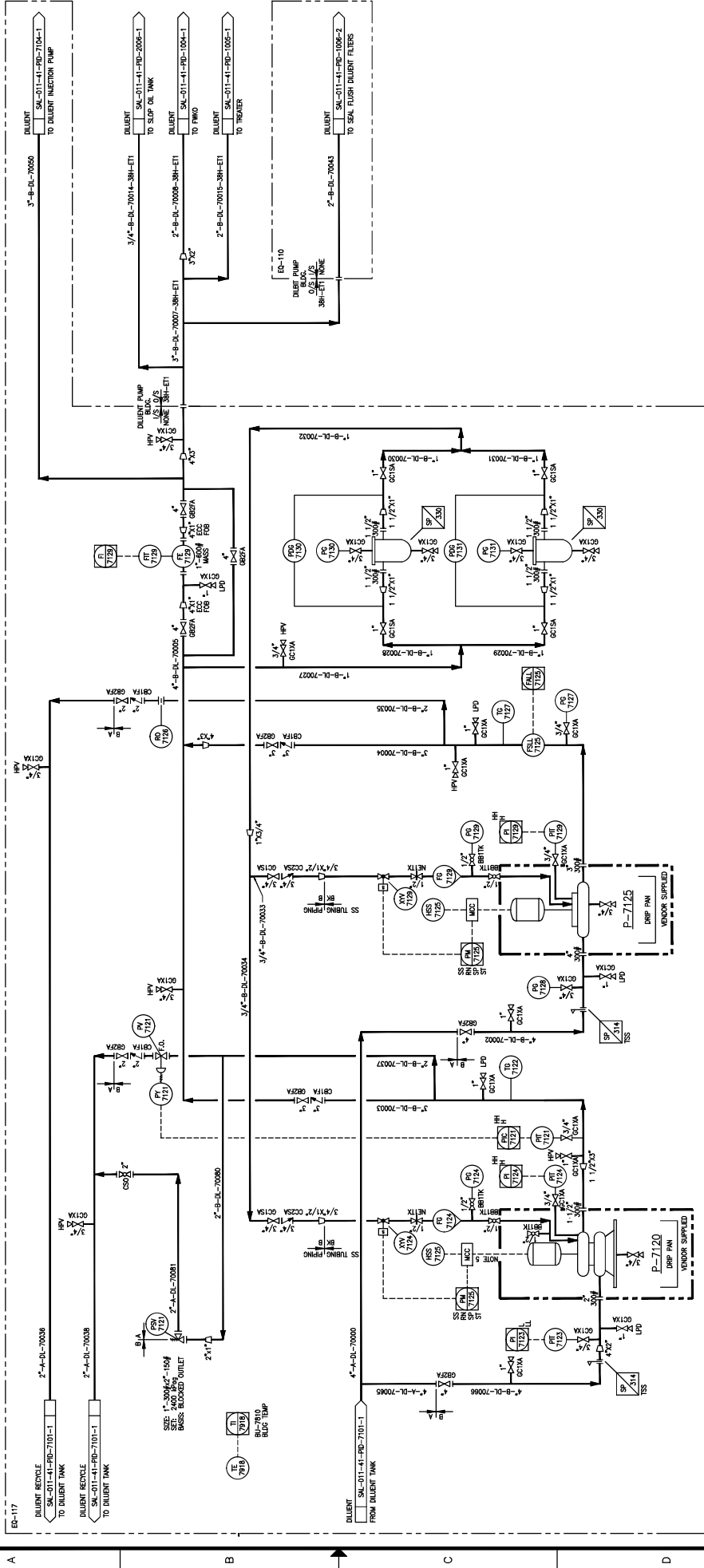
DRAWING NO.		REFERENCE DRAWINGS		HOCS Projects #1223		REV.	
3B	ISSUED FOR INFORMATION - REQUIRED CHANGES OPENED FOR HOCS PROJECT #1223 (ON HOLD)	DATE	BY	CHK	APP.	PE	MC
3A	ISSUED FOR REVIEW - LINE SIZE INCREASE (1000S #1223)	24-05-12	MM	MM	MM	MM	MM
3	AS-BUILT - GENERAL REVISION (ADAPT LINC-75)	12/07/12	MM	MM	MM	MM	MM
2	AS-BUILT	11/09/07	MM	MM	MM	MM	MM
1	RE-ISSUED FOR CONSTRUCTION	10/04/00	MM	MM	MM	MM	MM
0	ISSUED FOR CONSTRUCTION	09/12/01	MM	MM	MM	MM	MM
DATE		DATE		DATE		DATE	
DRAWN: J. CHU		CHECKED: L. RYAN-REANSON		APPROVED: L. RYAN		DATE	
DATE: 09/12/01		DATE: 08/12/01		DATE: 08/12/01		DATE: 09/12/01	
SCALE: N.T.S.		JOB NO.: 1223		DRAWING NO.: SAL-011-41-PID-7104-1		REV. 3B	
TITLE: SALESKI SC SAGO PILOT PROJECT DILUENT TANK PIPING AND INSTRUMENTATION DIAGRAM		HOCS PROJECTS		LARCINA CONSULTANTS		SW SECTION 26-85-19 11MM	

**P-7120**  
DILUENT PUMP

RATED CAPACITY: 10 m<sup>3</sup>/hr @ 1000 kPa gP  
 MOTOR: 575 V, 3 PH / 50 Hz / 3600 RPM  
 SPARING: 1 X 100% (NOTE 2)  
 SEAL FLUID COOLING PLAN 32 WITH SEAL FAILURE PRESSURE TRANSDUCER

**P-7125**  
DILUENT PUMP

RATED CAPACITY: 10 m<sup>3</sup>/hr @ 1000 kPa gP  
 MOTOR: 575 V, 3 PH / 50 Hz / 3600 RPM  
 SPARING: 1 X 100% (NOTE 2)  
 SEAL FLUID COOLING PLAN 32 WITH SEAL FAILURE PRESSURE TRANSDUCER



- NOTES:**
1. ALL INSTRUMENT TAG NUMBERS, EQUIPMENT TAG NUMBERS AND BUILDING NUMBERS ARE PRECEDED BY PREFIX 'SAL-011'.
  2. P-7120 TO RUN INDIVIDUALLY DEPENDING ON FLOW RATES REQUIRED.
  3. DELTA.
  4. NEW MATERIAL ONLY IS CLOUDED.
  5. CASINGS VENT BACK TO TANK.

REV.	DESCRIPTION	DATE	CHK	APP.	BY	DATE	REV.
6	AS-BUILT PER CLIENT MARK-UP (MOS #1461)	12/01/20	BB	MM	MC	09/12/21	6
5	AS-BUILT - GENERAL REVISION (AS-BUILT-ARC-703)	12/09/20	BB	MM	MC	09/12/21	5
4	AS-BUILT - GENERAL REVISION (AS-BUILT-ARC-703)	12/09/20	BB	MM	MC	09/12/21	4
3	DILUENT PUMP REPLACEMENT (MOS #111)-ISSUED FOR CONSTRUCTION	12/09/20	BB	MM	MC	09/12/21	3
2	AS-BUILT	11/26/21	BB	MM	MC	09/12/21	2
1	ISSUED FOR CONSTRUCTION	10/04/20	BB	MM	MC	09/12/21	1
0	ISSUED FOR CONSTRUCTION	09/12/21	BB	MM	MC	09/12/21	0

**HOCS PROJECTS #1461**

**HOCS**  
 HAZARDOUS OIL CONTROL SERVICES

**LARICINA**  
 ENGINEERS

DATE: 09/07/18  
 DESIGNED: J. CHU  
 CHECKED: L. TURNO  
 DATE: 09/12/21  
 DRAWN: L. TURNO  
 DATE: 09/12/21  
 TITLE: SW SECTION 26-85-19-W4M  
 SALESKI SC SAGD PILOT PROJECT  
 DILUENT PUMPS  
 PIPING AND INSTRUMENTATION DIAGRAM

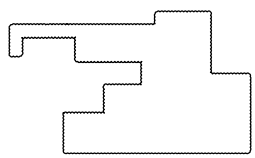
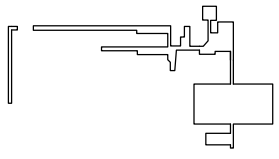
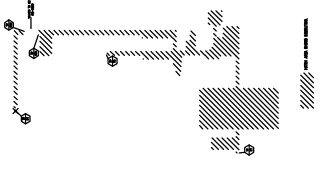
SCALE: N.T.S.  
 JOB NO.: 1461  
 DRAWING NO.: SAL-011-41-PID-7102-1  
 REV. 6

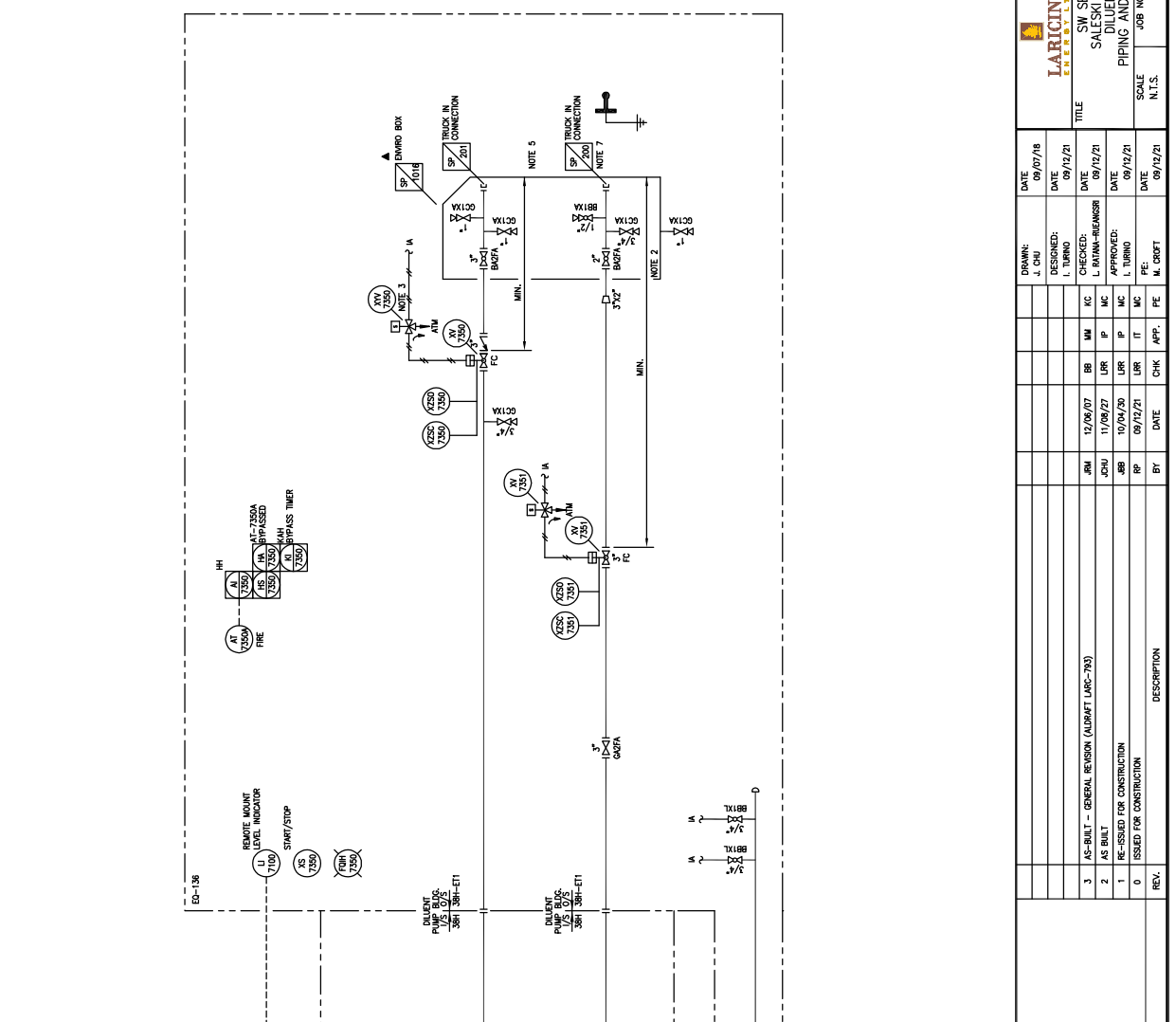


1000

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REV.	DESCRIPTION	BY	DATE	CHK	APP.	FE	M. DRAFT
3	AS-BUILT - GENERAL REVISION (ALUMET URC-793)	RL	11/09/07	BB	MM	MC	
2	AS BUILT	JOHU	11/09/07	LRR	IP	MC	
1	RE-ISSUED FOR CONSTRUCTION	ABB	10/04/00	LRR	IP	MC	
0	ISSUED FOR CONSTRUCTION	RP	09/12/01	LRR	IT	MC	

DATE	DATE	DATE	DATE	DATE
09/07/06	09/12/01	09/12/01	09/12/01	09/12/01

**LARICINA**  
ENGINEERS LTD.

SW SECTION 26-85-19 WAM  
SALESKI SC SAGD PILOT PROJECT  
DILUENT UNLOADING STATION  
PIPING AND INSTRUMENTATION DIAGRAM

SCALE: N.T.S.      JOB NO.: SAL-011-41-PID-7103-1  
REV. 3

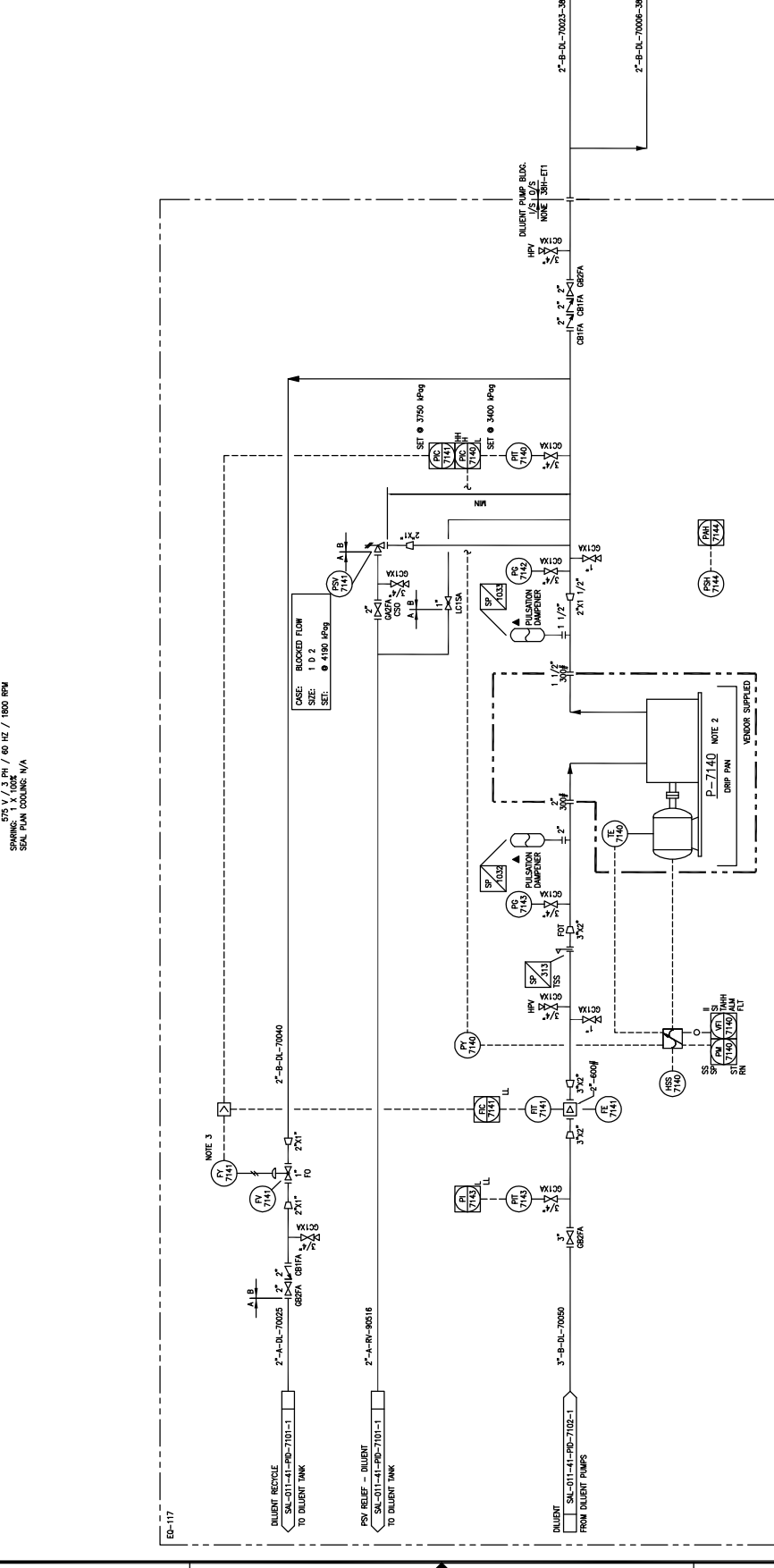
DATE: 09/07/06  
DRAWN: J. CHU  
DESIGNED: I. TURNO  
CHECKED: L. BATINA-BRUMBER  
APPROVED: L. TURNO  
DATE: 09/12/01

- NOTES:**
1. ALL INSTRUMENT TAG NUMBERS, SPECIALTY ITEM NUMBERS, EQUIPMENT TAGS AND INSTRUMENT NUMBERS SHALL BE IDENTICAL TO THE INSTRUMENTATION LIST.
  2. PUMPING TO BE PROVIDED BY UNLOADING TRUCK.
  3. IAPM-7100 CLOSURES X-7350, X-7350 IS SLOW OPENING, FAST CLOSE.
  4. UNLOADING TRUCK C/W PRESSURE/VACUUM PROTECTION VALVES.
  5. VENT LINE IS NOT USED BY TRUCKS.
  6. VENT LINE IS NOT USED BY TRUCKS.

DRAWING NO.	REFERENCE DRAWINGS

**P-7140  
DILUENT INJECTION PUMP**

HPV: 1.5 GPM / 45 PSI @ 2850 RPM  
 MOTOR: 44.3 kW (60 HP) @ 2850 RPM  
 SPANING: 575 V / 3 PH / 60 HZ / 1800 RPM  
 SEAL: PAK COLUMBIAN / A



**NOTES:**

- ALL INSTRUMENT TAG NUMBERS, SPECIALITY NUMBERS, EQUIPMENT IDENTIFICATION AND/OR SPECIFICATIONS SHALL BE AS SHOWN ON THE INSTRUMENT DATA SHEET.
- FLOWER RECYCLE PUMP (AFR) PIPING AND INSTRUMENTATION SHALL BE AS SHOWN ON THE INSTRUMENT DATA SHEET.
- VALVE TO CLOSE WHEN PUMP STOPPED.

DRAWING NO.	REFERENCE DRAWINGS

REV.	DESCRIPTION
3	AS-BUILT - GENERAL REVISION (ALDRIFT LARC-793)
2	AS BUILT
1	ISSUED FOR CONSTRUCTION
0	ISSUED FOR CONSTRUCTION

DATE	CHK	APP.	PE
09/12/21	L. TURNO	M. CROFT	

DATE	BY	APP.	PE
11/26/07	RL		
11/26/07	JOH		
10/24/20	AB		
09/12/21	BF		

DATE	DESIGNED:	DATE	DATE
09/07/18	J. CHU	09/12/21	

DATE	CHECKED:	DATE	DATE
09/07/18	L. TURNO	09/12/21	

DATE	APPROVED:	DATE	DATE
09/07/18	L. TURNO	09/12/21	

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DRAWN:	DATE	DESIGNED:	DATE	CHECKED:	DATE	APPROVED:	DATE
J. CHU	09/07/18	L. TURNO	09/12/21	L. TURNO	09/12/21	L. TURNO	09/12/21

**LARICINA  
ENERGY LTD.**

SW SECTION 26-85-19 NW4M  
 SALESKI SC SAGD PILOT PROJECT  
 DILUENT INJECTION PUMP  
 PIPING AND INSTRUMENTATION DIAGRAM

SCALE: N.T.S.  
 JOB NO.: SW-01-41-PD-704-1

DATE: 09/12/21  
 DATE: 09/12/21

DATE: 09/12/21  
 DATE: 09/12/21

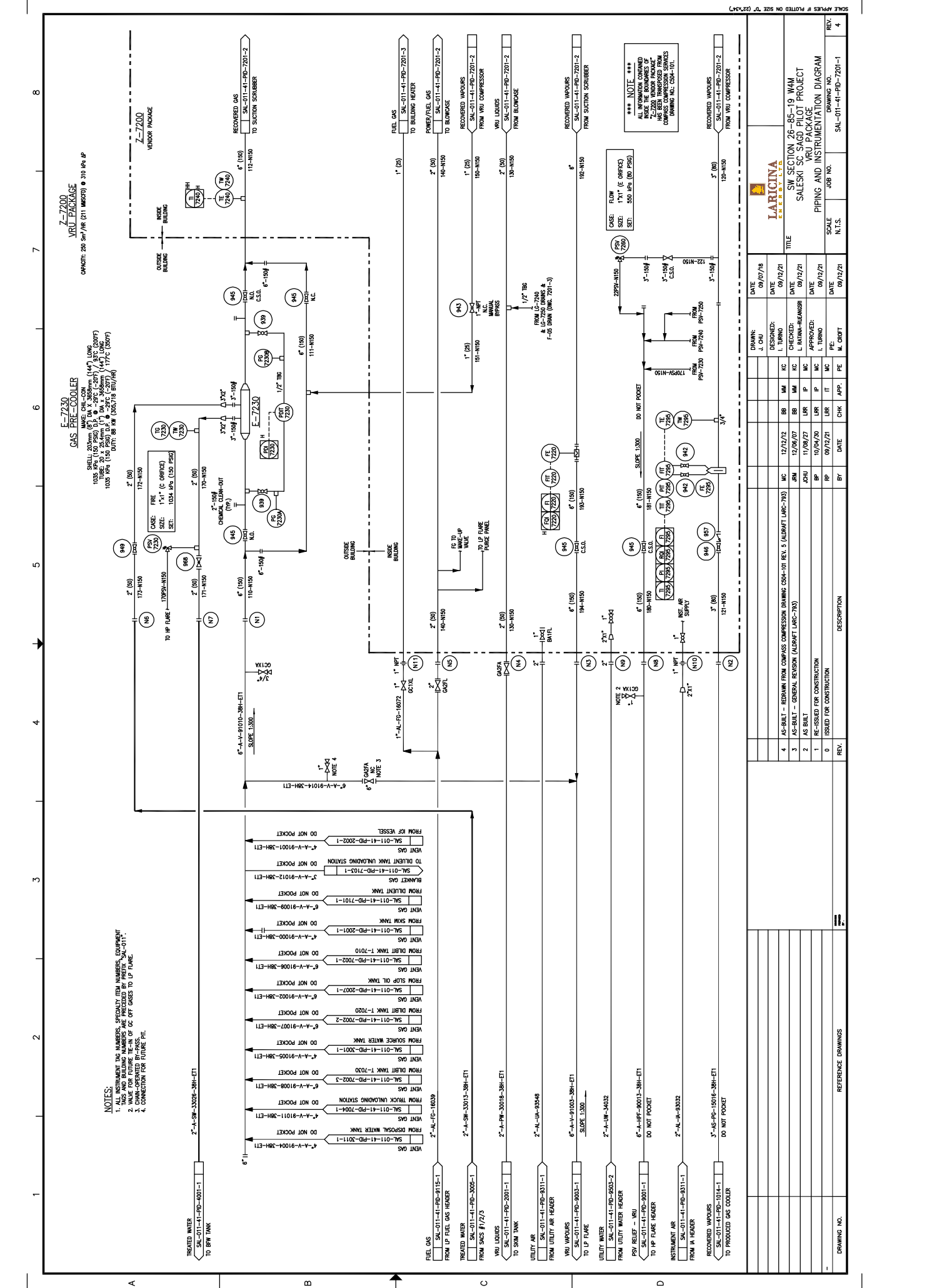
DATE: 09/12/21  
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DATE: 09/12/21  
 DATE: 09/12/21

DATE: 09/12/21  
 DATE: 09/12/21

7-7200 VRU PACKAGE



7-7200 VRU PACKAGE  
CAPACITY: 250 SCFM (21 MBSFD) @ 310 PSIG

GAS PRE-COOLER  
E-7230  
SHELL: 20.0mm (0.787") DIA. X 3658mm (144") LONG  
TUBE: 20.125mm (0.792") DIA. X 3658mm (144") LONG  
1035 PSIG (70.0 BAR) @ 250 SCFM (21 MBSFD) @ 310 PSIG  
SUIT: 300 PSIG (20.7 BAR) @ 250 SCFM (21 MBSFD) @ 310 PSIG

NOTES:  
1. ALL INSTRUMENT TAG NUMBERS, SPECIALLY ITEM NUMBERS, EQUIPMENT TAG NUMBERS, AND PIPING TAG NUMBERS SHALL BE AS SHOWN.  
2. MAKE FOR FUTURE TIE-IN OF GC OFF GASES TO LP FLARE.  
3. DOWN-OPERATED BY-PASSES.  
4. CONNECTIONS FOR FUTURE TAG.

\*\*\* NOTE \*\*\*  
ALL INFORMATION CONTAINED  
HEREIN IS UNCLASSIFIED  
EXCEPT WHERE SHOWN  
OTHERWISE  
DATE 04-10-2011

Table with columns: DRAWING NO., DATE, DESIGNED, CHECKED, APPROVED, SCALE, JOB NO., DRAWING NO., REV.

Table with columns: DATE, DRAWN, DATE, DESIGNED, CHECKED, APPROVED, SCALE, JOB NO., DRAWING NO., REV.

Table with columns: DATE, DRAWN, DATE, DESIGNED, CHECKED, APPROVED, SCALE, JOB NO., DRAWING NO., REV.

Table with columns: DATE, DRAWN, DATE, DESIGNED, CHECKED, APPROVED, SCALE, JOB NO., DRAWING NO., REV.

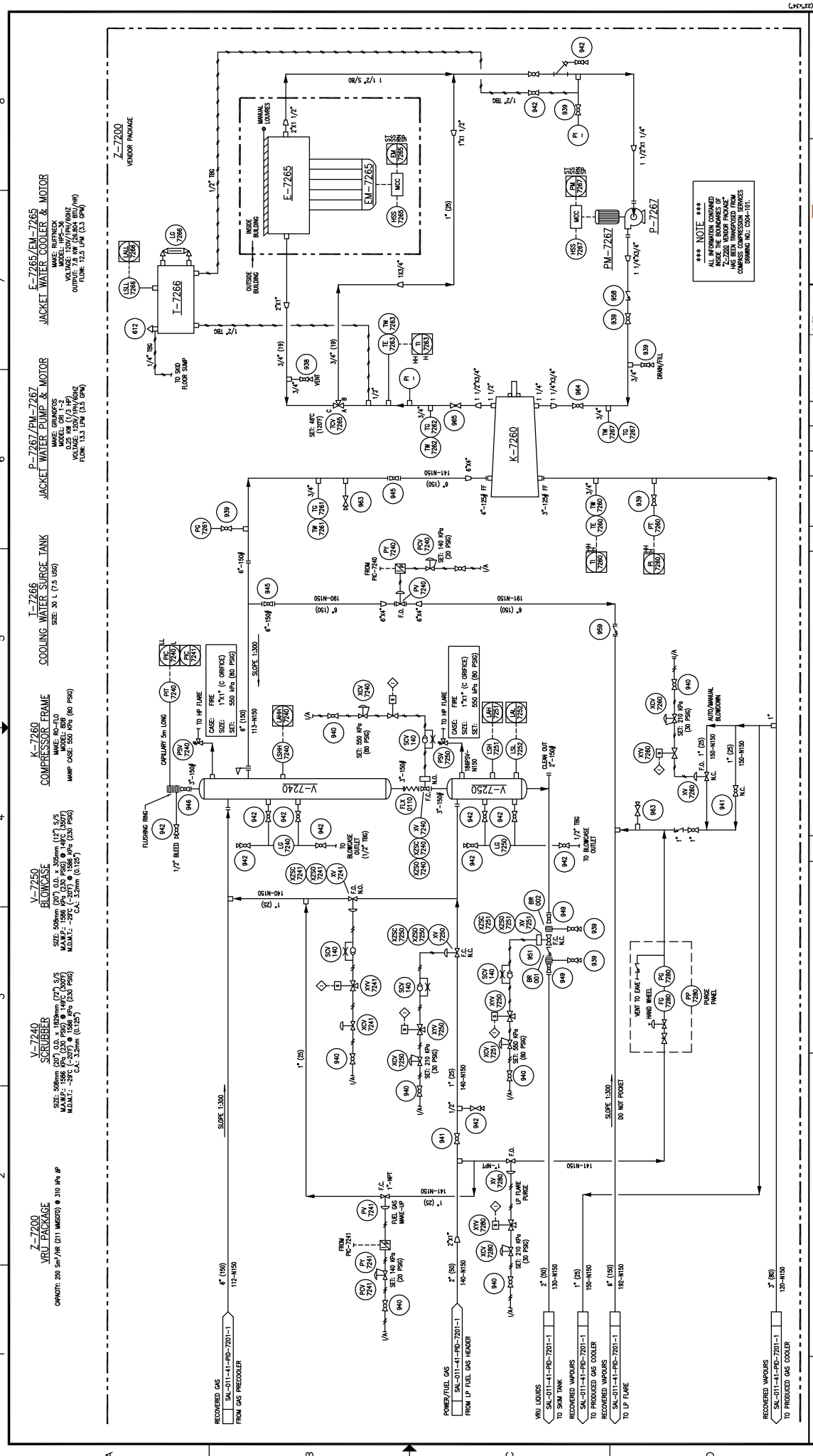
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Table with columns: DATE, DRAWN, DATE, DESIGNED, CHECKED, APPROVED, SCALE, JOB NO., DRAWING NO., REV.



\*\*\* NOTE \*\*\*  
 ALL INFORMATION CONTAINED  
 HEREIN IS THE PROPERTY OF  
 SALESKI SC SAGD PILOT PROJECT  
 AND HAS BEEN TRANSMITTED FROM  
 COMPASS INSTRUMENTATION SERVICES  
 COMPANY INC. (2014) INC.

- Z-7200  
VRU PACKAGE  
ORIENT: 250 SW/HR (211 MMSD) @ 310 #PSI
- V-7240  
SCRUBBER  
SIZE: 60" DIA @ 120 PSIG @ 147.5 S/S  
M.A.W.P.: 150 #PSI @ 147.5 S/S @ 147.5 S/S  
M.D.M.T.: -20°F @ 120 PSIG @ 147.5 S/S  
G.L.: 3.0mm (0.12")
- V-7250  
BLOWCASE  
SIZE: 60" DIA @ 120 PSIG @ 147.5 S/S  
M.A.W.P.: 150 #PSI @ 147.5 S/S @ 147.5 S/S  
M.D.M.T.: -20°F @ 120 PSIG @ 147.5 S/S  
G.L.: 3.0mm (0.12")
- K-7260  
COMPRESSOR FRAME  
M.A.W.P.: 150 #PSI @ 147.5 S/S  
M.D.M.T.: -20°F @ 120 PSIG @ 147.5 S/S  
G.L.: 3.0mm (0.12")
- T-7266  
COOLING WATER SURGE TANK  
SIZE: 30 I (7.5 USG)
- P-7267/JM-7267  
JACKET WATER PUMP & MOTOR  
M.A.W.P.: 150 #PSI @ 147.5 S/S  
M.D.M.T.: -20°F @ 120 PSIG @ 147.5 S/S  
G.L.: 3.0mm (0.12")
- E-7265/JM-7265  
JACKET WATER COOLER & MOTOR  
M.A.W.P.: 150 #PSI @ 147.5 S/S  
M.D.M.T.: -20°F @ 120 PSIG @ 147.5 S/S  
G.L.: 3.0mm (0.12")

DATE	REVISION	DESCRIPTION
09/07/18	1	AS-BUILT - REDRAWN FROM COMPASS INSTRUMENTATION SERVICES DRAWING 05M-101-REV. 5 (ALUMINUM-C-703)
09/12/21	2	REVISED TO REFLECT CHANGES TO THE INSTRUMENTATION PACKAGE
09/12/21	3	REVISED TO REFLECT CHANGES TO THE INSTRUMENTATION PACKAGE
09/12/21	4	REVISED TO REFLECT CHANGES TO THE INSTRUMENTATION PACKAGE
09/12/21	5	REVISED TO REFLECT CHANGES TO THE INSTRUMENTATION PACKAGE
09/12/21	6	REVISED TO REFLECT CHANGES TO THE INSTRUMENTATION PACKAGE
09/12/21	7	REVISED TO REFLECT CHANGES TO THE INSTRUMENTATION PACKAGE
09/12/21	8	REVISED TO REFLECT CHANGES TO THE INSTRUMENTATION PACKAGE
09/12/21	9	REVISED TO REFLECT CHANGES TO THE INSTRUMENTATION PACKAGE
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09/12/21	11	REVISED TO REFLECT CHANGES TO THE INSTRUMENTATION PACKAGE
09/12/21	12	REVISED TO REFLECT CHANGES TO THE INSTRUMENTATION PACKAGE
09/12/21	13	REVISED TO REFLECT CHANGES TO THE INSTRUMENTATION PACKAGE
09/12/21	14	REVISED TO REFLECT CHANGES TO THE INSTRUMENTATION PACKAGE
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09/12/21	17	REVISED TO REFLECT CHANGES TO THE INSTRUMENTATION PACKAGE
09/12/21	18	REVISED TO REFLECT CHANGES TO THE INSTRUMENTATION PACKAGE
09/12/21	19	REVISED TO REFLECT CHANGES TO THE INSTRUMENTATION PACKAGE
09/12/21	20	REVISED TO REFLECT CHANGES TO THE INSTRUMENTATION PACKAGE
09/12/21	21	REVISED TO REFLECT CHANGES TO THE INSTRUMENTATION PACKAGE
09/12/21	22	REVISED TO REFLECT CHANGES TO THE INSTRUMENTATION PACKAGE
09/12/21	23	REVISED TO REFLECT CHANGES TO THE INSTRUMENTATION PACKAGE
09/12/21	24	REVISED TO REFLECT CHANGES TO THE INSTRUMENTATION PACKAGE
09/12/21	25	REVISED TO REFLECT CHANGES TO THE INSTRUMENTATION PACKAGE
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09/12/21	87	REVISED TO REFLECT CHANGES TO THE INSTRUMENTATION PACKAGE
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09/12/21	89	REVISED TO REFLECT CHANGES TO THE INSTRUMENTATION PACKAGE
09/12/21	90	REVISED TO REFLECT CHANGES TO THE INSTRUMENTATION PACKAGE
09/12/21	91	REVISED TO REFLECT CHANGES TO THE INSTRUMENTATION PACKAGE
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09/12/21	93	REVISED TO REFLECT CHANGES TO THE INSTRUMENTATION PACKAGE
09/12/21	94	REVISED TO REFLECT CHANGES TO THE INSTRUMENTATION PACKAGE
09/12/21	95	REVISED TO REFLECT CHANGES TO THE INSTRUMENTATION PACKAGE
09/12/21	96	REVISED TO REFLECT CHANGES TO THE INSTRUMENTATION PACKAGE
09/12/21	97	REVISED TO REFLECT CHANGES TO THE INSTRUMENTATION PACKAGE
09/12/21	98	REVISED TO REFLECT CHANGES TO THE INSTRUMENTATION PACKAGE
09/12/21	99	REVISED TO REFLECT CHANGES TO THE INSTRUMENTATION PACKAGE
09/12/21	100	REVISED TO REFLECT CHANGES TO THE INSTRUMENTATION PACKAGE

DATE: 09/07/18  
 DRAWN: J. CHU  
 DESIGNED: I. TURNO  
 CHECKED: L. BATANA-BRUMBER  
 APPROVED: L. TURNO  
 DATE: 09/12/21  
 DATE: 09/12/21  
 DATE: 09/12/21  
 DATE: 09/12/21

SCALE: N.T.S.  
 JOB NO.: SWL-011-41-PD-7201-2  
 DRAWING NO.: SWL-011-41-PD-7201-2

REVISIONS

REFERENCE DRAWINGS

COMPASS INSTRUMENTATION SERVICES

SALESKI SC SAGD PILOT PROJECT

VRU PACKAGE

PIPING AND INSTRUMENTATION DIAGRAM

SW SECTION 26-85-19 WAM

REV. 0

**I-7268**  
**COMPRESSOR OIL DATANK**  
 SIZE: 60 L (15 USG)

**EF-7928A/B / EM-7928A/B**  
**BUILDING EXHAUST FANS**  
 MAKE: TBA  
 MODEL: TBA  
 HP: 1.5  
 FLOW: 3307 CFM (170 CFM)

**KM-7260**  
**ELECTRIC MOTOR**  
 MAKE: TECO-INDUSTRIAL  
 MODEL: 7012  
 HP: 0.5  
 CLASS 1, ZONE 2, OR IN/IB/720

**P-7270/PM-7270**  
**WANE LUBRICATOR PUMP & MOTOR**  
 MAKE: PREMIER  
 MODEL: 7012  
 HP: 0.5  
 CLASS 1, ZONE 2, OR IN/IB/720

**I-7267**  
**SEAL OIL RESERVOIR**  
 SIZE: 100M (41.0) GAL (38.8) L  
 VOLUME: < 0.05 GAL (0.2) LIT  
 MAKE: SART (NON-REGISTERED VESSEL)  
 CLASS 1, ZONE 2, OR IN/IB/720

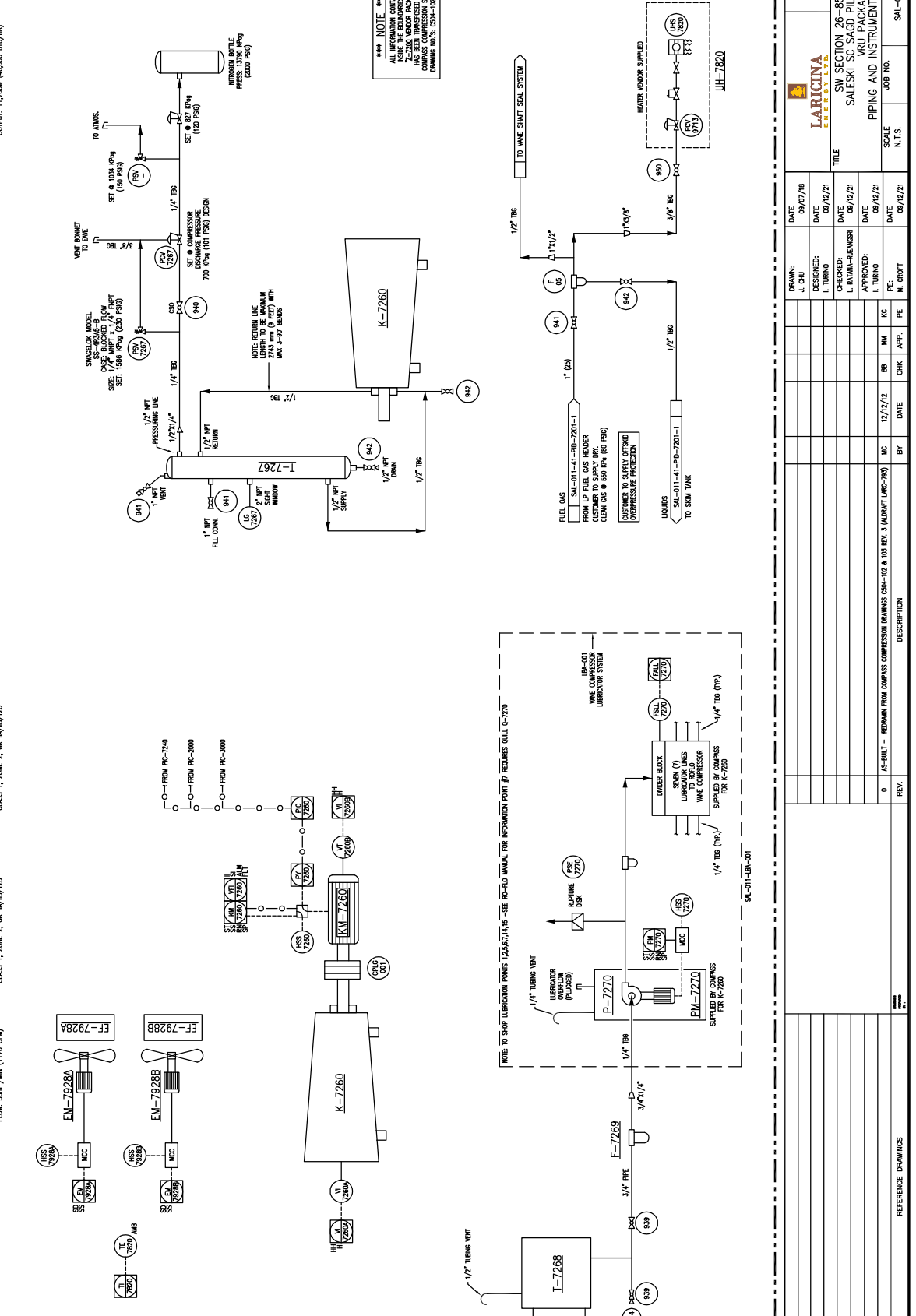
**I-7267**  
**SEAL OIL RESERVOIR**  
 MAKE: CANADIAN  
 MODEL: M2248  
 VOLUME: 100M (41.0) GAL (38.8) L  
 CLASS 1, ZONE 2, OR IN/IB/720

**UH-7260**  
**BUILDING HEATER**  
 MAKE: CANADIAN  
 MODEL: M2248  
 VOLUME: 100M (41.0) GAL (38.8) L  
 CLASS 1, ZONE 2, OR IN/IB/720

**UJH-7260**  
**HEATER WANE SUPPLY**  
 MAKE: PREMIER  
 MODEL: 7012  
 HP: 0.5  
 CLASS 1, ZONE 2, OR IN/IB/720

**K-7260**  
**WANE COMPRESSOR**  
 MAKE: PREMIER  
 MODEL: 7012  
 HP: 0.5  
 CLASS 1, ZONE 2, OR IN/IB/720

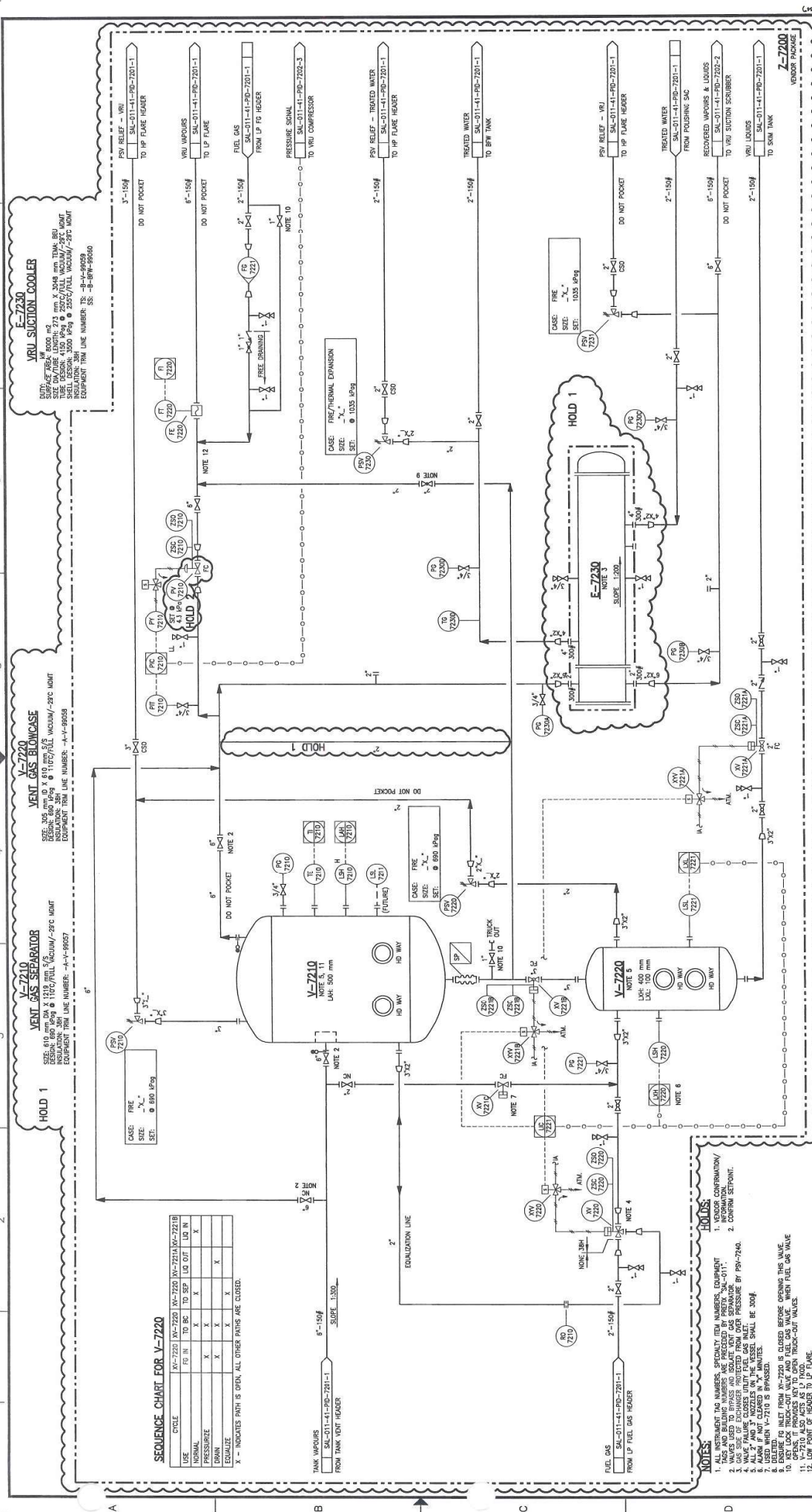
**I-7268**  
**COMPRESSOR OIL DATANK**  
 SIZE: 60 L (15 USG)



DATE	REVISION	DESCRIPTION
09/07/18	1	AS-BUILT - RETURN FROM COMPRESSOR DRUMS CSM-102 & 110 REV. 3 (ADMIT LARG-703)
09/12/21	2	REVISED FOR INSTRUMENTATION DIAGRAM

DATE	DESIGNED BY	CHECKED BY	APPROVED BY	SCALE	JOB NO.	DRAWING NO.	REV.
09/07/18	J. CHU	L. TURNO	L. TURNO	N.T.S.	SAL-011-41-PIB-7201-3	0	0

SCALE: AS SHOWN ON SIZE "D" (22"x34")



**IMV Projects**  
**SW SECTION 26-85-19 WAM**  
**SALESKI SC SAGO PILOT PROJECT**  
**VRU SEPARATOR**  
**PIPING AND INSTRUMENTATION DIAGRAM**

**DATE:** 09/09/19  
**DESIGNED:** J. T. TULLO  
**CHECKED:** H. B. B. B.  
**APPROVED:** J. T. TULLO  
**DATE:** 09/11/19

**SCALE:** N.T.S.  
**DRAWING NO.:** SW-011-41-PID-7202-1  
**REV.:** 0

**PROFESSIONAL ENGINEER ALBERTA**  
**IMV Projects Inc. 208100**

**REFERENCE DRAWINGS**



**V-7240**  
VRU SUCTION SCRUBBER  
SOLUTION: 30%  
DESIGN: 800 MPa @ 110°C FULL VACUUM / -29°C MDMT  
EQUIPMENT TAG LINE NUMBERS: -A-Y-99061

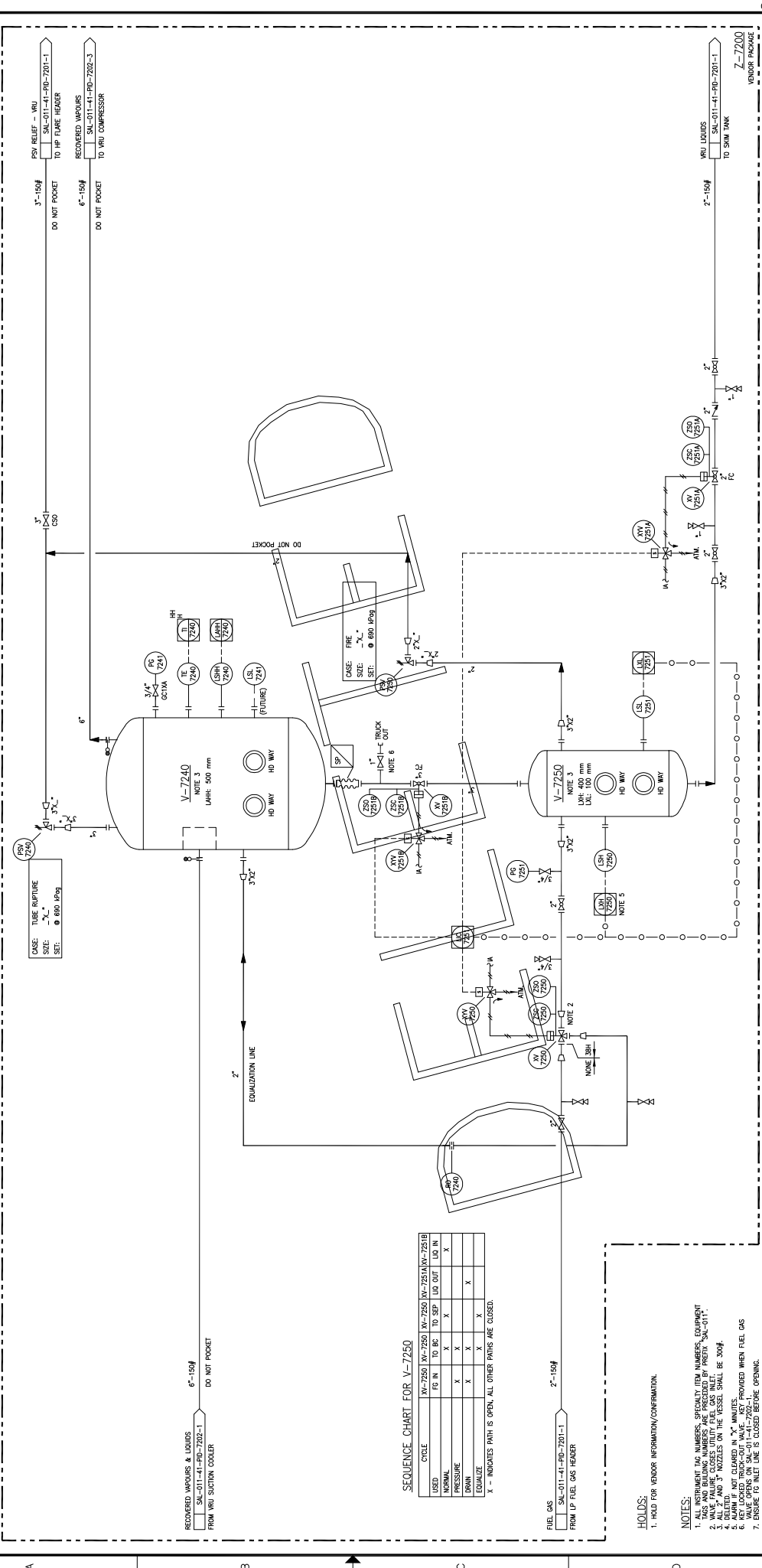
**V-7250**  
VRU SUCTION BLOWCASE  
SOLUTION: 30%  
DESIGN: 800 MPa @ 110°C FULL VACUUM / -29°C MDMT  
EQUIPMENT TAG LINE NUMBERS: -A-Y-99062

**V-7240**  
VRU SUCTION SCRUBBER  
SOLUTION: 30%  
DESIGN: 800 MPa @ 110°C FULL VACUUM / -29°C MDMT  
EQUIPMENT TAG LINE NUMBERS: -A-Y-99061

**V-7250**  
VRU SUCTION BLOWCASE  
SOLUTION: 30%  
DESIGN: 800 MPa @ 110°C FULL VACUUM / -29°C MDMT  
EQUIPMENT TAG LINE NUMBERS: -A-Y-99062

**V-7240**  
VRU SUCTION SCRUBBER  
SOLUTION: 30%  
DESIGN: 800 MPa @ 110°C FULL VACUUM / -29°C MDMT  
EQUIPMENT TAG LINE NUMBERS: -A-Y-99061

**V-7250**  
VRU SUCTION BLOWCASE  
SOLUTION: 30%  
DESIGN: 800 MPa @ 110°C FULL VACUUM / -29°C MDMT  
EQUIPMENT TAG LINE NUMBERS: -A-Y-99062



**SEQUENCE CHART FOR V-7250**

	VR-7250	VR-7250	VR-7250	VR-7250	VR-7250
	FG IN	TO BK	TO SEP	TO LIO	TO IN
USID		X	X	X	X
NORMAL		X	X	X	X
PRESSURE	X	X	X	X	X
DRAIN	X	X	X	X	X
EQUALIZE	X	X	X	X	X

X - INDICATES PATH IS OPEN, ALL OTHER PATHS ARE CLOSED.

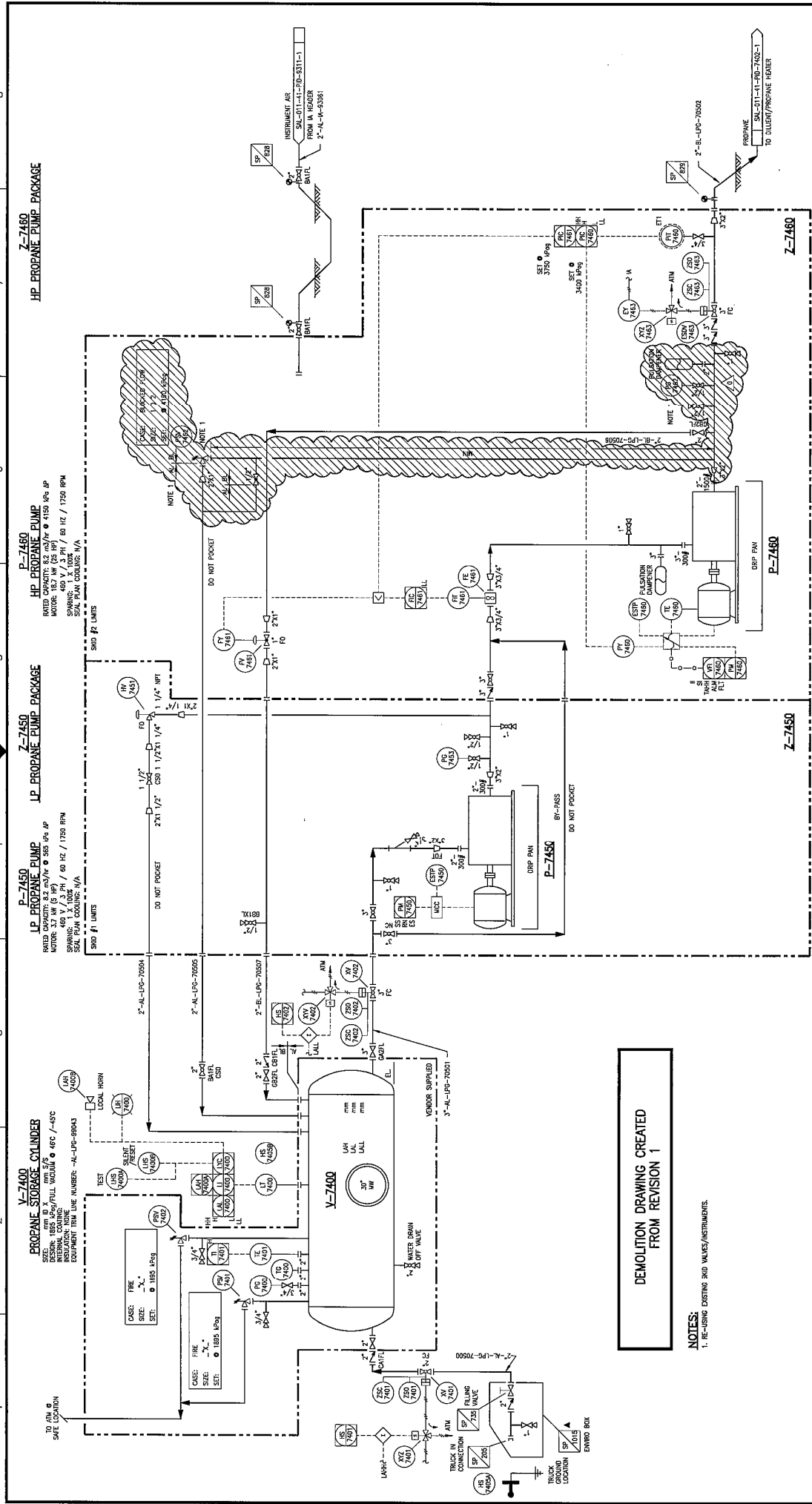
**HOLDS:**  
1. HOLD FOR VENDOR INFORMATION/CONFIRMATION.

**NOTES:**  
1. ALL INSTRUMENT TAG NUMBERS, SPECIFICITY NUMBERS, EQUIPMENT TAG NUMBERS, AND INSTRUMENT NUMBERS SHALL BE IDENTICAL TO THE INSTRUMENT NUMBERS ON THE P&ID.  
2. VALVE FAILURE CLOSES UTILITY FUEL GAS INLET.  
3. DELETED AND 3 WIZZLES ON THE VESSEL SHALL BE 300P.  
4. ALARM IS NOT DISPLAYED IN 30 MINUTES.  
5. VALVE OPERATE ON SAL-011-41-PID-7202-1.  
6. VALVE OPERATE ON SAL-011-41-PID-7202-1.  
7. ENSURE TO INLET LINE IS CLOSED BEFORE OPENING.

DRAWN: R. PARIAL DATE: 09/09/19	DESIGNED: L. TURNO DATE: 09/12/21	CHECKED: L. BAYANA-BAYANOR DATE: 09/12/21	APPROVED: L. TURNO DATE: 09/12/21
TITLE SW SECTION 26-85-19 WAM SALESKI SC SAGD PILOT PROJECT VRU SUCTION SCRUBBER PIPING AND INSTRUMENTATION DIAGRAM		SCALE N.T.S.	JOB NO. Z08100
DRAWING NO. SAL-011-41-PID-7202-2		REV. NO. 1	REV. DATE 09/12/21
DRAWING NO. SAL-011-41-PID-7202-2		REFERENCE DRAWINGS	DESCRIPTION







**V-7400  
PROPANE STORAGE CYLINDER**  
 MODEL: 185 3/4" FULL VOLUME @ 48°C / -48°C  
 INSULATION: 2" POLYURETHANE  
 EQUIPMENT ITEM LINE NUMBER: -AL-UP-5804

**P-7450  
LP PROPANE PUMP PACKAGE**  
 RATED CAPACITY: 1700 GPH @ 350 RPM  
 MOTOR: 3.7 KW (5 HP) / 60 HZ / 1750 RPM  
 SPARKING: 480 V / 3 PH / 50 HZ / 1750 RPM  
 SEAL PLAN COOLING: N/A  
 360° F LIMITS

**P-7460  
LP PROPANE PUMP PACKAGE**  
 RATED CAPACITY: 1700 GPH @ 350 RPM  
 MOTOR: 3.7 KW (5 HP) / 60 HZ / 1750 RPM  
 SPARKING: 480 V / 3 PH / 50 HZ / 1750 RPM  
 SEAL PLAN COOLING: N/A  
 360° F LIMITS

**Z-7450  
HP PROPANE PUMP PACKAGE**

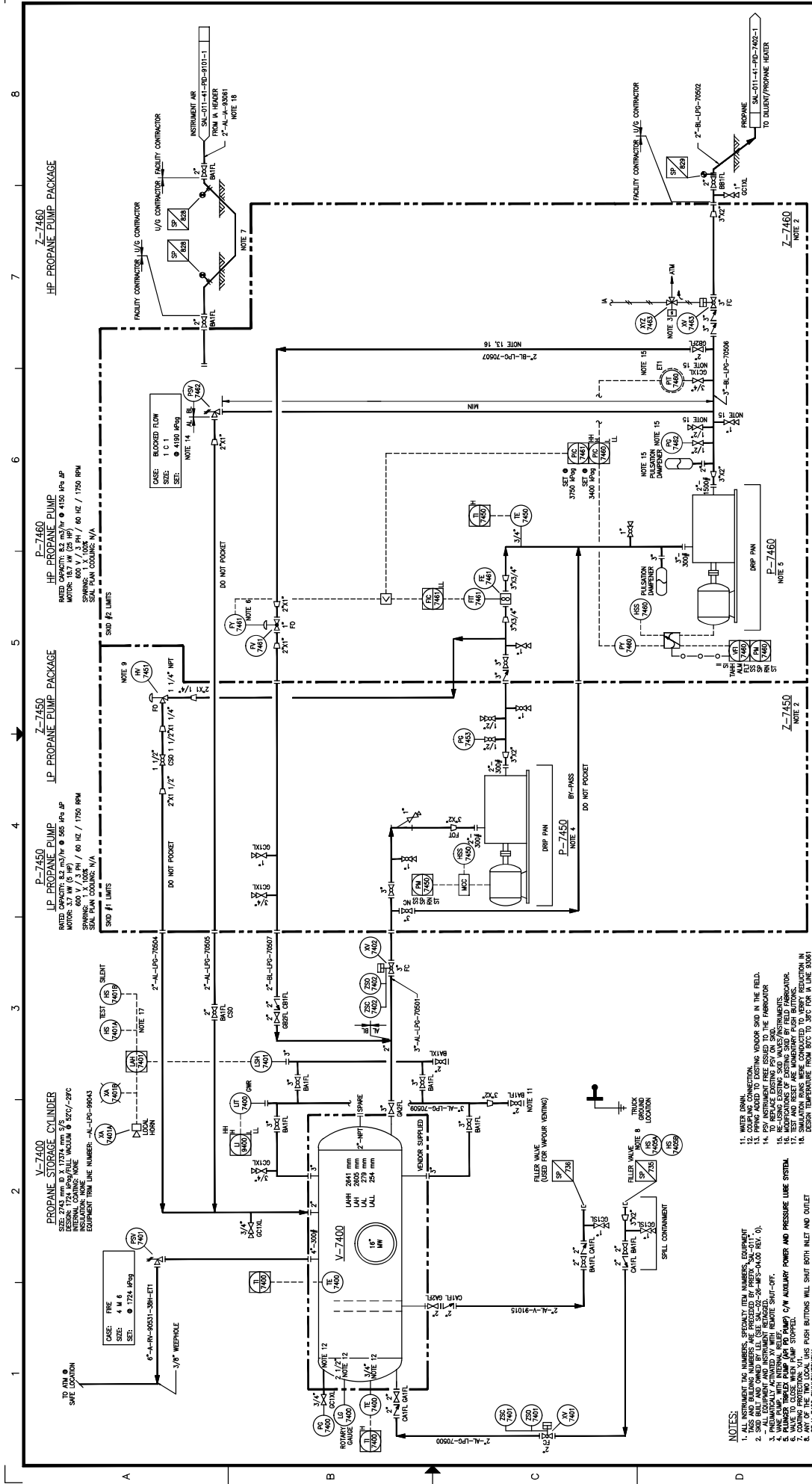
**Z-7460  
HP PROPANE PUMP PACKAGE**

**DEMOLITION DRAWING CREATED FROM REVISION 1**

**NOTES:**  
 1. RE-USING EXISTING 3RD VALVES/INSTRUMENTS.

DRAWING NO.	DATE		10/09/09
	DESIGNED:	DATE	
	CHECKED:	DATE	
	APPROVED:	DATE	
REFERENCE DRAWINGS	BY	DATE	10/23/09
	CHK	APP.	IL
	ISSUED FOR DEMOLITION	DESCRIPTION	
	REV.		
IMV Projects Inc. Z08100	SCALE	N.T.S.	
	JOB NO.	Z08100	
	DRAWING NO.	SAL-01-4-PID-7401-1-DEM0	
	REV.	0	

**LARICINA**  
 ENTERPRISES  
 SW SECTION 26-65-19 WAM  
 SALESKI SC SAGD PILOT PROJECT  
 PROPANE STORAGE AND PUMPS  
 PIPING AND INSTRUMENTATION DIAGRAM



- NOTES:**
1. ALL INSTRUMENT TAG NUMBERS, SECURITY ITEM NUMBERS, EQUIPMENT TAG NUMBERS AND OWNER BY LINE (SEE SA-22-26-MPS-0-00 REV. 0).
  2. SLD BUILT AND OWNED BY LEE (SEE SA-22-26-MPS-0-00 REV. 0).
  3. PNEUMATICALLY ACTIVATED WITH RELEASING SHUT-OFF.
  4. INSTRUMENTS ARE TO BE INSTALLED AND TESTED BY THE FABRICATOR.
  5. INSTRUMENTS ARE TO BE INSTALLED AND TESTED BY THE FABRICATOR.
  6. VALVE TO CLOSE WHEN PUMP STOPPED.
  7. ANY OF THE TWO LOCAL LASH PUSH BUTTONS WILL SHUT BOTH INLET AND OUTLET.
  8. DESIGN TEMPERATURE FROM 80°F TO 100°F FOR WELDS (SEE 3000).
  9. DIFFERENTIAL PRESSURE VALVE: 283-483 45# (41-70 psig) SPRING PRESSURE.
  10. (SEE 2000).
  11. (SEE 2000).
  12. (SEE 2000).
  13. (SEE 2000).
  14. (SEE 2000).
  15. (SEE 2000).
  16. (SEE 2000).
  17. (SEE 2000).
  18. (SEE 2000).
  19. (SEE 2000).
  20. (SEE 2000).

**LARICINA**  
S.A. BILBO

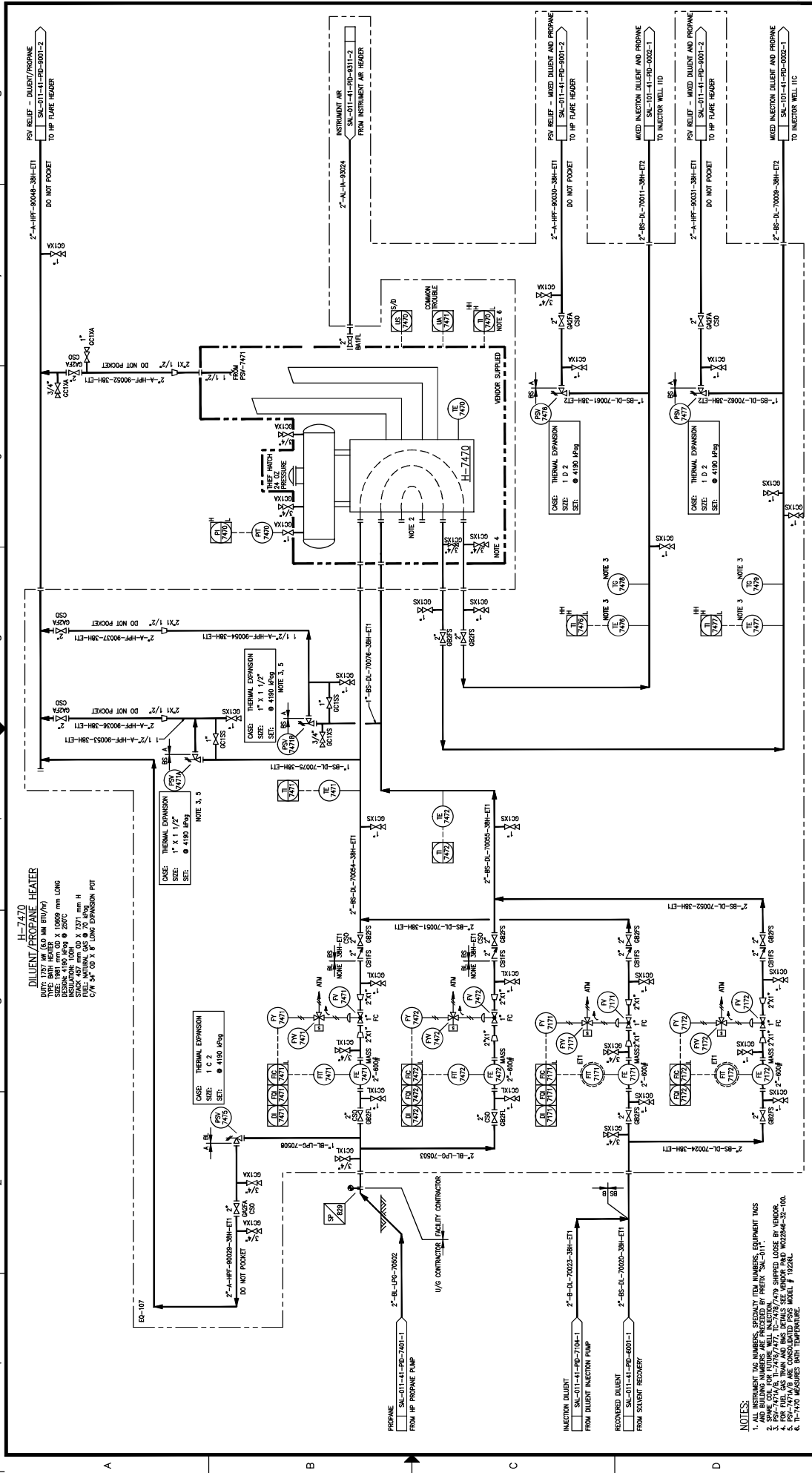
DATE: 09/07/19  
DESIGNED: J. CHU  
L. TURNO  
DATE: 09/12/21  
CHECKED: L. BATINA-REINER  
DATE: 09/12/21  
APPROVED: J. CHU  
DATE: 09/12/21  
DATE: 09/12/21

**HCS PROJECTS**  
#1461

SW SECTION 26-85-19 WAM  
PROANE STORAGE AND PUMPS  
PIPING AND INSTRUMENTATION DIAGRAM

SCALE: N.T.S.  
JOB NO.: 1461  
DRAWING NO.: SAL-011-41-PD-7401-1  
REV. 5

REV.	DESCRIPTION	BY	DATE	CHK	APP.	FE	M.	CRFT
5	ISSUED FOR CONSTRUCTION		09/12/21					
4	ISSUED FOR CONSTRUCTION		09/12/21					
3	RE-DESIGNED FOR CONSTRUCTION		11/09/22					
2	AS BUILT - GENERAL REVISION (ASBRT (AR-793))		12/09/07					
1	AS BUILT CLIENT MARK-UPS (MCS #1461)		12-SEP-14					



DATE	BY	CHK	APP.	REV.	DESCRIPTION
09/12/21	M. CRBT			4	N.T.S.
09/12/21	IT			3	ISSUED FOR CONSTRUCTION
09/12/21	LR			2	AS BUILT FOR CONSTRUCTION
11/09/20	LR			1	RE-DESIGNED FOR CONSTRUCTION
12/09/19	LR			0	AS BUILT - GENERAL REVISION (ASBUILT LARC-793)
10/12/19	LR			3	AS BUILT - GENERAL REVISION (ASBUILT LARC-793)
09/12/21	LR			4	AS BUILT PER CLIENT MARK-UPS (NCS #148)

DATE	DESIGNED BY	CHECKED BY	APPROVED BY
09/12/21	L. TURNO	M. CRBT	L. BATINA-BREMSER
09/12/21			
09/12/21			
09/12/21			

DATE	SCALE	JOB NO.	DRAWING NO.	REV.
09/12/21	N.T.S.	1461	SAL-011-41-PID-7402-1	4

DATE	DRAWN BY	DATE	DESIGNED BY	DATE	CHECKED BY	DATE	APPROVED BY
09/07/21	J. CHN	09/12/21	L. TURNO	09/12/21	M. CRBT	09/12/21	L. BATINA-BREMSER

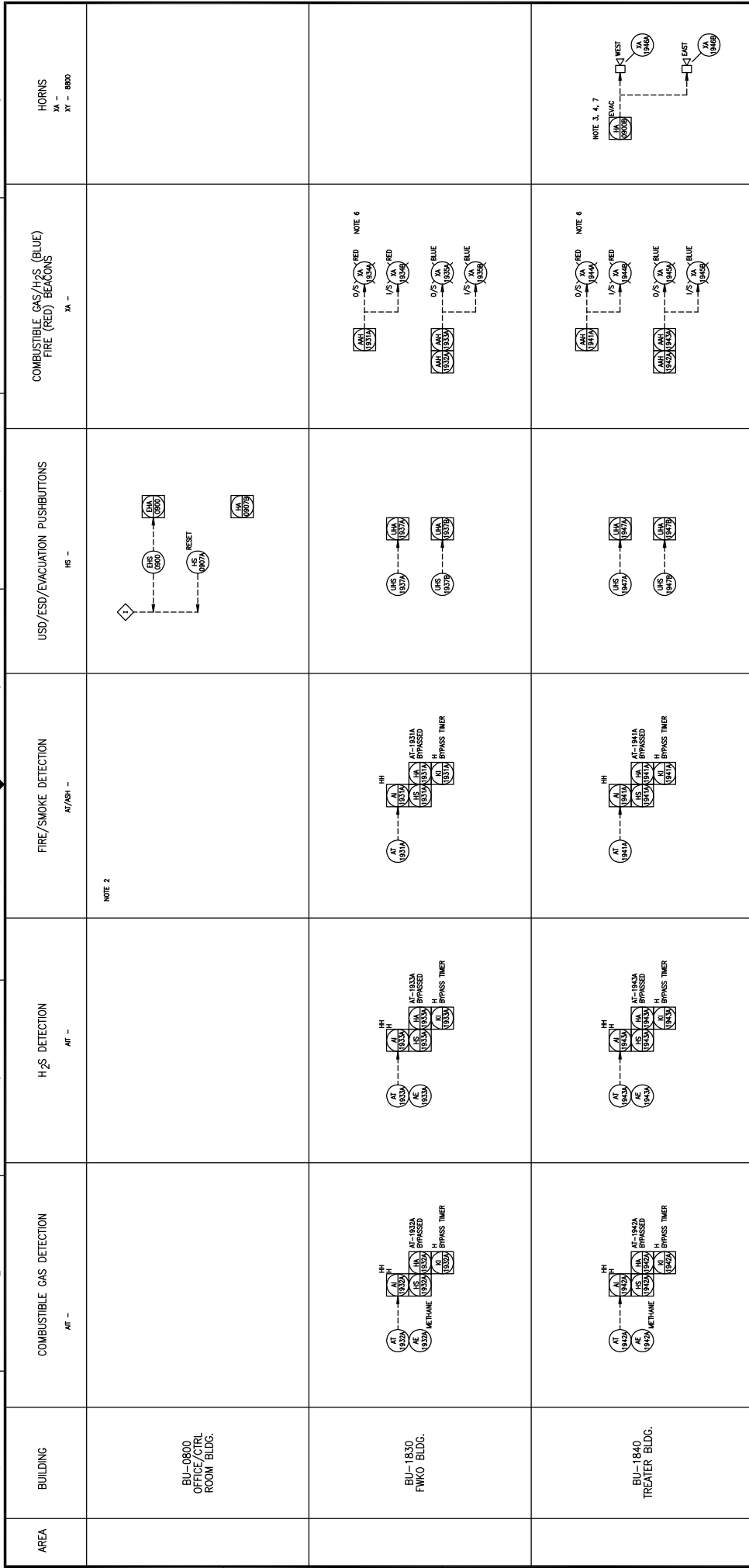
**HOCS PROJECTS #1461**

**HOCS PROJECTS**

**REFERENCE DRAWINGS**

SCALE APPLIES IF PLOTTED ON SIZE "A" (22x34)

1 2 3 4 5 6 7 8



**NOTES:**

1. CHECK FOR THE NUMBERS PROVIDED BY MORN, SW, JLT.
2. LOCAL SMOKE DETECTION FOR OFFICE/CTRL ROOM BY BUILDING SUPPLIER.
3. TWO TONE HORN/TONE 1 EMERGENCY TONE 2 FIRE AND GAS DETECTION.
4. HORN/TONE 1 EMERGENCY TONE 2 FIRE AND GAS DETECTION.
5. OUTSIDE BEACONS MOUNTED ON SWING ARM AND TO BE ELEVATED.
6. BEACONS ACTIVATED ON HIGH AND HIGH HIGH DETECTION.
7. HORN/TONE 1 EMERGENCY TONE 2 FIRE AND GAS DETECTION.
8. HORN/TONE 1 EMERGENCY TONE 2 FIRE AND GAS DETECTION.
9. FOR TRACK LOADING AND UNLOADING FIRE DETECTION SEE FRANKS.
10. SAL-011-41-HB-704-1 AND SAL-011-41-HB-705-1.

REV.	DESCRIPTION	DATE	BY	CHK	APP.	PE
2	AS BUILT - GENERAL REVISION (A/DRAFT LARC-793)	12/26/07	JMI	BB	MM	KC
1	AS BUILT	11/08/07	JCH	LRR	IP	MC
0	ISSUED FOR CONSTRUCTION	10/04/00	UBB	LRR	P	MC

DATE	10/02/01	DATE	10/02/01
DESIGNED:	R. PARAL	CHECKED:	R. PARAL
APPROVED:		APPROVED:	

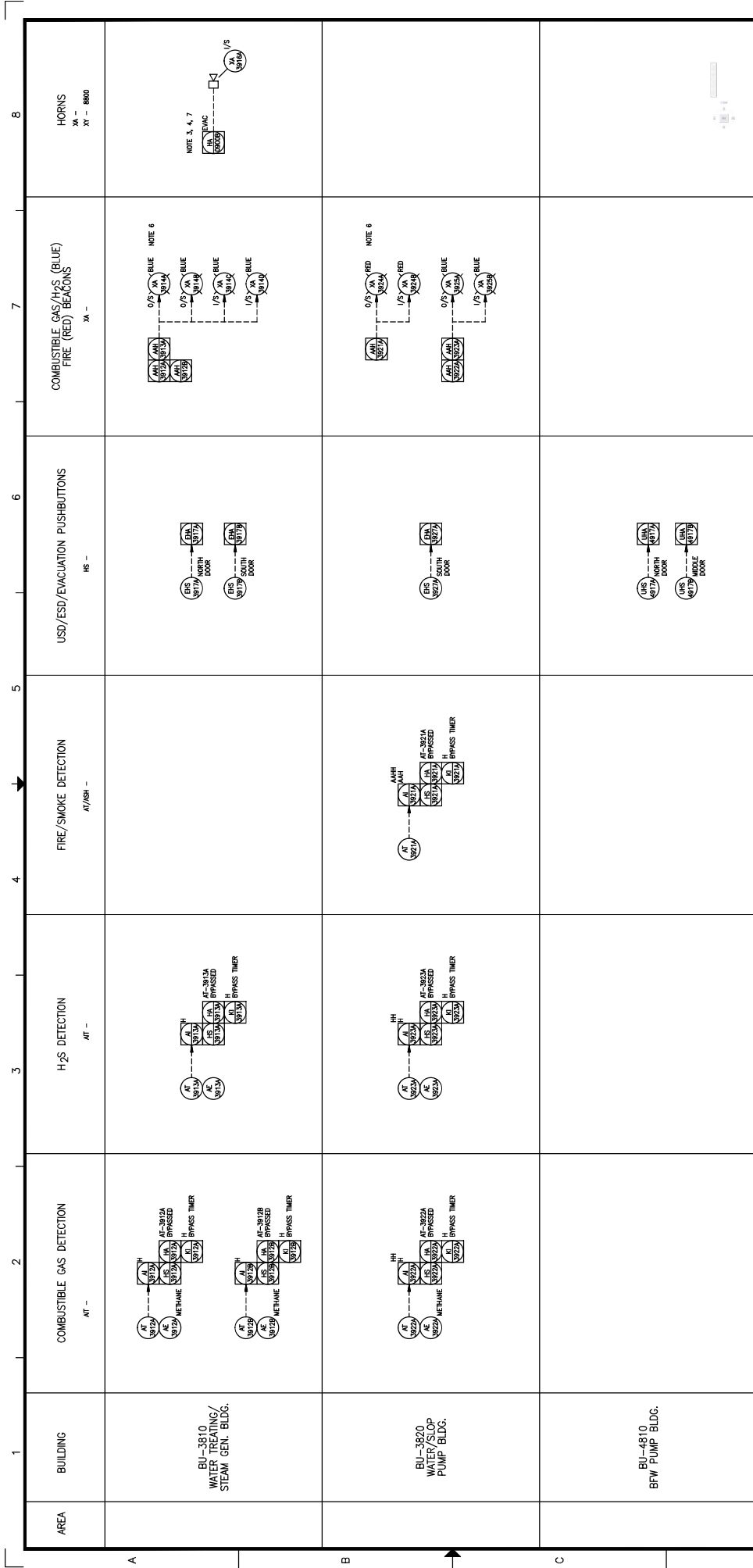
**LARICINA ENERGY LTD.**

**TITLE:** SW SECTION 26-85-19 WAM SALESKI SC SAGD PILOT PROJECT SAFETY SYSTEM PIPING AND INSTRUMENTATION DIAGRAM

**SCALE:** N.T.S. **JOB NO.:** SAL-011-41-PID-8301-1 **DRAWING NO.:** 2

**REV.:** 2





**NOTES:**

- INSTRUMENT TAG NUMBERS PRECEDED BY PREFIX "SU-011" - SUPPLIER.
- TWO TONE HORNS (TONE 1 EVAC, TONE 2 FIRE) AND GAS DETECTION.
- OUTRIGGING ACTIVATED REPEATEDLY OF AREA INSTRUMENTS.
- FOR VISIBILITY FROM ALL ENTRANCES.
- FOR VISIBILITY FROM ALL ENTRANCES.
- HORN ACTIVATED ON ANY H<sub>2</sub>S/AH/SH FIRE OR GAS DETECTION.
- FOR VISIBILITY FROM ALL ENTRANCES.
- FOR VISIBILITY FROM ALL ENTRANCES.
- FOR VISIBILITY FROM ALL ENTRANCES.
- SU-011-41-PID-704-1 AND SU-011-41-PID-705-1.

AREA	BUILDING	COMBUSTIBLE GAS DETECTION	H <sub>2</sub> S DETECTION	FIRE/SMOKE DETECTION	USD/ESD/EVACUATION PUSHBUTTONS	COMBUSTIBLE GAS/H <sub>2</sub> S (BLUE) FIRE (RED) BEACONS	HORNS
BU-3810	WATER TREATING/STEAM GEN. BLDG.	AT-9812, AE-9813, ME-9814	AT-9815, AE-9816, ME-9817	AH-9828, AH-9829, AH-9830	ES-9842, ES-9843, ES-9844, ES-9845	BA-9834, BA-9835, BA-9836, BA-9837	XA - 8800
BU-3820	WATER/SLOP PUMP BLDG.	AT-9822, AE-9823, ME-9824	AT-9825, AE-9826, ME-9827	AH-9828, AH-9829, AH-9830	ES-9842, ES-9843, ES-9844, ES-9845	BA-9838, BA-9839, BA-9840, BA-9841	XA - 8800
BU-4810	BRW PUMP BLDG.	AT-9822, AE-9823, ME-9824	AT-9825, AE-9826, ME-9827	AH-9828, AH-9829, AH-9830	ES-9842, ES-9843, ES-9844, ES-9845	BA-9838, BA-9839, BA-9840, BA-9841	XA - 8800

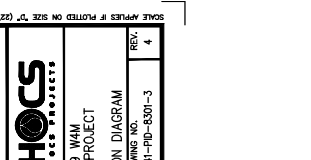
DATE	BY	DESCRIPTION
10-SEP-14	ATC	AS-BUILT PER CLIENT MARK-UP (NOIS #141)
12/17/05	MM	AS-BUILT - GENERAL REVISION (MARKET-LAC-793)
12/26/07	JSM	AS-BUILT - GENERAL REVISION (MARKET-LAC-793)
11/26/27	ERR	ISSUED FOR CONSTRUCTION
10/24/20	ERR	ISSUED FOR CONSTRUCTION

DATE	DESIGNED:	CHECKED:	APPROVED:	DATE
10/02/03	R. PABIA			

SCALE	JOB NO.	DRAWING NO.	REV.
N.T.S.	1461	SAL-011-41-PID-8001-3	4



**LARICINA CONSULTING**  
**HOC'S PROJECTS**

SW SECTION 26-85-19 WAM  
SALESKI SC SAGD PILOT PROJECT  
SAFETY SYSTEM  
PIPING AND INSTRUMENTATION DIAGRAM

DATE	BY	DESCRIPTION
10-SEP-14	ATC	AS-BUILT PER CLIENT MARK-UP (NOIS #141)
12/17/05	MM	AS-BUILT - GENERAL REVISION (MARKET-LAC-793)
12/26/07	JSM	AS-BUILT - GENERAL REVISION (MARKET-LAC-793)
11/26/27	ERR	ISSUED FOR CONSTRUCTION
10/24/20	ERR	ISSUED FOR CONSTRUCTION

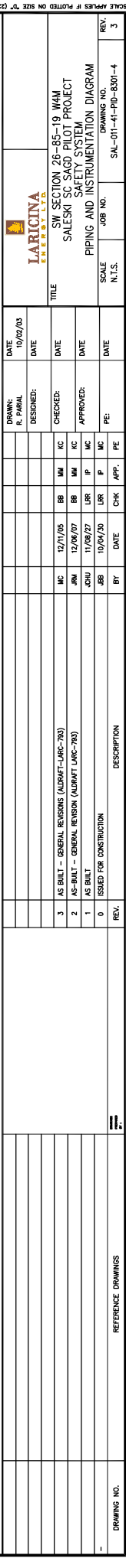
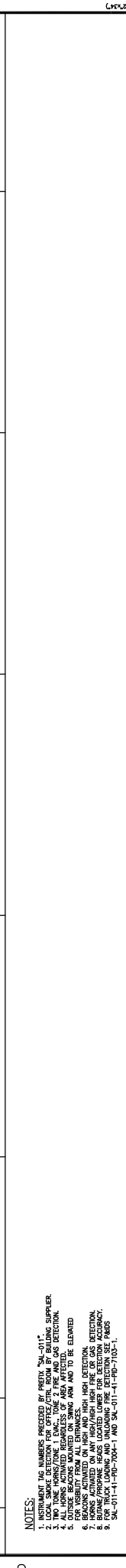
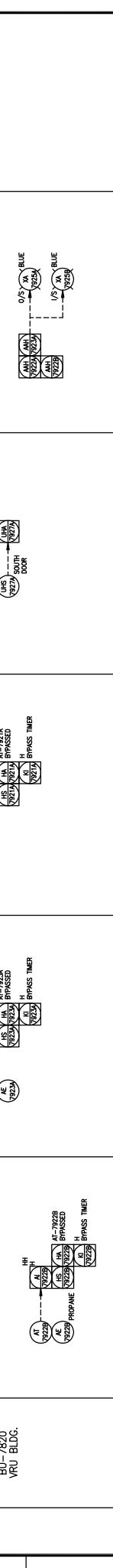
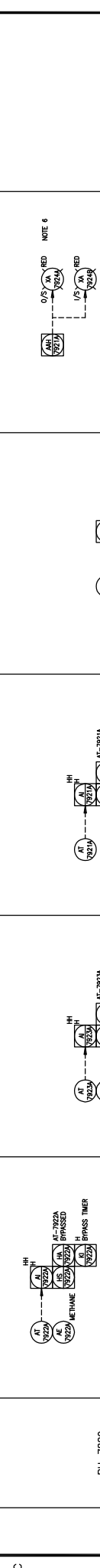
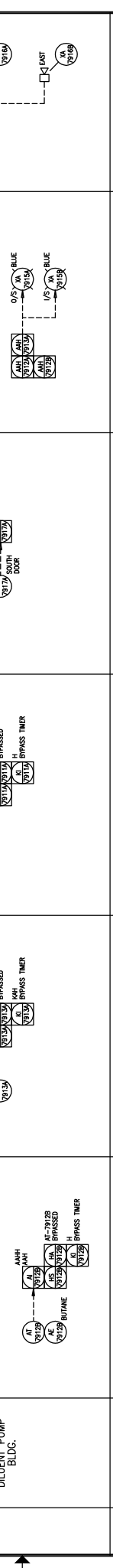
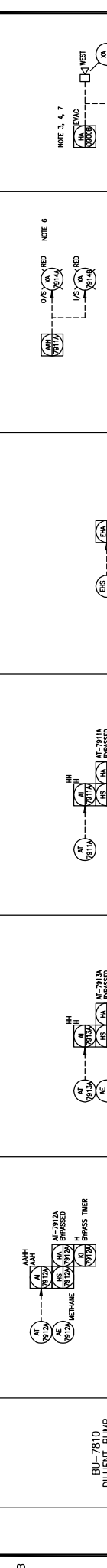
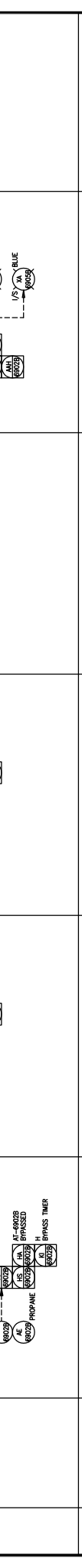
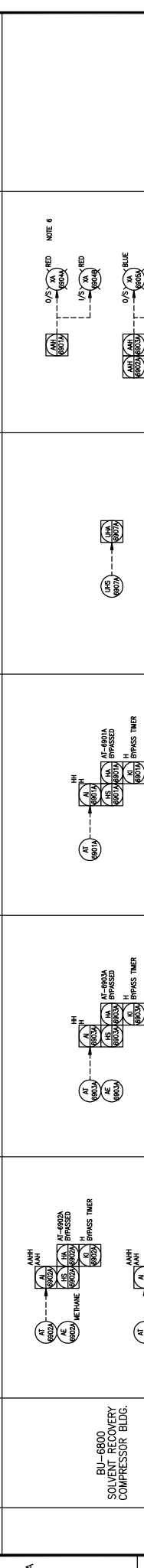
DATE	DESIGNED:	CHECKED:	APPROVED:	DATE
10/02/03	R. PABIA			

SCALE	JOB NO.	DRAWING NO.	REV.
N.T.S.	1461	SAL-011-41-PID-8001-3	4

8  
7  
6  
5  
4  
3  
2  
1

AREA BUILDING



NOTE 3, 4, 7

NOTE 6

NOTE 6

NOTE 6

DATE 10/09/03

DESIGNED: R. PARAL

CHECKED: MC

APPROVED: JCH

SCALE N.T.S.

JOB NO. SW SECTION 26-85-19 WAM SALESKI SC SAGD PILOT PROJECT SAFETY SYSTEM PIPING AND INSTRUMENTATION DIAGRAM

DRAWING NO. S4L-011-41-PID-8301-4

REV. 3

REV. DESCRIPTION

3 AS BUILT - GENERAL REVISION (LABRAFT-LARC-783)

2 AS-BUILT - GENERAL REVISION (LABRAFT-LARC-782)

1 AS BUILT

0 ISSUED FOR CONSTRUCTION

NOTES:

1. CHECK FOR THE NUMBERS PROVIDED BY MWH, "M" - J-1.
2. LOCAL SMOKE DETECTION FOR OFFICE/CTRL ROOM BY BUILDING SUPPLIER.
3. TWO TONE WORKING/TONE 1 EMERGENCY/TONE 2 FIRE AND GAS DETECTION.
4. DETECTOR SIGNALS TO BE WIRING TO THE CONTROL ROOM.
5. OUTSIDE BEACONS MOUNTED ON SWING ARM AND TO BE ELEVATED.
6. BEACONS ACTIVATED ON HIGH AND HIGH HIGH DETECTION.
7. HORNS ACTIVATED ON ANY HIGH/HIGH HIGH FIRE OR GAS DETECTION.
8. HORNS TO BE MOUNTED ON THE EXTERIOR OF THE BUILDING FOR TRACK LOADING AND UNLOADING FIRE DETECTION SEE PARAS. 9, 10.
9. S4L-011-41-PID-700-1 AND S4L-011-41-PID-710-1.

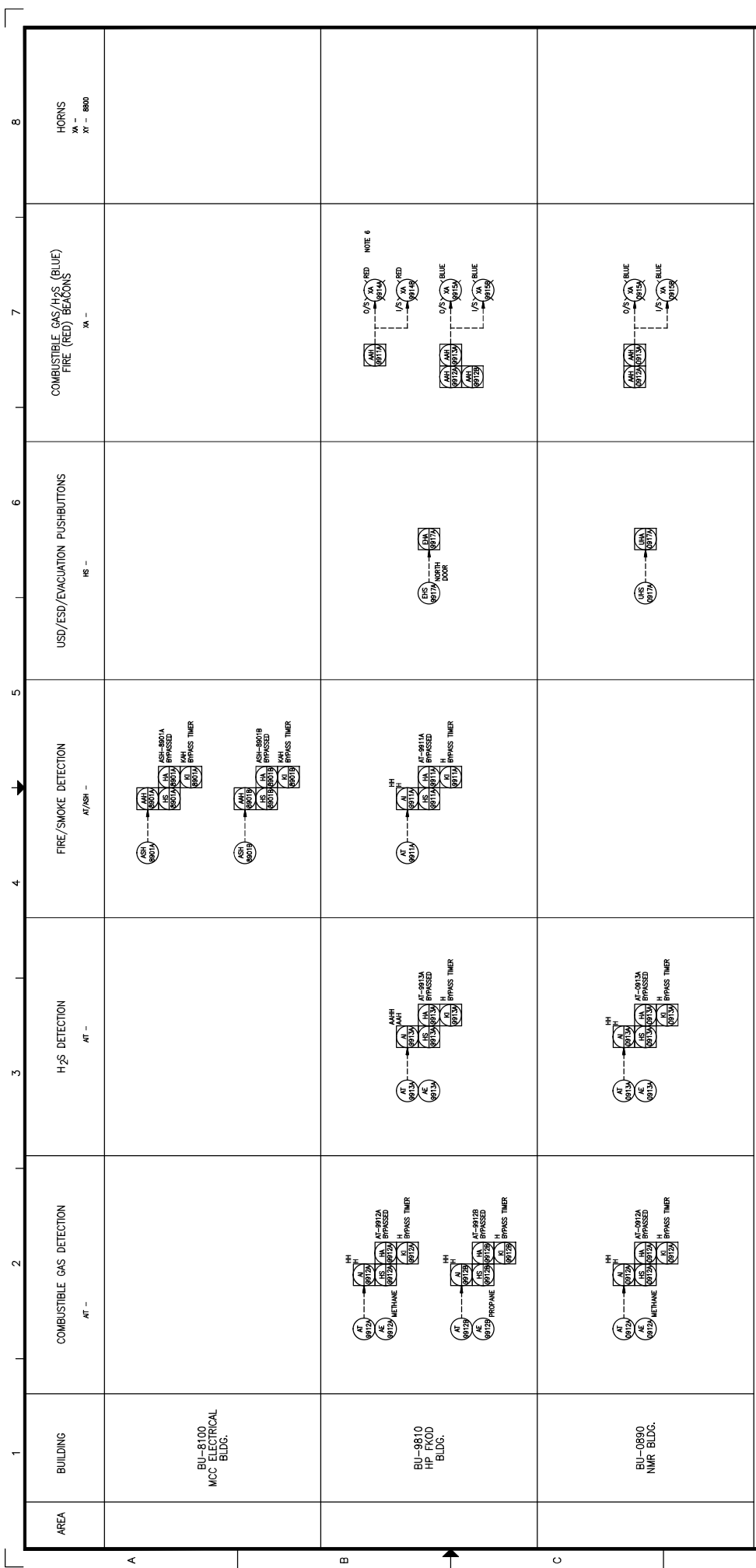


1	BUILDING	COMBUSTIBLE GAS DETECTION AT -	H <sub>2</sub> S DETECTION AT -	FIRE/SMOKE DETECTION AT/ISH -	USD/ESD/EVACUATION PUSHBUTTONS ISB -	COMBUSTIBLE GAS/H <sub>2</sub> S (BLUE) FIRE (RED) BEACONS XA -	HORNS XA - BB00 AT - BB00
	BU-8000 PRIME POWER STANDBY GENERATOR BLDG.						
	BU-8010 PRIME POWER GEN #1 BLDG.						
	BU-8020 PRIME POWER GEN #2 BLDG.						

NOTES:

1. ALL WORK IS TO BE COMPLETED BY 12/31/2017.
2. LOCAL SMOKE DETECTION FOR OFFICE CTRL ROOM BY BUILDING SUPPLIER.
3. TWO TONE HORN/TONE 1 EMCS, TONE 2 FIRE AND GAS DETECTION.
4. BELL AND HOWELL BRAND.
5. OUTSIDE BEACONS MOUNTED ON SANG AND ARE TO BE ELEVATED.
6. BEACONS ACTIVATED ON HIGH AND HIGH HIGH DETECTION.
7. HORNS ACTIVATED ON ANY HIGH/HIGH HIGH FIRE OR GAS DETECTION.
8. BELL AND HOWELL BRAND.
9. FOR TRACK LOADING AND UNLOADING FIRE DETECTION SEE P&IDs.
10. SCL-011-41-HD-700-1 AND SCL-011-41-HD-710-1.

DRAWING NO. REFERENCE DRAWINGS		DATE 10/09/03		DRAWN: R. PARAL		DATE 10/09/03		IARICINA ENERGY LTD.		JOB NO. SHL-011-41-PIB-8301-5		REV. 2	
2 AS-BUILT - GENERAL BEASON (AIRCRAFT LINC-793)		12/26/07		MM		12/26/07		SW SECTION 26-85-19 WAM SALESKI SC SAGD PILOT PROJECT SAFETY SYSTEM PIPING AND INSTRUMENTATION DIAGRAM		SCALE N.T.S.		DRAWING NO. SHL-011-41-PIB-8301-5	
1 AS BUILT		11/08/07		MC		11/08/07							
0 ISSUED FOR CONSTRUCTION		10/04/20		P		10/04/20							
REV. DESCRIPTION		DATE		BY		APP.							



AREA	1	2	3	4	5	6	7	8	
BUILDING	BU-8100 MCC ELECTRICAL BLDG.	COMBUSTIBLE GAS DETECTION AT -	H <sub>2</sub> S DETECTION AT -	FIRE/SMOKE DETECTION AT/ASH -	USD/ESD/EVACUATION PUSHBUTTONS MS -	COMBUSTIBLE GAS/H <sub>2</sub> S (BLUE) FIRE (RED) BEACONS XA -	HORNIS XA - 8800		
B	BU-9810 HP FKOD BLDG.	METHANE A-9810A A-9810B A-9810C A-9810D A-9810E A-9810F A-9810G A-9810H A-9810I A-9810J A-9810K A-9810L A-9810M A-9810N A-9810O A-9810P A-9810Q A-9810R A-9810S A-9810T A-9810U A-9810V A-9810W A-9810X A-9810Y A-9810Z A-9811A A-9811B A-9811C A-9811D A-9811E A-9811F A-9811G A-9811H A-9811I A-9811J A-9811K A-9811L A-9811M A-9811N A-9811O A-9811P A-9811Q A-9811R A-9811S A-9811T A-9811U A-9811V A-9811W A-9811X A-9811Y A-9811Z A-9812A A-9812B A-9812C A-9812D A-9812E A-9812F A-9812G A-9812H A-9812I A-9812J A-9812K A-9812L A-9812M A-9812N A-9812O A-9812P A-9812Q A-9812R A-9812S A-9812T A-9812U A-9812V A-9812W A-9812X A-9812Y A-9812Z A-9813A A-9813B A-9813C A-9813D A-9813E A-9813F A-9813G A-9813H A-9813I A-9813J A-9813K A-9813L A-9813M A-9813N A-9813O A-9813P A-9813Q A-9813R A-9813S A-9813T A-9813U A-9813V A-9813W A-9813X A-9813Y A-9813Z A-9814A A-9814B A-9814C A-9814D A-9814E A-9814F A-9814G A-9814H A-9814I A-9814J A-9814K A-9814L A-9814M A-9814N A-9814O A-9814P A-9814Q A-9814R A-9814S A-9814T A-9814U A-9814V A-9814W A-9814X A-9814Y A-9814Z A-9815A A-9815B A-9815C A-9815D A-9815E A-9815F A-9815G A-9815H A-9815I A-9815J A-9815K A-9815L A-9815M A-9815N A-9815O A-9815P A-9815Q A-9815R A-9815S A-9815T A-9815U A-9815V A-9815W A-9815X A-9815Y A-9815Z	PROPANE A-9812A A-9812B A-9812C A-9812D A-9812E A-9812F A-9812G A-9812H A-9812I A-9812J A-9812K A-9812L A-9812M A-9812N A-9812O A-9812P A-9812Q A-9812R A-9812S A-9812T A-9812U A-9812V A-9812W A-9812X A-9812Y A-9812Z A-9813A A-9813B A-9813C A-9813D A-9813E A-9813F A-9813G A-9813H A-9813I A-9813J A-9813K A-9813L A-9813M A-9813N A-9813O A-9813P A-9813Q A-9813R A-9813S A-9813T A-9813U A-9813V A-9813W A-9813X A-9813Y A-9813Z A-9814A A-9814B A-9814C A-9814D A-9814E A-9814F A-9814G A-9814H A-9814I A-9814J A-9814K A-9814L A-9814M A-9814N A-9814O A-9814P A-9814Q A-9814R A-9814S A-9814T A-9814U A-9814V A-9814W A-9814X A-9814Y A-9814Z A-9815A A-9815B A-9815C A-9815D A-9815E A-9815F A-9815G A-9815H A-9815I A-9815J A-9815K A-9815L A-9815M A-9815N A-9815O A-9815P A-9815Q A-9815R A-9815S A-9815T A-9815U A-9815V A-9815W A-9815X A-9815Y A-9815Z	NOTE 6 RED A-9814A A-9814B A-9814C A-9814D A-9814E A-9814F A-9814G A-9814H A-9814I A-9814J A-9814K A-9814L A-9814M A-9814N A-9814O A-9814P A-9814Q A-9814R A-9814S A-9814T A-9814U A-9814V A-9814W A-9814X A-9814Y A-9814Z BLUE A-9815A A-9815B A-9815C A-9815D A-9815E A-9815F A-9815G A-9815H A-9815I A-9815J A-9815K A-9815L A-9815M A-9815N A-9815O A-9815P A-9815Q A-9815R A-9815S A-9815T A-9815U A-9815V A-9815W A-9815X A-9815Y A-9815Z					
C	BU-0890 NMR BLDG.	METHANE A-9812A A-9812B A-9812C A-9812D A-9812E A-9812F A-9812G A-9812H A-9812I A-9812J A-9812K A-9812L A-9812M A-9812N A-9812O A-9812P A-9812Q A-9812R A-9812S A-9812T A-9812U A-9812V A-9812W A-9812X A-9812Y A-9812Z A-9813A A-9813B A-9813C A-9813D A-9813E A-9813F A-9813G A-9813H A-9813I A-9813J A-9813K A-9813L A-9813M A-9813N A-9813O A-9813P A-9813Q A-9813R A-9813S A-9813T A-9813U A-9813V A-9813W A-9813X A-9813Y A-9813Z A-9814A A-9814B A-9814C A-9814D A-9814E A-9814F A-9814G A-9814H A-9814I A-9814J A-9814K A-9814L A-9814M A-9814N A-9814O A-9814P A-9814Q A-9814R A-9814S A-9814T A-9814U A-9814V A-9814W A-9814X A-9814Y A-9814Z A-9815A A-9815B A-9815C A-9815D A-9815E A-9815F A-9815G A-9815H A-9815I A-9815J A-9815K A-9815L A-9815M A-9815N A-9815O A-9815P A-9815Q A-9815R A-9815S A-9815T A-9815U A-9815V A-9815W A-9815X A-9815Y A-9815Z							
D									

NOTES:

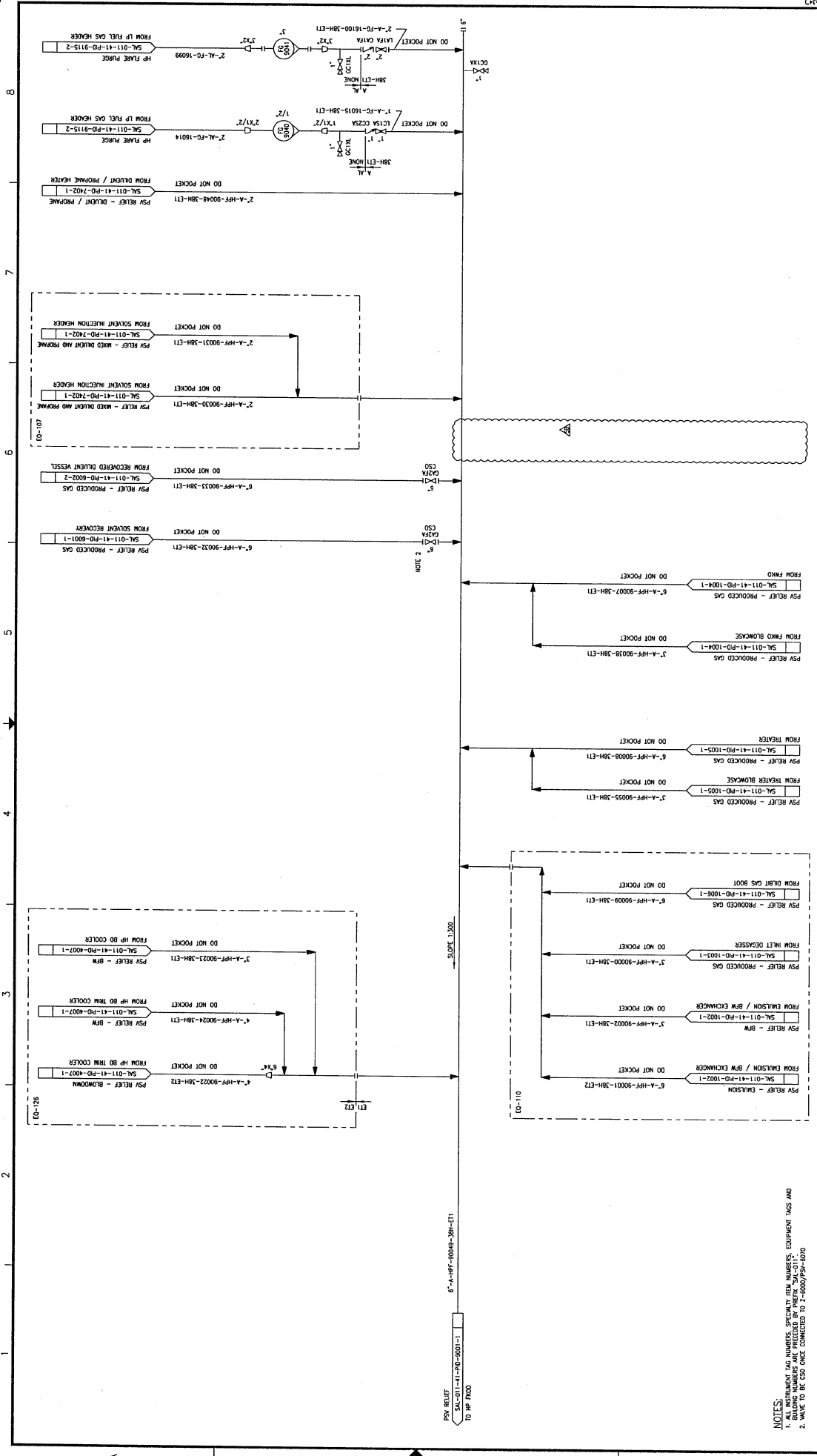
- INSTRUMENT TAG NUMBERS PRECEDED BY PREFIX "SU-011" - SUPPLIER.
- TWO TONE HORNIS (TONE 1 EVAC, TONE 2 FIRE AND GAS DETECTION).
- ALL INSTRUMENTS TO BE INSTALLED AND TESTED IN ACCORDANCE WITH THE FOLLOWING:
- OUTSTANDING ACTIVATED RESPONSES OF AREA INSTRUMENTS.
- FOR INSTRUMENT FROM ALL ENTRANCES.
- HORNIS ACTIVATED ON ANY H2S/ASH/HEAT FIRE OR GAS DETECTION.
- FOR INSTRUMENTS LOCATED IN THE FOLLOWING AREAS:
- FOR INSTRUMENTS LOCATED IN UNMANNED FIRE DETECTION SIZE PARAMS.
- SU-011-41-PID-7004-1 AND SU-011-41-PID-7100-1.

DATE	REVISION	DESCRIPTION
10/02/03	3	AS BUILT PER CLIENT MARK-UP (NOIS #146)
12/09/07	2	AS-BUILT - GENERAL REVISION (MARKUP LAG-783)
11/09/07	1	AS BUILT FOR CONSTRUCTION
10/04/06	0	ISSUED FOR CONSTRUCTION

DRAWN: R. PABIA		DATE: 10/02/03
DESIGNED:		DATE:
CHECKED:		DATE:
APPROVED:		DATE:
P.E.		DATE:
BY:		DATE:
CHK:		DATE:
APP:		DATE:
FE:		DATE:
N.T.S.		SCALE:
JOB NO. 1461		DRAWING NO. SAL-011-41-PID-8001-6
REV. 3		

SW SECTION 26-85-19 WAM  
SALESKI SC SAGD PILOT PROJECT  
SALESKI SC SAGD PILOT PROJECT  
SAFETY SYSTEM  
PIPING AND INSTRUMENTATION DIAGRAM





REV.	DESCRIPTION	DATE	CHK	APP.	BY	DATE	CHK	APP.	DATE	REV.	DESCRIPTION
0	ISSUED FOR CONSTRUCTION	09/11/17		PE		09/11/17		PE		1	ISSUED FOR CONSTRUCTION
1	ISSUED FOR CONSTRUCTION	09/11/17		PE		09/11/17		PE		2	ISSUED FOR CONSTRUCTION
2	ISSUED FOR CONSTRUCTION	09/11/17		PE		09/11/17		PE		3	ISSUED FOR CONSTRUCTION
3	AS BUILT	10/26/17	URR	URR	JP	10/26/17	URR	URR	JP	4	AS BUILT - GENERAL REVISION (ADAPT LINC-75)
4	AS BUILT	10/26/17	URR	URR	JP	10/26/17	URR	URR	JP	5	AS BUILT - GENERAL REVISION (ADAPT LINC-75)
5	AS BUILT	10/26/17	URR	URR	JP	10/26/17	URR	URR	JP	6	AS BUILT - GENERAL REVISION (ADAPT LINC-75)
6	ISSUED FOR REVIEW - ONE SIZE INCREASE (HOCS #122)	12/27/17		MS		12/27/17		MS		7	ISSUED FOR REVIEW - ONE SIZE INCREASE (HOCS #122)
7	ISSUED FOR REVIEW - ONE SIZE INCREASE (HOCS #122)	12/27/17		MS		12/27/17		MS		8	ISSUED FOR REVIEW - ONE SIZE INCREASE (HOCS #122)
8	ISSUED FOR REVIEW - ONE SIZE INCREASE (HOCS #122)	12/27/17		MS		12/27/17		MS		9	ISSUED FOR REVIEW - ONE SIZE INCREASE (HOCS #122)
9	ISSUED FOR REVIEW - ONE SIZE INCREASE (HOCS #122)	12/27/17		MS		12/27/17		MS		10	ISSUED FOR REVIEW - ONE SIZE INCREASE (HOCS #122)
10	ISSUED FOR REVIEW - ONE SIZE INCREASE (HOCS #122)	12/27/17		MS		12/27/17		MS		11	ISSUED FOR REVIEW - ONE SIZE INCREASE (HOCS #122)
11	ISSUED FOR REVIEW - ONE SIZE INCREASE (HOCS #122)	12/27/17		MS		12/27/17		MS		12	ISSUED FOR REVIEW - ONE SIZE INCREASE (HOCS #122)
12	ISSUED FOR REVIEW - ONE SIZE INCREASE (HOCS #122)	12/27/17		MS		12/27/17		MS		13	ISSUED FOR REVIEW - ONE SIZE INCREASE (HOCS #122)
13	ISSUED FOR REVIEW - ONE SIZE INCREASE (HOCS #122)	12/27/17		MS		12/27/17		MS		14	ISSUED FOR REVIEW - ONE SIZE INCREASE (HOCS #122)
14	ISSUED FOR REVIEW - ONE SIZE INCREASE (HOCS #122)	12/27/17		MS		12/27/17		MS		15	ISSUED FOR REVIEW - ONE SIZE INCREASE (HOCS #122)
15	ISSUED FOR REVIEW - ONE SIZE INCREASE (HOCS #122)	12/27/17		MS		12/27/17		MS		16	ISSUED FOR REVIEW - ONE SIZE INCREASE (HOCS #122)

**HOCS Projects #1223**

DRIVING NO. REFERENCE DRAWINGS

**HOCS PROJECTS**

**LARIONA**

**HOCS PROJECTS**

**SW SECTION 26-85-19 WASH**

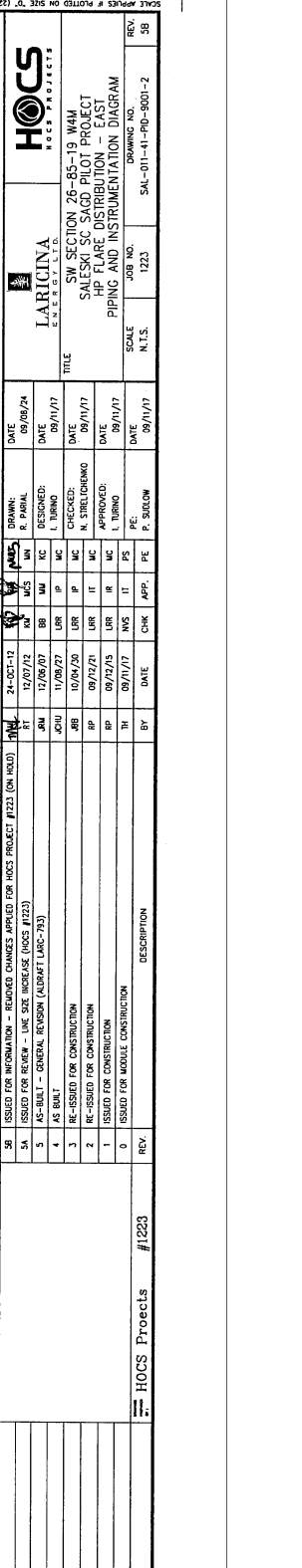
**SALESI SC SAGD PILOT PROJECT**

**HP FLARE DISTRIBUTION - EAST**

**HP FLARE DISTRIBUTION - EAST**

**PIPING AND INSTRUMENTATION DIAGRAM**

DATE: 09/11/17  
 CHECKED BY: N. SIRELDARNO  
 DATE: 09/11/17  
 APPROVED BY: L. TURNO  
 DATE: 09/11/17  
 SCALE: N.I.S.  
 DRAWING NO.: SA-011-41-PD-9001-2  
 JOB NO.: 1223



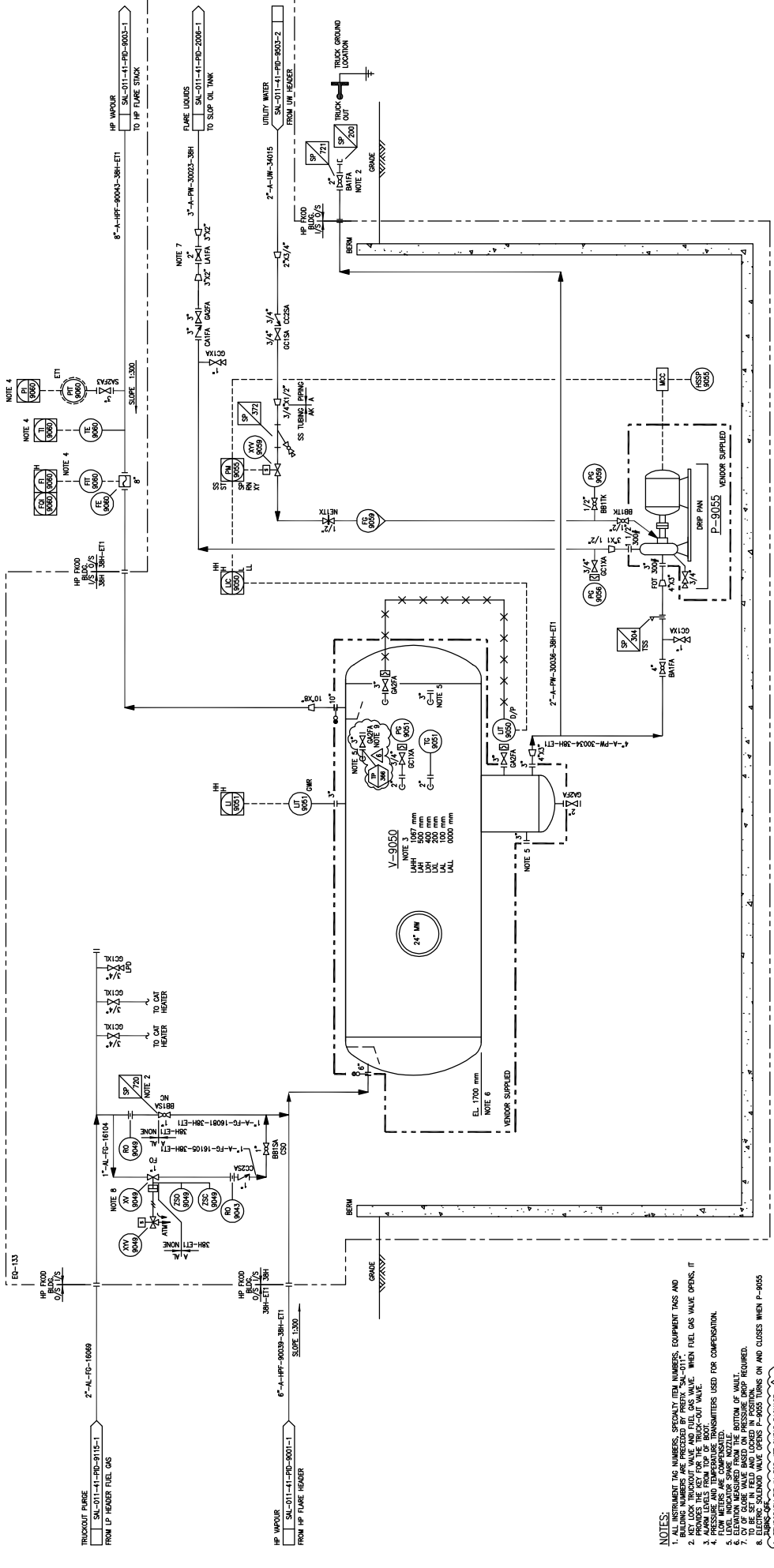
NOTES:

1. ALL INSTRUMENT TAG NUMBERS, SPECIFICATION ITEM NUMBERS, EQUIPMENT TAGS AND TAG NUMBERS TO BE CHANGED BY THE INSTRUMENTATION ENGINEER.
2. WALK TO BE DONE ONCE COMPLETED BY THE INSTRUMENTATION ENGINEER.

**V-9050**  
**HP FKOD**  
**HP FKOD**  
 SIZE: 2134 mm ID x 6086 mm S/S  
 FKOD SIZE: 254 mm OD x 300 mm S/S  
 MOTOR: 255 W / 1/2 HP / 60 Hz / 3000 RPM  
 SPARKING: 1 x 100K  
 INTERNAL COILING: NONE  
 EQUIPMENT TRIM LINE NUMBER: M-Y-90045-38H-ET1

**P-9055**  
**HP FKOD PUMP**  
 RATED CAPACITY: 10.2 m<sup>3</sup>/hr @ 422 kPa JP  
 MOTOR: 255 W / 1/2 HP / 60 Hz / 3000 RPM  
 SPARKING: 1 x 100K  
 INTERNAL COILING: NONE  
 EQUIPMENT TRIM LINE NUMBER: M-Y-90045-38H-ET1

**V-9050**  
**HP FKOD**  
**HP FKOD**  
 SIZE: 2134 mm ID x 6086 mm S/S  
 FKOD SIZE: 254 mm OD x 300 mm S/S  
 MOTOR: 255 W / 1/2 HP / 60 Hz / 3000 RPM  
 SPARKING: 1 x 100K  
 INTERNAL COILING: NONE  
 EQUIPMENT TRIM LINE NUMBER: M-Y-90045-38H-ET1



- NOTES:**
1. ALL INSTRUMENT NUMBERS, SPECIALTY ITEM NUMBERS, EQUIPMENT TAGS AND TAGLINE NUMBERS ARE PREPARED BY PRESTON-SMITH.
  2. SET LOCK, BURNOUT VALVE AND FUEL GAS VALVE. WHEN FUEL GAS VALVE OPENS, IT WILL LOCK, BURNOUT VALVE AND FUEL GAS VALVE.
  3. ALARMS LEVELS FROM TOP OF BOOT.
  4. PRESSURE AND TEMPERATURE TRANSMITTERS USED FOR COMPENSATION.
  5. LEVEL INDICATOR SHAKE NOZZLE BOTTOM OF TANK.
  6. TO BE SET IN FIELD AND LOCKED IN POSITIVE OPEN AND CLOSE WHEN P-9055 STARTS-UP.
  7. TO BE SET IN FIELD AND LOCKED IN POSITIVE OPEN AND CLOSE WHEN P-9055 STARTS-UP.
  8. TEMPORARY TIE-IN FOR SET START PACKAGE.

REV.	DESCRIPTION	DATE	CHK	APP.	PE	DATE	BY	REV.	DESCRIPTION
6	RE-ISSUED FOR CONSTRUCTION (HCCS PROJECT #131)	31-MAY-13	US	AR	MM	09/07/22	J. CHU	DATE	09/07/22
5	ISSUED FOR CONSTRUCTION (HCCS PROJECT #131)	27-MAY-13	US	AR	MM	09/12/15	L. TURNO	DESIGNED:	09/12/15
4	AS-BUILT - GENERAL REVISION (ALPHAT (ARC-793))	12/08/07	BB	MM	UC	09/12/15	L. TURNO	CHECKED:	09/12/15
3	AS-BUILT	11/09/07	UR	IP	MC	09/12/15	L. BAYAMA-BEAMER	APPROVED:	09/12/15
2	RE-ISSUED FOR CONSTRUCTION	10/09/00	UR	IP	MC	09/12/15	L. TURNO	DATE	09/12/15
1	RE-ISSUED FOR CONSTRUCTION	09/12/01	UR	IT	MC	09/12/15	L. TURNO	DATE	09/12/15
0	ISSUED FOR CONSTRUCTION	09/12/01	UR	IT	MC	09/12/15	L. TURNO	DATE	09/12/15

SCALE	N.T.S.	JOB NO.	1313	DRAWING NO.	SAI-011-41-PID-9002-1
REV.	6	DATE	09/07/22	BY	J. CHU

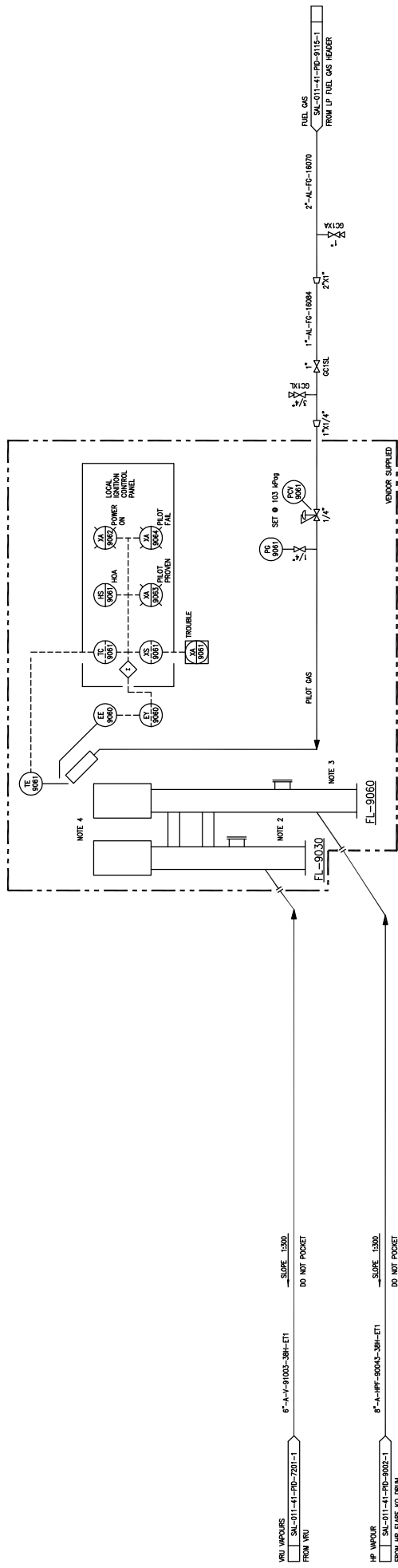
  

<b>SW SECTION 26-85-19 WAM</b> <b>SALESKI SC SAGD PILOT PROJECT</b> <b>HP FLARE KNOCK OUT DRUM</b> <b>PIPING AND INSTRUMENTATION DIAGRAM</b>	

1 2 3 4 5 6 7 8

**FL-9030  
LP FLARE STACK**  
SEE 153 FOR INSTRUMENT TAG NUMBERS, SPECIALTY ITEM NUMBERS, EQUIPMENT TAGS AND BUILDING NUMBERS AS PROVIDED BY PERMITS: "SA-011".  
FUEL GAS PILOT MON. TEST #6 C/W  
AUTO RESET SYSTEM TRIP#-415 (110/120 V AC 50/60 HZ)

**FL-9060  
HP FLARE STACK**  
SEE 154 FOR INSTRUMENT TAG NUMBERS, SPECIALTY ITEM NUMBERS, EQUIPMENT TAGS AND BUILDING NUMBERS AS PROVIDED BY PERMITS: "SA-011".  
FUEL GAS PILOT MON. TEST #6 C/W  
AUTO RESET SYSTEM TRIP#-415 (110/120 V AC 50/60 HZ)



**NOTES:**  
1. ALL INSTRUMENT TAG NUMBERS, SPECIALTY ITEM NUMBERS, EQUIPMENT TAGS AND BUILDING NUMBERS AS PROVIDED BY PERMITS: "SA-011".  
2. ECT UP TO HP FLARE STACK.  
3. ECT UP TO LP FLARE STACK.  
4. COMMON HEADER FOR HP & LP FLARE STACK.

DATE	BY	CHK	APP.	DESCRIPTION
09/12/15	SL			ISSUED FOR CONSTRUCTION
09/24/15	ABB			RE-ISSUED FOR CONSTRUCTION
11/09/17	JOHU			AS BUILT
07/09/17	BNL			AS BUILT - GENERAL REVISION (AUDRAFT LARC-793)

DATE	DATE	DATE	DATE	DATE	DATE
09/07/23	09/12/15	09/12/15	09/12/15	09/12/15	09/12/15
DESIGNED: L. TURNO	CHECKED: L. BATMAN-BUEMSER	APPROVED: L. TURNO	DATE	DATE	DATE
DRAWN: J. CHU	DATE	DATE	DATE	DATE	DATE

REV.	DESCRIPTION
3	AS BUILT - GENERAL REVISION (AUDRAFT LARC-793)
2	AS BUILT
1	RE-ISSUED FOR CONSTRUCTION
0	ISSUED FOR CONSTRUCTION

REV.	DESCRIPTION
3	AS BUILT - GENERAL REVISION (AUDRAFT LARC-793)
2	AS BUILT
1	RE-ISSUED FOR CONSTRUCTION
0	ISSUED FOR CONSTRUCTION

DATE	DATE	DATE	DATE	DATE	DATE
09/07/23	09/12/15	09/12/15	09/12/15	09/12/15	09/12/15
DESIGNED: L. TURNO	CHECKED: L. BATMAN-BUEMSER	APPROVED: L. TURNO	DATE	DATE	DATE
DRAWN: J. CHU	DATE	DATE	DATE	DATE	DATE

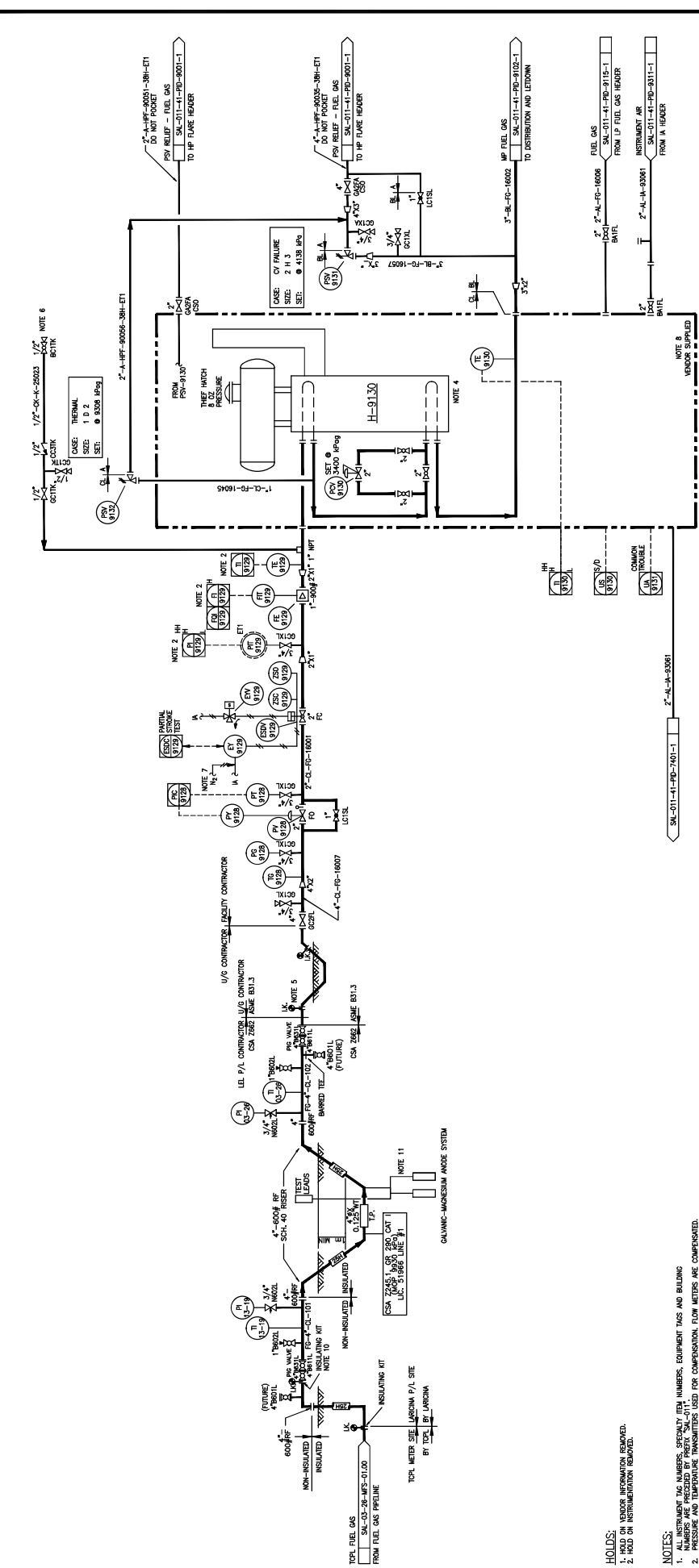
  

REV.	DESCRIPTION
3	AS BUILT - GENERAL REVISION (AUDRAFT LARC-793)
2	AS BUILT
1	RE-ISSUED FOR CONSTRUCTION
0	ISSUED FOR CONSTRUCTION

SCALE APPLIES IF PLOTTED ON SIZE "D" (24"x36")

**H-9130  
FUEL GAS LINE HEATER**

DATE: 1/17/21  
 DESIGNED BY: J. CHU  
 SIZE: 814 mm H x 3000 mm LONG  
 WEIGHT: 1000 kg  
 INSULATION: 38mm @ 95°C  
 FUEL: NATURAL GAS @ 2500 kPa  
 C/W 1/2" ID X 36" LONG EXPANSION POT



**HOLDS:**

- HOLD ON VENDOR INFORMATION REMOVED.
- HOLD ON INSTRUMENTATION REMOVED.

**NOTES:**

- ALL INSTRUMENT TAG NUMBERS, SECURITY ITEM NUMBERS, EQUIPMENT TAGS AND BUILDING NUMBERS ARE PRECEDED BY PREFIX "SA-011".
- NUMBERS AND TEMPERATURE TRANSMITTERS USED FOR COMPENSATION, FLOW METERS ARE COMPENSATED.
- DELETED.
- SECONDARY CONTAINMENT SUPPLIED BY VENDOR.
- CONNECTION FOR METHANOL PUMP, METHANOL INJECTION PACKAGE SUPPLIED BY VENDOR.
- FOR FUEL GAS TRUNK INSTRUMENTATION AND BUILDINGS SEE VENDOR RING 0022204-30-100.
- DELETED.
- DELETED.
- DELETED.
- DELETED.
- SUPERFLUID ANODES FOR CATHODIC PROTECTION TO TOP, TE-N.

NO.	DATE	BY	CHK	APP.	FE	PE	M	CRFT	DATE	SCALE	JOB NO.	DRAWING NO.	REV.
1	12-SEP-14	JSM							09/12/21	N.T.S.	1461	SA-011-41-PID-9101-1	B
2	10/09/20								09/12/21				B
3	11/09/20								09/12/21				B
4	12/09/20								09/12/21				B
5	13/07/20								09/12/21				B
6	13/07/21								06/07/23				B
7	10-FEB-14												B

**LARICINA**  
**ENGINEERS**

**HCS PROJECTS**

SW SECTION 26-85-19 WAM  
 SALESKI SC SAGD PILOT PROJECT  
 FUEL GAS ESD AND LINE HEATER  
 PIPING AND INSTRUMENTATION DIAGRAM

DATE: 06/07/23  
 DATE: 09/12/21  
 DATE: 09/12/21  
 DATE: 09/12/21

DESIGNED BY: J. CHU  
 DESIGNED BY: L. TURNO  
 CHECKED BY: LUR  
 APPROVED BY: L. TURNO

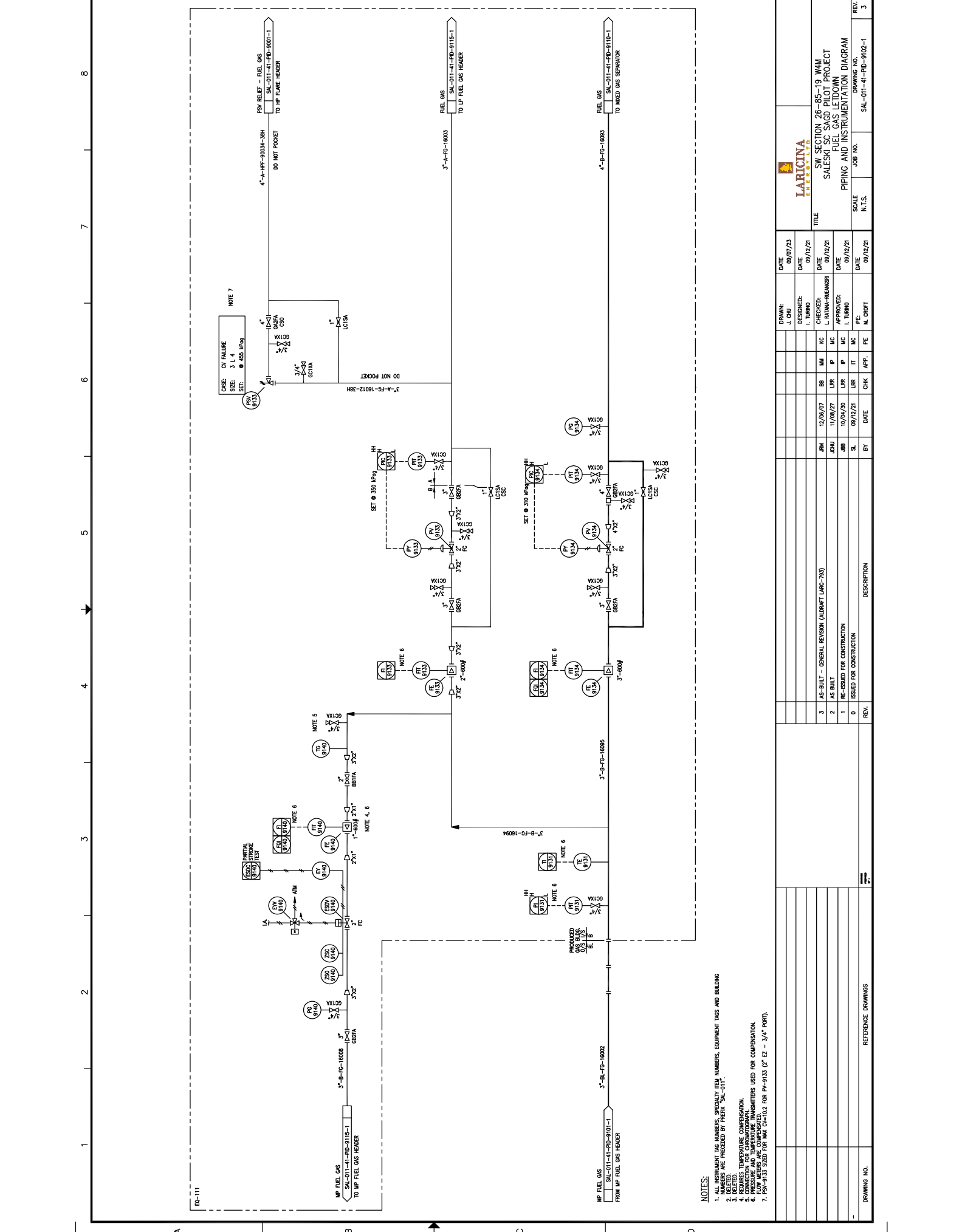
SCALE: N.T.S.  
 JOB NO.: 1461  
 DRAWING NO.: SA-011-41-PID-9101-1

DATE: 09/12/21  
 DATE: 09/12/21  
 DATE: 09/12/21

BY: M. CRFT  
 CHK: J. CHU  
 APP: J. CHU  
 FE: J. CHU  
 PE: J. CHU  
 M: J. CHU

DESCRIPTION: HOCS PROJECTS #1461

NO.	DATE	BY	CHK	APP.	FE	PE	M	CRFT	DATE	SCALE	JOB NO.	DRAWING NO.	REV.
1	12-SEP-14	JSM							09/12/21	N.T.S.	1461	SA-011-41-PID-9101-1	B



NOTE 7  
 CASE: CV FAILURE  
 SIZE: 3 L 4  
 SET: @ 455 MPa

DO NOT POCKET  
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DO NOT POCKET  
 3\"/>

**NOTES:**

1. INSTRUMENT TAG NUMBERS, SERIAL TAG NUMBERS, EQUIPMENT TAGS AND BUILDING NUMBERS ARE PRECEDED BY PREFIX 'SAI-011'.
2. DELETED.
3. DELETED.
4. REQUIRES TEMPERATURE COMPENSATION.
5. CONNECTION FOR CHROMIUM-NICKEL.
6. FLOW METERS ARE COMPENSATED.
7. PSV-9133 SIZED FOR MAX. Q=102 FOR P=9133 (2\"/>

REFERENCE DRAWINGS

REV.	DESCRIPTION
3	AS-BUILT - GENERAL REVISION (AUGUST URC-793)
2	AS BUILT
1	RE-ISSUED FOR CONSTRUCTION
0	ISSUED FOR CONSTRUCTION

DATE	CHK	APP.	FE	DATE	CHK	APP.	FE
09/12/21	SL			09/12/21	SL		
09/12/21	UR			09/12/21	UR		
09/12/21	UR			09/12/21	UR		
09/12/21	UR			09/12/21	UR		
09/12/21	UR			09/12/21	UR		
09/12/21	UR			09/12/21	UR		
09/12/21	UR			09/12/21	UR		
09/12/21	UR			09/12/21	UR		
09/12/21	UR			09/12/21	UR		
09/12/21	UR			09/12/21	UR		

DATE	DESIGNED:	DATE	DATE
09/12/21	L. TURNO	09/12/21	09/07/23
09/12/21	L. TURNO	09/12/21	09/07/23
09/12/21	L. TURNO	09/12/21	09/07/23
09/12/21	L. TURNO	09/12/21	09/07/23
09/12/21	L. TURNO	09/12/21	09/07/23
09/12/21	L. TURNO	09/12/21	09/07/23
09/12/21	L. TURNO	09/12/21	09/07/23
09/12/21	L. TURNO	09/12/21	09/07/23
09/12/21	L. TURNO	09/12/21	09/07/23
09/12/21	L. TURNO	09/12/21	09/07/23

DRAWING NO.	SCALE	JOB NO.	DRAWING NO.	REV.
SAI-011-41-PID-9102-1	N.T.S.	SAI-011-41-PID-9102-1	SAI-011-41-PID-9102-1	3

SW SECTION 26-85-19 WAM  
 SALESKI SC SAGD PILOT PROJECT  
 FUEL GAS LETDOWN  
 PIPING AND INSTRUMENTATION DIAGRAM

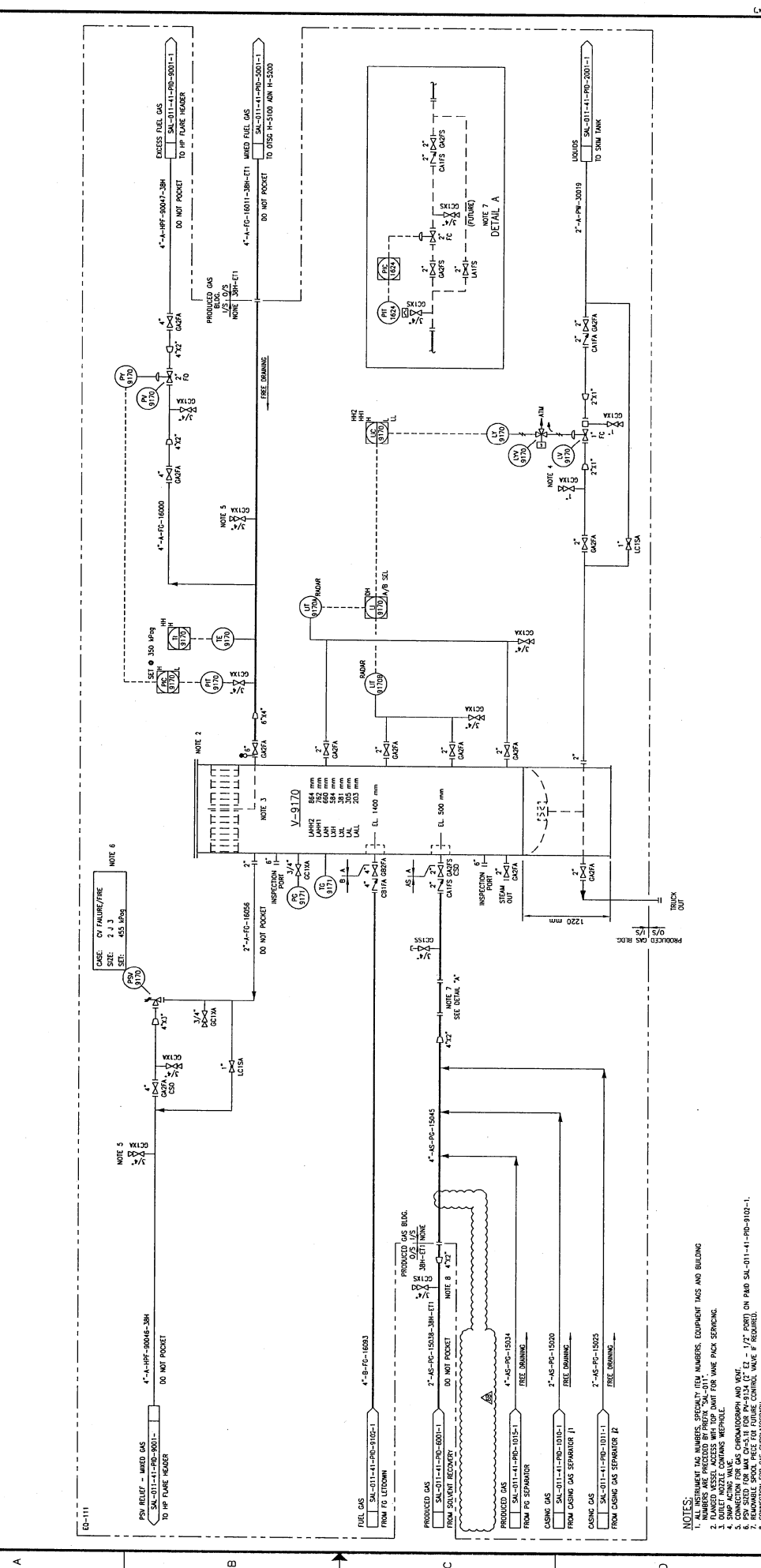


DATE: 09/07/23  
 DRAWN: J. CHU  
 DESIGNED: L. TURNO  
 CHECKED: L. TURNO  
 APPROVED: L. TURNO  
 DATE: 09/12/21

DATE: 09/12/21  
 CHECKED: M. CROFT  
 APPROVED: M. CROFT  
 DATE: 09/12/21



**V-9170  
MIXED GAS SEPARATOR**  
 SIZE 600 MM OD X 2.1 M H  
 DESIGN 500 PSIG/FULL VACUUM @ 100°C/-20°C  
 INSULATION 100MM  
 EQUIPMENT TRIM LINE NUMBER: -A-FG-30042



REV.	DESCRIPTION	BY	DATE	CHK	APP.	FE	MC	APPROVED	DATE	DATE	DATE	DATE
1	AS BUILT	JOH	11/09/00	UR	IP	MC			09/12/21	09/12/21	09/12/21	09/12/21
2	ISSUED FOR REVIEW (PROJECT 0810)											
3	ISSUED FOR REVIEW (PROJECT 0810)											
4	ISSUED FOR CONSTRUCTION (PROJECT 0810)											
5	AS BUILT (PROJECT 0810)											
6	AS BUILT - GENERAL REGION (ASBUILT LARG-375)											
7	AS BUILT - GENERAL REGION (ASBUILT LARG-375)											
8	ISSUED FOR REVIEW - BUDED CHANGES ISSUED FOR HCS PROJECT #123 (ON HOLD)											
9	ISSUED FOR REVIEW - LINE SIZE INCREASE (HCS #123)											
10	AS BUILT											
11	AS BUILT											
12	AS BUILT											
13	AS BUILT											
14	ISSUED FOR REVIEW - LINE SIZE INCREASE (HCS #123)											
15	ISSUED FOR REVIEW - BUDED CHANGES ISSUED FOR HCS PROJECT #123 (ON HOLD)											

REV.	DESCRIPTION	BY	DATE	CHK	APP.	FE	MC	APPROVED	DATE	DATE	DATE	DATE
1	AS BUILT	JOH	11/09/00	UR	IP	MC			09/12/21	09/12/21	09/12/21	09/12/21
2	ISSUED FOR REVIEW (PROJECT 0810)											
3	ISSUED FOR REVIEW (PROJECT 0810)											
4	ISSUED FOR CONSTRUCTION (PROJECT 0810)											
5	AS BUILT (PROJECT 0810)											
6	AS BUILT - GENERAL REGION (ASBUILT LARG-375)											
7	AS BUILT - GENERAL REGION (ASBUILT LARG-375)											
8	ISSUED FOR REVIEW - BUDED CHANGES ISSUED FOR HCS PROJECT #123 (ON HOLD)											
9	ISSUED FOR REVIEW - LINE SIZE INCREASE (HCS #123)											
10	AS BUILT											
11	AS BUILT											
12	AS BUILT											
13	AS BUILT											
14	ISSUED FOR REVIEW - LINE SIZE INCREASE (HCS #123)											
15	ISSUED FOR REVIEW - BUDED CHANGES ISSUED FOR HCS PROJECT #123 (ON HOLD)											

REV.	DESCRIPTION	BY	DATE	CHK	APP.	FE	MC	APPROVED	DATE	DATE	DATE	DATE
1	AS BUILT	JOH	11/09/00	UR	IP	MC			09/12/21	09/12/21	09/12/21	09/12/21
2	ISSUED FOR REVIEW (PROJECT 0810)											
3	ISSUED FOR REVIEW (PROJECT 0810)											
4	ISSUED FOR CONSTRUCTION (PROJECT 0810)											
5	AS BUILT (PROJECT 0810)											
6	AS BUILT - GENERAL REGION (ASBUILT LARG-375)											
7	AS BUILT - GENERAL REGION (ASBUILT LARG-375)											
8	ISSUED FOR REVIEW - BUDED CHANGES ISSUED FOR HCS PROJECT #123 (ON HOLD)											
9	ISSUED FOR REVIEW - LINE SIZE INCREASE (HCS #123)											
10	AS BUILT											
11	AS BUILT											
12	AS BUILT											
13	AS BUILT											
14	ISSUED FOR REVIEW - LINE SIZE INCREASE (HCS #123)											
15	ISSUED FOR REVIEW - BUDED CHANGES ISSUED FOR HCS PROJECT #123 (ON HOLD)											

REV.	DESCRIPTION	BY	DATE	CHK	APP.	FE	MC	APPROVED	DATE	DATE	DATE	DATE
1	AS BUILT	JOH	11/09/00	UR	IP	MC			09/12/21	09/12/21	09/12/21	09/12/21
2	ISSUED FOR REVIEW (PROJECT 0810)											
3	ISSUED FOR REVIEW (PROJECT 0810)											
4	ISSUED FOR CONSTRUCTION (PROJECT 0810)											
5	AS BUILT (PROJECT 0810)											
6	AS BUILT - GENERAL REGION (ASBUILT LARG-375)											
7	AS BUILT - GENERAL REGION (ASBUILT LARG-375)											
8	ISSUED FOR REVIEW - BUDED CHANGES ISSUED FOR HCS PROJECT #123 (ON HOLD)											
9	ISSUED FOR REVIEW - LINE SIZE INCREASE (HCS #123)											
10	AS BUILT											
11	AS BUILT											
12	AS BUILT											
13	AS BUILT											
14	ISSUED FOR REVIEW - LINE SIZE INCREASE (HCS #123)											
15	ISSUED FOR REVIEW - BUDED CHANGES ISSUED FOR HCS PROJECT #123 (ON HOLD)											

**HOCS**  
**LARCINA**  
 L. A. R. C. I. N. A.  
 PROJECTS

DATE: 08/07/24  
 DATE: 09/12/21  
 DATE: 09/12/21  
 DATE: 09/12/21  
 DATE: 09/12/21

SCALE: N.T.S.  
 JOB NO: 1223  
 DRAWING NO: SA-011-41-PD-910-1  
 REV: 68

SALESKI PC SAGD PILOT PROJECT-STEAM ADDITION  
 MIXED GAS SEPARATOR  
 PIPING AND INSTRUMENTATION DIAGRAM

SALESKI PC SAGD PILOT PROJECT-STEAM ADDITION  
 MIXED GAS SEPARATOR  
 PIPING AND INSTRUMENTATION DIAGRAM

SALESKI PC SAGD PILOT PROJECT-STEAM ADDITION  
 MIXED GAS SEPARATOR  
 PIPING AND INSTRUMENTATION DIAGRAM

- NOTES:**
- ALL INSTRUMENT TAG NUMBERS, SECURITY ITEM NUMBERS, EQUIPMENT TAGS AND BUILDING TAGS SHALL BE AS SHOWN ON THIS DRAWING.
  - PLANNED ACCESS SHALL BE FOR WALK PACK SERVICES.
  - OUTLET NOZZLE CONTAINS WEPHOLE.
  - CONNECTION FOR GAS CHROMATOGRAPH AND VENT.
  - PSV SIZED FOR MAX Q=4.18 FOR P=3124 (T=51) - 1/2" PORT ON PAD SA-011-41-PD-910-1.
  - CONNECTION FOR GAS CHROMATOGRAPH.
  - CONNECTION FOR GAS CHROMATOGRAPH.
  - CONNECTION FOR GAS CHROMATOGRAPH.

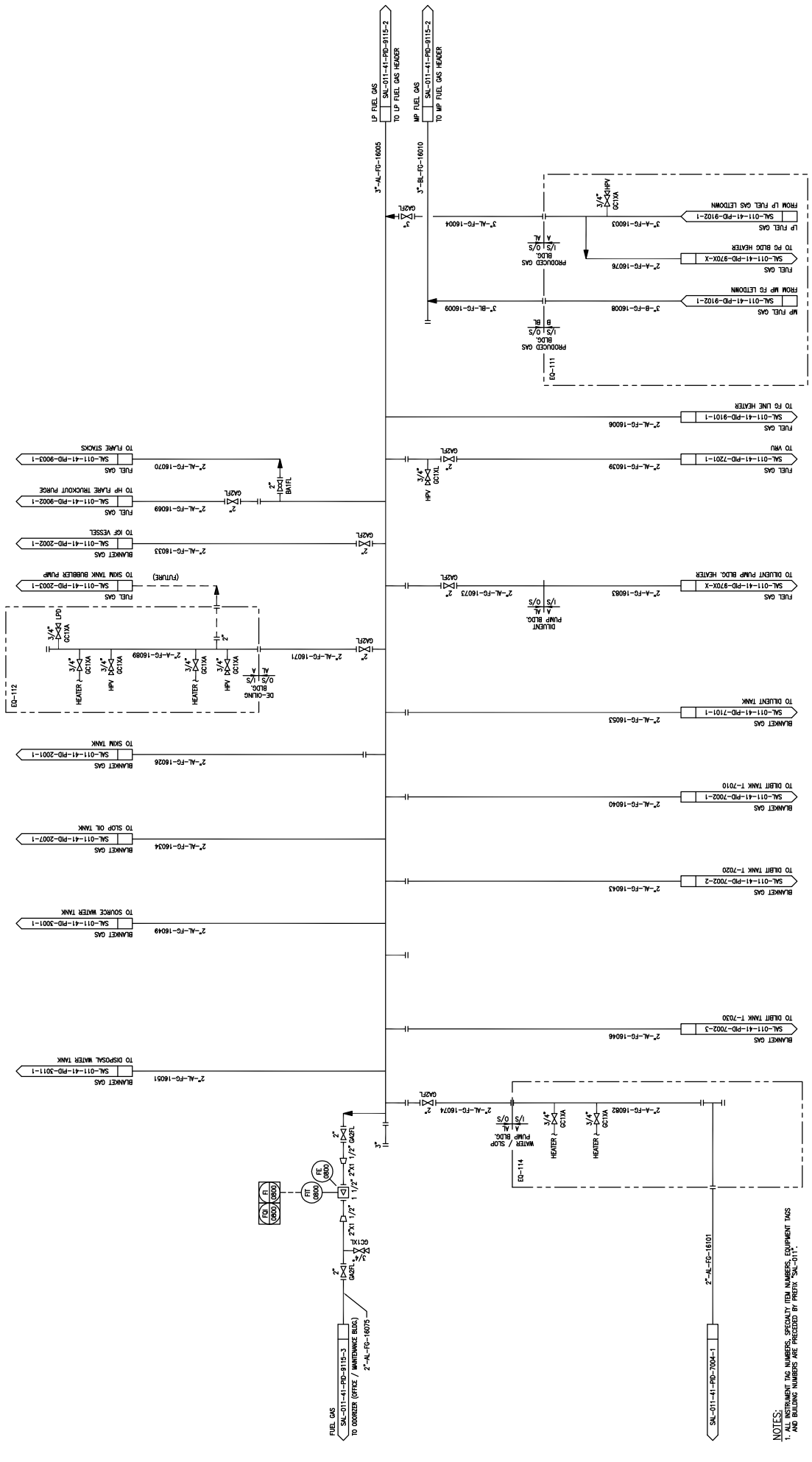
1 2 3 4 5 6 7 8

A

B

C

D



NOTES:  
 1. ALL INSTRUMENT TAG NUMBERS, SPECIALTY ITEM NUMBERS, EQUIPMENT TAGS AND BILLING NUMBERS ARE PRECEDED BY PREFIX 'SAL-011-1'.

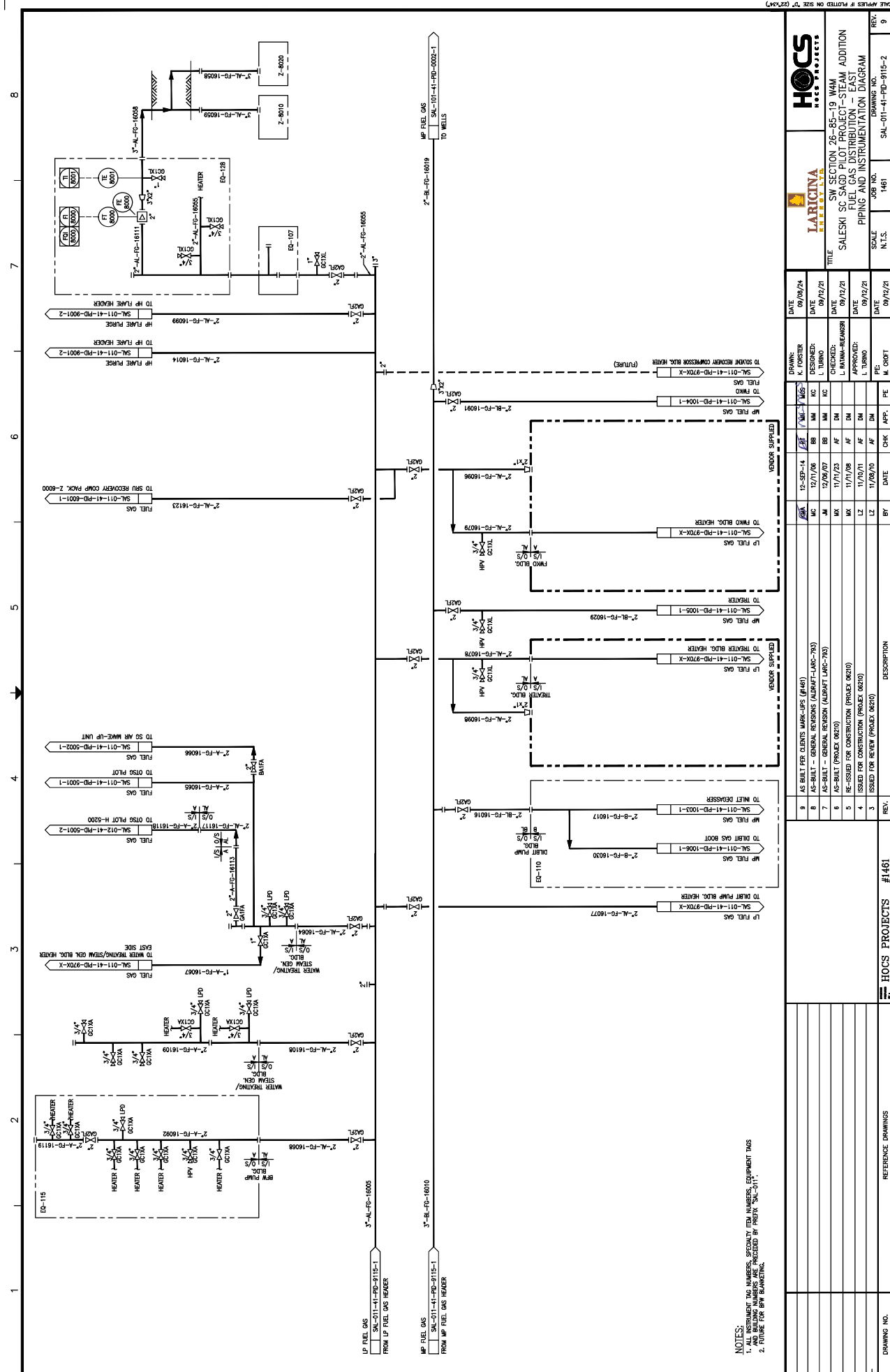
REV.	DESCRIPTION	DATE	BY	CHK	APP.	PE
4	AS-BUILT - GENERAL REVISION (ALBERT LARC-703)	09/11/77	JML	12/06/77	BB	MC
3	AS BUILT (NEW 20040)	09/11/77	JCH	11/29/79	LR	MC
2	RE-ISSUED FOR CONSTRUCTION	09/11/77	JGB	10/29/79	LR	MC
1	ISSUED FOR CONSTRUCTION	09/11/77	RP	09/22/71	MS	IT
0	ISSUED FOR MODULAR CONSTRUCTION (ED-112 AND ED-114 ONLY)	09/11/77	TH	09/22/71	MS	IT

DATE	DRAWN	DESIGNED	CHECKED	APPROVED	SCALE	JOB NO.	DRAWING NO.
09/09/74	K. FORSTER	L. TURNO	N. STRELICHENKO	L. TURNO	N.T.S.	SAL-011-41-PD-9115-1	4

		<b>TITLE</b> SW SECTION 26-85-19 WAM SALESKI SC SAGD PILOT PROJECT FUEL GAS DISTRIBUTION - WEST PIPING AND INSTRUMENTATION DIAGRAM	
DRAWING NO. SAL-011-41-PD-9115-1		REV. 4	



NOTES:  
 1. EQUIPMENT TAG NUMBERS, SECONDARY PIPING NUMBERS, EQUIPMENT TAGS AND WELLS NUMBERS ARE PRECEDED BY PREFIX "SA-01-1".  
 2. FUTURE FOR BWV BLANKING.

**LARICINA**  
 ENGINEERS  
 ARCHITECTS

**HOCs**  
 PROJECTS

DATE: 09/09/24  
 DRAWN: K. FORSTER  
 DATE: 09/12/21  
 DESIGNED: L. TURNO  
 DATE: 09/12/21  
 CHECKED: L. BATINA-REAMBER  
 DATE: 09/12/21  
 APPROVED: L. TURNO  
 DATE: 09/12/21

TITLE:  
 SW SECTION 26-85-19 WAM  
 SALESKI SC SAGD PILOT PROJECT-STEAM ADDITION  
 FUEL GAS DISTRIBUTION - EAST  
 PIPING AND INSTRUMENTATION - DIAGRAM

SCALE: N.T.S.  
 JOB NO.: 1461  
 DRAWING NO.: SAL-01-41-PD-915-2

REV.	DATE	CHK	APP.	DESCRIPTION
9	09/12/21	M. CRIFT	PE	
8	11/08/20	AF	DM	ISSUED FOR RETIEV (PROJECT 0620)
7	11/07/08	AF	DM	ISSUED FOR CONSTRUCTION (PROJECT 0620)
6	11/27/23	AF	DM	RE-DESIGNED FOR CONSTRUCTION (PROJECT 0620)
5	11/27/08	AF	DM	ISSUED FOR CONSTRUCTION (PROJECT 0620)
4	11/27/08	AF	DM	ISSUED FOR CONSTRUCTION (PROJECT 0620)
3	11/27/08	AF	DM	ISSUED FOR RETIEV (PROJECT 0620)

REV.	DATE	CHK	APP.	DESCRIPTION
9	09/09/24	AF	DM	AS-BUILT PER CLIENTS MARK-UPS (#1461)
8	12/01/08	BB	MM	AS-BUILT - GENERAL REVISIONS (AS-BUILT LARC-793)
7	12/08/07	BB	MM	AS-BUILT - GENERAL REVISIONS (AS-BUILT LARC-793)
6	11/27/23	AF	DM	AS-BUILT (PROJECT 0620)
5	11/27/08	AF	DM	RE-DESIGNED FOR CONSTRUCTION (PROJECT 0620)
4	11/27/08	AF	DM	ISSUED FOR CONSTRUCTION (PROJECT 0620)
3	11/27/08	AF	DM	ISSUED FOR RETIEV (PROJECT 0620)

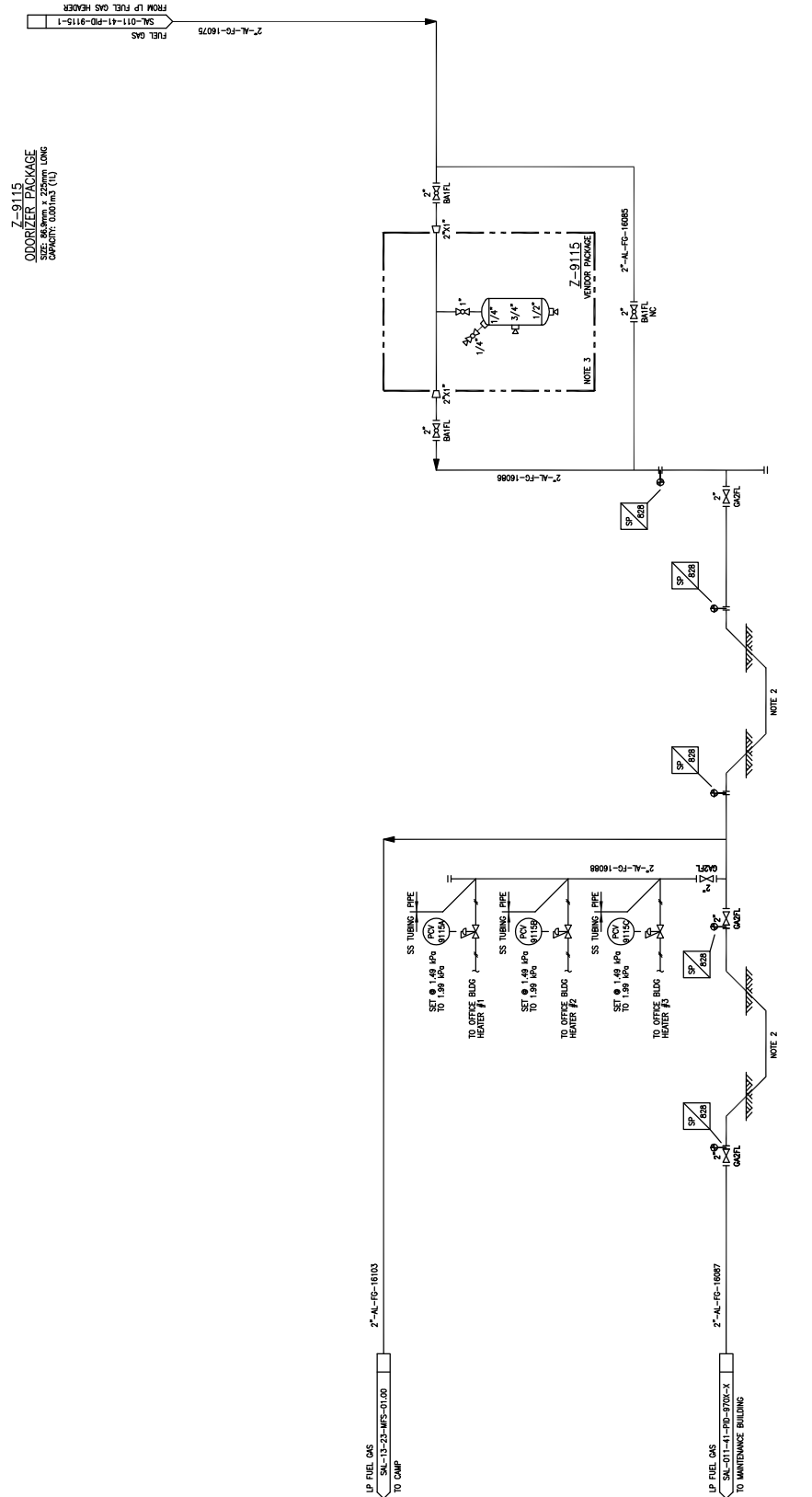
REV.	DATE	CHK	APP.	DESCRIPTION
3	11/27/08	AF	DM	ISSUED FOR RETIEV (PROJECT 0620)
4	11/27/08	AF	DM	ISSUED FOR CONSTRUCTION (PROJECT 0620)
5	11/27/08	AF	DM	RE-DESIGNED FOR CONSTRUCTION (PROJECT 0620)
6	11/27/23	AF	DM	AS-BUILT (PROJECT 0620)
7	12/08/07	BB	MM	AS-BUILT - GENERAL REVISIONS (AS-BUILT LARC-793)
8	12/01/08	BB	MM	AS-BUILT - GENERAL REVISIONS (AS-BUILT LARC-793)
9	09/09/24	AF	DM	AS-BUILT PER CLIENTS MARK-UPS (#1461)

REV.	DATE	CHK	APP.	DESCRIPTION
9	09/09/24	AF	DM	AS-BUILT PER CLIENTS MARK-UPS (#1461)
8	12/01/08	BB	MM	AS-BUILT - GENERAL REVISIONS (AS-BUILT LARC-793)
7	12/08/07	BB	MM	AS-BUILT - GENERAL REVISIONS (AS-BUILT LARC-793)
6	11/27/23	AF	DM	AS-BUILT (PROJECT 0620)
5	11/27/08	AF	DM	RE-DESIGNED FOR CONSTRUCTION (PROJECT 0620)
4	11/27/08	AF	DM	ISSUED FOR CONSTRUCTION (PROJECT 0620)
3	11/27/08	AF	DM	ISSUED FOR RETIEV (PROJECT 0620)

DRAWING NO. **HOCs PROJECTS #1461**

1 2 3 4 5 6 7 8

Z=9115  
 ODORIZER PACKAGE  
 2" NPT 1/2" LONG  
 CAPACITY: 0.003 m<sup>3</sup>/h (0)



**NOTES:**  
 1. EQUIPMENT TAG NUMBERS, SPECIFIC TAG NUMBERS, EQUIPMENT TAGS AND BUILDING NUMBERS ARE PREFIXED BY PREFIX 'SAI-011'.  
 2. COUPLING PROTECTION: V.I. SHALL BE INSTALLED A MINIMUM HEIGHT OF 762mm (30") FROM GROUND AND AT LEAST 178mm (7") AWAY FROM ANY WALLS.

REV.	DESCRIPTION	DATE	BY	CHK	APP.	PE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	
3	AS-BUILT - GENERAL REVISION (AUGUST URG-793)	09/12/21	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP
2	AS BUILT	10/04/20	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP
1	RE-ISSUED FOR CONSTRUCTION	09/12/21	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP
0	ISSUED FOR CONSTRUCTION	09/12/21	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP	RP

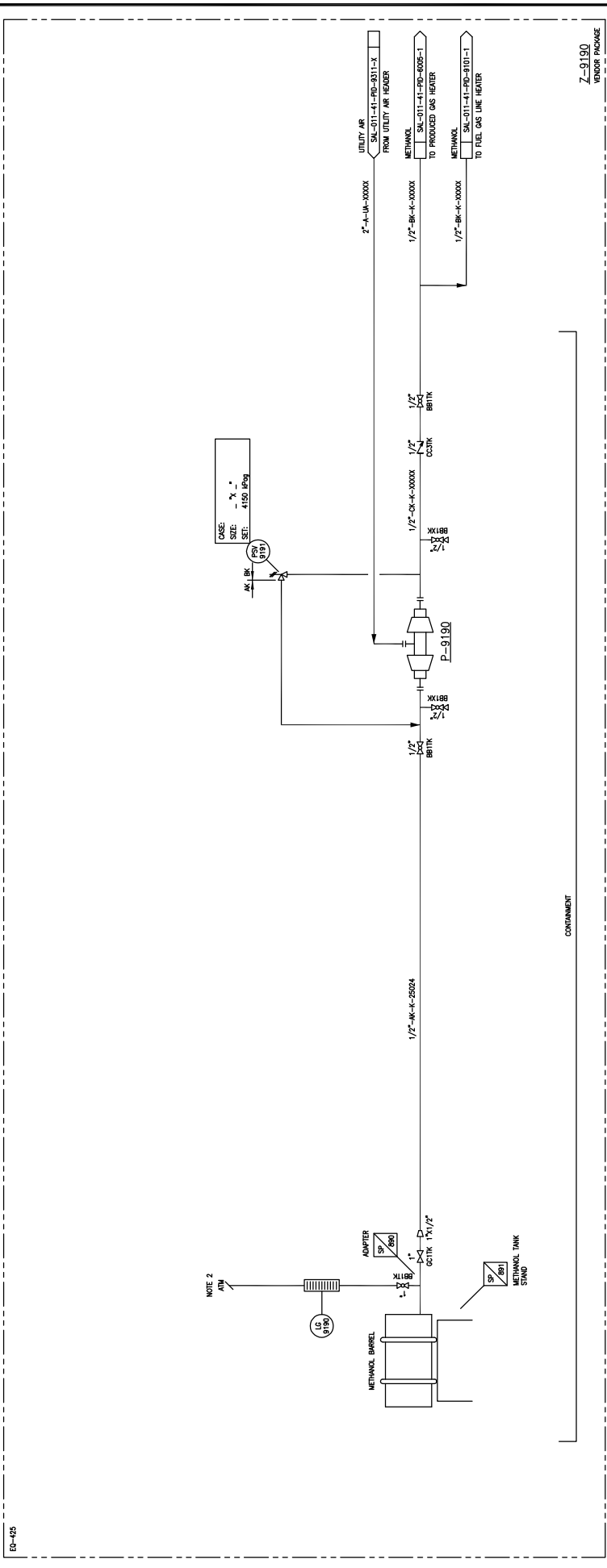
REV.	DESCRIPTION	DATE	BY	CHK	APP.	PE
3	REFERENCE DRAWINGS	09/12/21	RP	RP	RP	RP
2						
1						
0						

DRAWN:	R. PARAL	DATE:	09/09/20
DESIGNED:	L. TURNO	DATE:	09/12/21
CHECKED:	L. BAYAMA-BEAMSR	DATE:	09/12/21
APPROVED:	L. TURNO	DATE:	09/12/21
SCALE:	N.T.S.	JOB NO.:	SAI-011-41-PID-9115-3
REV.:	3	DRAWING NO.:	

Z-9190  
METHANOL INJECTION PACKAGE

P-9190/9195  
METHANOL INJECTION PUMPS  
RATED CAPACITY: \_\_\_\_\_ m<sup>3</sup>/hr @ \_\_\_\_\_ MPa g.P.  
MOTOR (IM-919) \_\_\_\_\_ PH / \_\_\_\_\_ KHZ / \_\_\_\_\_ RPM  
SPRINGS: 1 x 100%



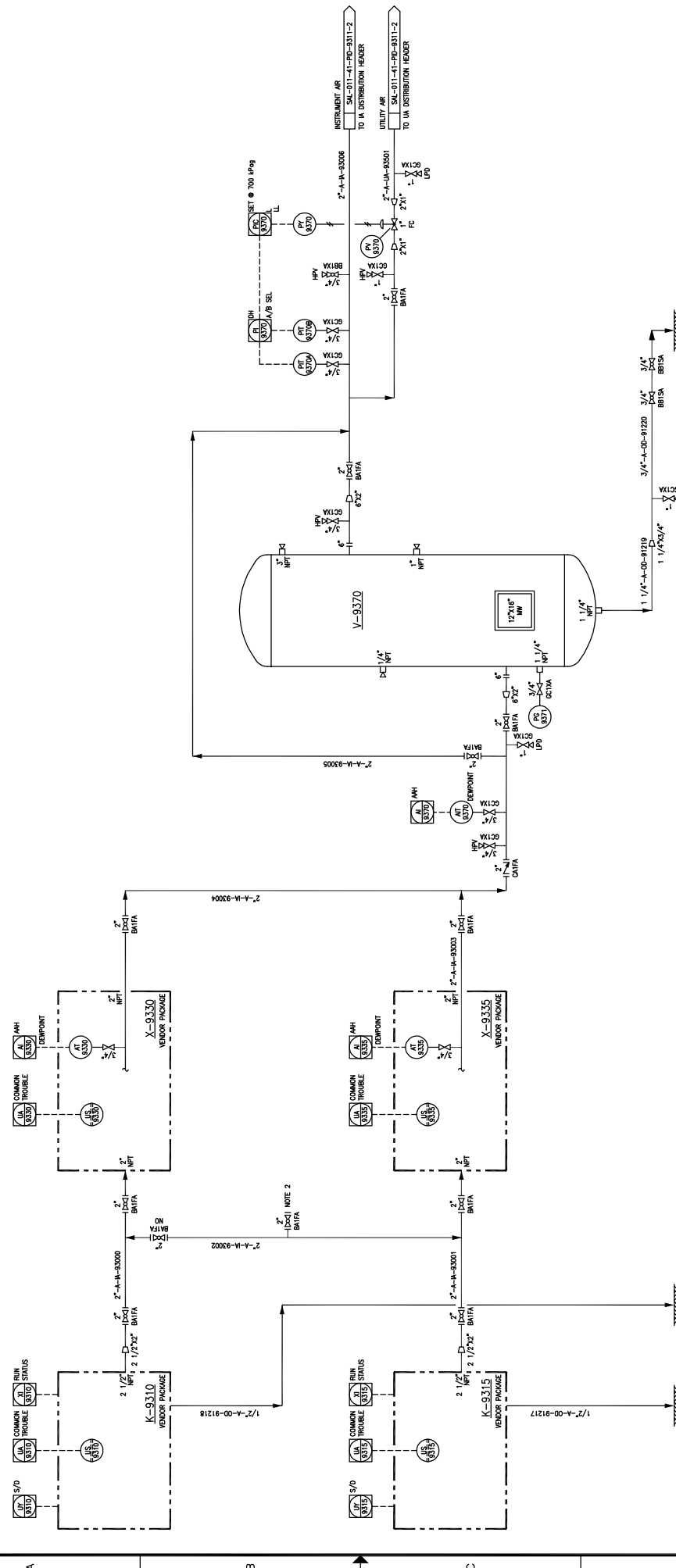
- NOTES:
1. ALL INSTRUMENT TAG NUMBERS, SPECIALTY ITEM NUMBERS, EQUIPMENT TAGS AND BUILDING NUMBERS SHALL BE SHOWN ON ALL INSTRUMENT TAGS.
  2. MOUNT HEIGHT 500mm ABOVE BARREL HEIGHT.

DRAWING NO.		REFERENCE DRAWINGS	
A		ISSUED FOR REVIEW	
BY	DATE	CHK	APP.
JCHU	080724		
REV.		DESCRIPTION	
A		ISSUED FOR REVIEW	
DESIGNED:	DATE	000724	
CHECKED:	DATE		
APPROVED:	DATE		
PE:	DATE		
SCALE		JOB NO.	
N.T.S.		SAL-01-41-PID-9120-1	
TITLE		DRAWING NO.	
LARICINA ENERGY - SALESKI SAGD PILOT METHANOL INJECTION PUMP PIPING AND INSTRUMENTATION DIAGRAM		SAL-01-41-PID-9120-1	
LARICINA ENERGY LTD.		REV. A	
IMV Projects		REV. A	

**K-9310/9315**  
**INSTRUMENT AIR COMPRESSORS**  
 MOTOR: (K-9310/9315) 1/2 HP @ 1800 RPM  
 MOTOR: (K-9315) 3/4 HP / 60 Hz  
 SPRINGS: 2 X 100#

**X-9330/9335**  
**INSTRUMENT AIR DRYER PACKAGES**  
 2000 CFM @ 100 PSI  
 2000 CFM @ 100 PSI  
 SPRINGS: 2 X 100#

**V-9370**  
**INSTRUMENT AIR RECEIVER**  
 1500 GAL  
 DESIGN: 100 PSI / 100 PSI / 100 PSI @ 232°C / -20°C  
 INTERNAL COATING: NONE  
 EQUIPMENT ITEM LINE NUMBER: -A-A-9904



HOLDS:  
 1. HOLD FOR INFORMATION.

NOTES:  
 1. ALL INSTRUMENT TAG NUMBERS, SPECIALTY ITEM NUMBERS, EQUIPMENT TAG NUMBERS AND PIPELINE NUMBERS ARE PRECEDED BY PREFIX 'SAL-011'.  
 2. TEMPORARY AIR CONNECTIONS.

REV.	DESCRIPTION	BY	DATE	CHK	APP.	FE	DATE	SCALE	JOB NO.	DRAWING NO.
3	AS BUILT - GENERAL REVISION (AUDRAFT LARC-793)	RL	11/09/07	BB	MM	MC	09/12/01	N.T.S.	SAL-011-PI-9301-1	3
2	AS BUILT	JOHU	11/09/07	LRR	IP	MC	09/12/01			
1	RE-ISSUED FOR CONSTRUCTION	ABB	10/04/00	LRR	IP	MC	09/12/01			
0	ISSUED FOR CONSTRUCTION	RP	09/12/01	LRR	IT	MC	09/12/01			

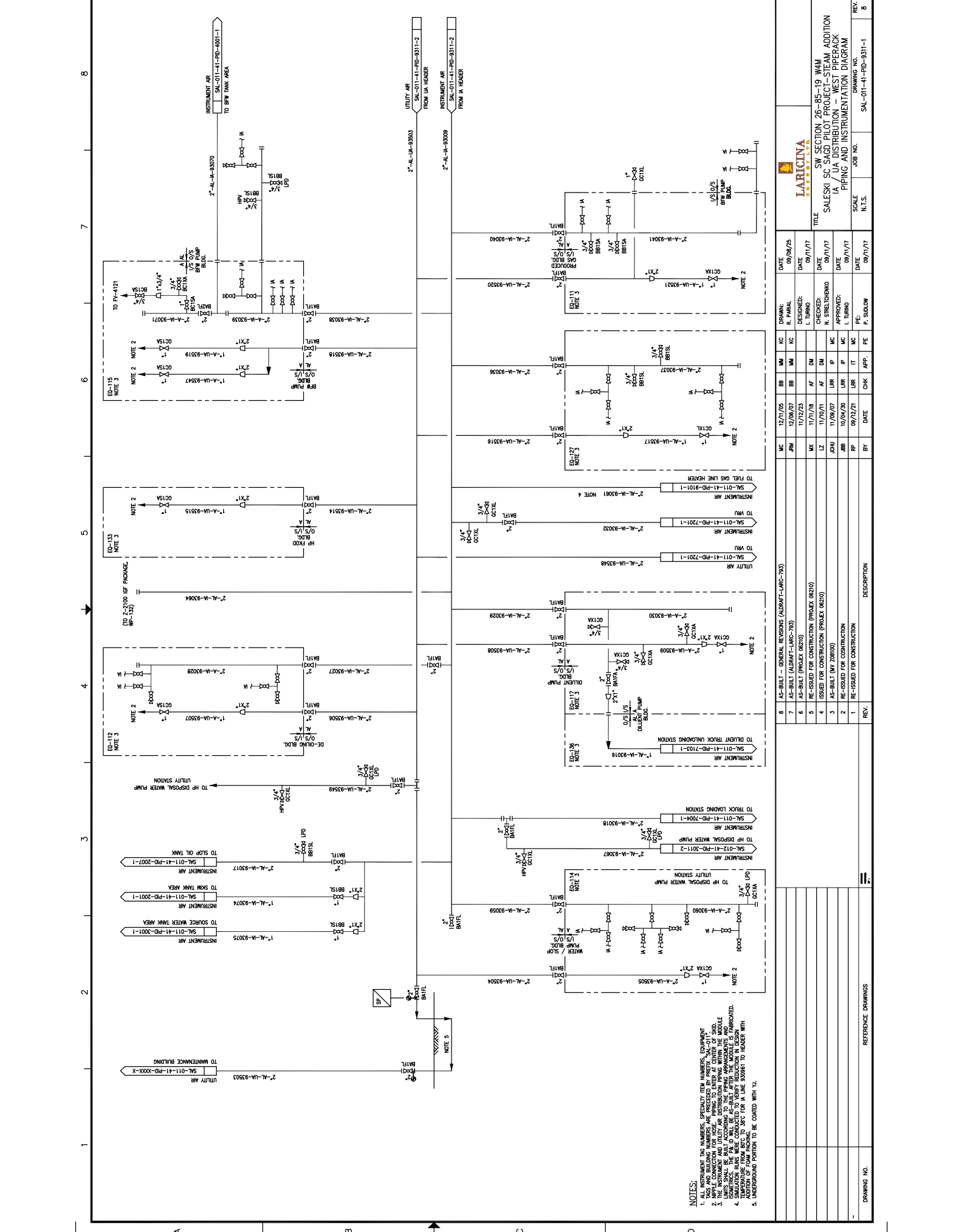
DATE	DATE	DATE	DATE	DATE	DATE
09/09/05	09/12/01	09/12/01	09/12/01	09/12/01	09/12/01

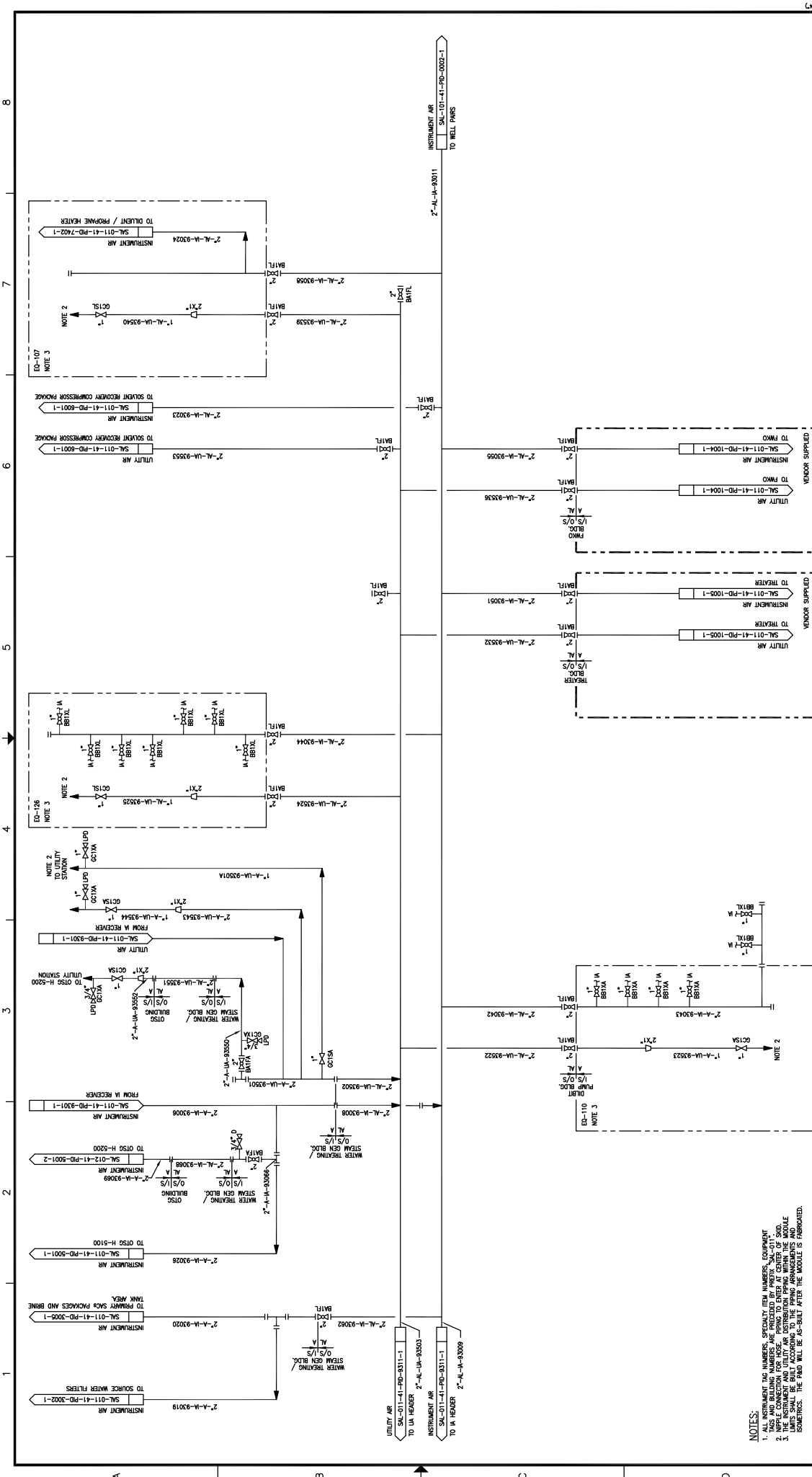
  

DRAWN:	DESIGNED:	CHECKED:	APPROVED:	SCALE	JOB NO.	DRAWING NO.
K. FORSTER	I. TURNO	MC	MC	N.T.S.	SAL-011-PI-9301-1	3

TITLE
SW SECTION 26-85-19 IWAM SALESKI SC SAGD PILOT PROJECT IA COMPRESSORS/RECEIVER PIPING AND INSTRUMENTATION DIAGRAM





DRAWING NO.		JOB NO.		SCALE	
SAL-011-41-PID-3002-1		SAL-011-41-PID-9311-2		N.T.S.	
DATE		DATE		DATE	
09/12/21		09/12/21		09/12/21	
DRAWN BY		CHECKED BY		DATE	
M. DRETT		M. DRETT		09/12/21	
DESIGNED BY		APPROVED BY		DATE	
L. TURNO		L. TURNO		09/12/21	
CHECKED BY		DATE		DATE	
L. BAYAMA-REMBERSI		11/20/21		11/20/21	
DATE		DATE		DATE	
09/12/21		09/12/21		09/12/21	
TITLE		SW SECTION 26-85-19 WAM			
SALESKI SC SAGO PILOT PROJECT - STEAM ADDITION		IA / U/A DISTRIBUTION - EAST PIPERACK			
PIPING AND INSTRUMENTATION DIAGRAM					

8	AS-BUILT - GENERAL REVISION (AUBRT-LARC-783)	BY	DATE	CHK	APP.	FE
7	AS-BUILT - GENERAL REVISION (AUBRT-LARC-783)	BY	DATE	CHK	APP.	FE
6	AS-BUILT (PROXY 0620)	BY	DATE	CHK	APP.	FE
5	RE-ISSUED FOR CONSTRUCTION (PROXY 0620)	BY	DATE	CHK	APP.	FE
4	ISSUED FOR CONSTRUCTION (PROXY 0620)	BY	DATE	CHK	APP.	FE
3	ISSUED FOR REVIEW (PROXY 0620)	BY	DATE	CHK	APP.	FE

REV.	DESCRIPTION

REV.	DESCRIPTION

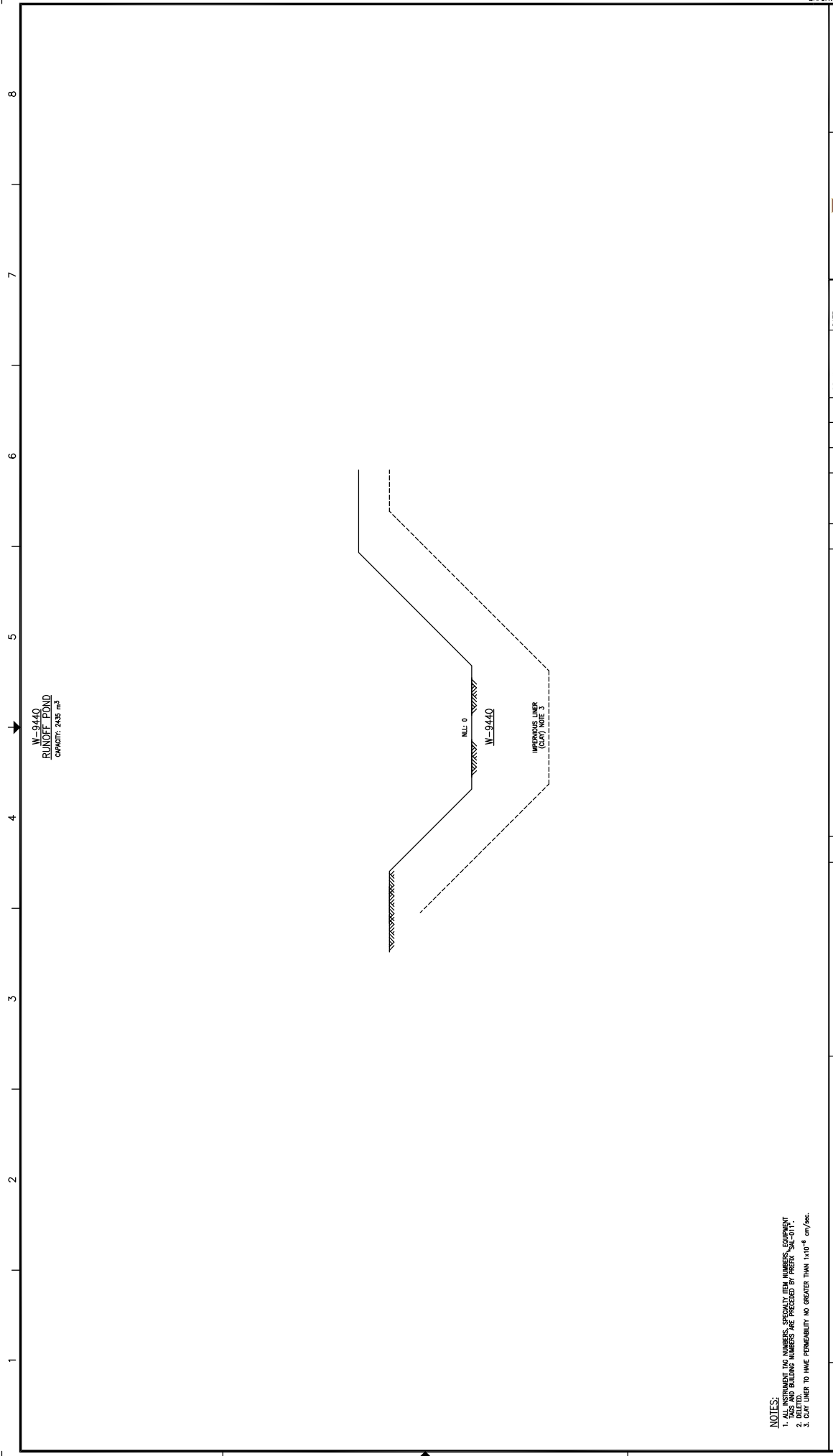
ED-107	NOTE 3
ED-108	NOTE 3
ED-109	NOTE 3
ED-110	NOTE 3

**NOTES:**

- ALL INSTRUMENT TAG NUMBERS, SPECIFIC TAG NUMBERS, EQUIPMENT TAG NUMBERS AND BUILDING NUMBERS ARE PREFIXED BY PREFIX "SAL-011-41-".
- THE INSTRUMENT AND UTILITY AIR DISTRIBUTION PERFORM WITHIN THE MODULE LIMITS SHALL BE BUILT ACCORDING TO THE PIPING ARRANGEMENTS AND EQUIPMENTS. THE P&ID WILL BE AS-BUILT AFTER THE MODULE IS FABRICATED.

REFERENCE DRAWINGS





W-9440  
RUNOFF POND  
CAPACITY: 7435 m<sup>3</sup>

W-9440  
IMPERIOUS LINER  
(CLAY NOTE 3)

- NOTES:**
1. ALL INSTRUMENT TAG NUMBERS, SPECIALTY ITEM NUMBERS, EQUIPMENT
  2. RELEASING NUMBERS ARE PRECEDED BY PREFIX "SAL-011".
  3. CLAY LINER TO HAVE PERMEABILITY NO GREATER THAN 1x10<sup>-8</sup> cm/sec.

REV.	DESCRIPTION	BY	DATE	CHK	APP.	PE	DATE	DATE	DATE	DATE	DATE	DATE	DATE
3	AS-BUILT - GENERAL REGION (ALUMET URC-793)	JRL	11/26/17	BB	MM	MC	09/12/21	09/12/21	09/12/21	09/12/21	09/12/21	09/12/21	09/12/21
2	AS BUILT	JOHU	11/29/16	LRI	IP	MC	09/12/21	09/12/21	09/12/21	09/12/21	09/12/21	09/12/21	09/12/21
1	RE-ISSUED FOR CONSTRUCTION	ASB	10/04/20	LRI	IP	MC	09/12/21	09/12/21	09/12/21	09/12/21	09/12/21	09/12/21	09/12/21
0	ISSUED FOR CONSTRUCTION	RP	09/12/21	LRI	IT	MC	09/12/21	09/12/21	09/12/21	09/12/21	09/12/21	09/12/21	09/12/21
REV.													

DRAWING NO.	SALESKI SC SAGD PILOT PROJECT
REFERENCE DRAWINGS	SW SECTION 26-85-19 W44M
	SALESKI SC SAGD PILOT PROJECT
	RUNOFF POND
	PIPING AND INSTRUMENTATION DIAGRAM
	SCALE: N.T.S.
	JOB NO. SAL-011-41-PI6-9400-1
	DRAWING NO. 3
	REV. 3

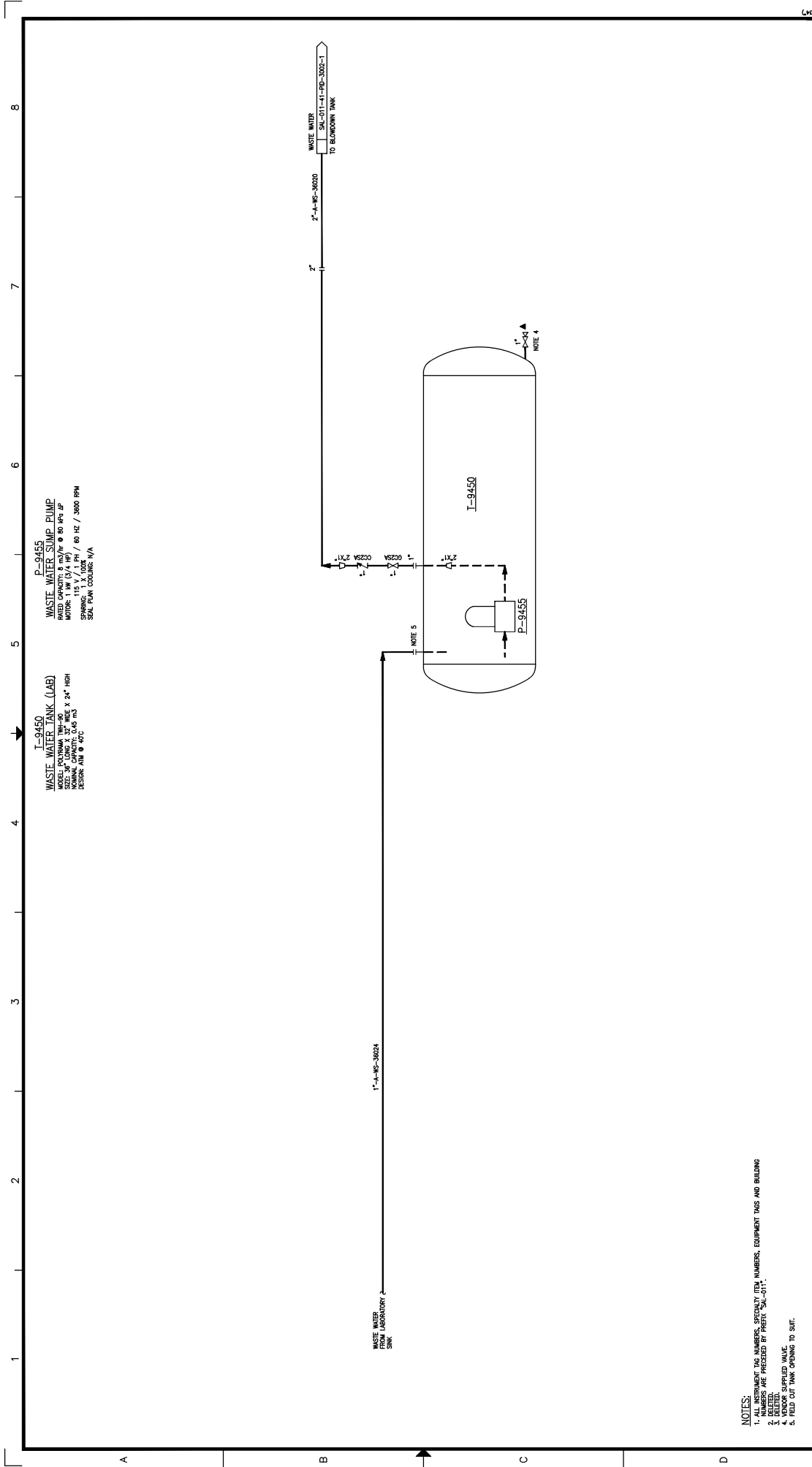


SW SECTION 26-85-19 W44M  
SALESKI SC SAGD PILOT PROJECT  
RUNOFF POND  
PIPING AND INSTRUMENTATION DIAGRAM

SCALE: N.T.S.  
JOB NO. SAL-011-41-PI6-9400-1  
DRAWING NO. 3  
REV. 3

DATE: 09/12/21  
DATE: 09/12/21  
DATE: 09/12/21  
DATE: 09/12/21  
DATE: 09/12/21  
DATE: 09/12/21

DRAWN: K. FORSTER  
DESIGNED: L. TURNO  
CHECKED: L. RAYNA-RIEGERS  
APPROVED: L. TURNO  
PE: M. CROFT



**I-9450**  
**WASTE WATER TANK (LAB)**  
 MODEL: P1000MA 30" DIA. X 24" HIGH  
 NORMAL CAPACITY: 0.6 M<sup>3</sup>  
 DESIGN AWM @ 40°C  
 SPEC. FOR AN. COLOUR: N/A

**P-9455**  
**WASTE WATER SUMP PUMP**  
 RATED CAPACITY: 8 m<sup>3</sup>/hr @ 80 RPM 4P  
 MOTOR: 1.5 kW / 1.1 PH / 60 HZ / 3000 RPM  
 SPEC. FOR AN. COLOUR: N/A

- NOTES:**
1. ALL INSTRUMENT TAG NUMBERS, SPECIFICITY (EM) NUMBERS, EQUIPMENT TAGS AND BUILDING NUMBERS ARE PREFIXED BY PREFIX "SAL-011".
  2. DELETED.
  3. HOCS PROJECTS VALUE.
  4. FIELD OUT-TANK. OPENING TO SURF.

DRAWING NO.		REV.		REFERENCE DRAWINGS		HOCS PROJECTS #1461		DATE		DATE		DATE		DATE		DATE		DATE	
4	AS BUILT PER CLIENT MARK-UPS (HOCS #1461)																		
3	AS BUILT - GENERAL REVISION (AUGUST 2008-793)																		
2	AS BUILT																		
1	RE-ISSUED FOR CONSTRUCTION																		
0	ISSUED FOR CONSTRUCTION																		

**LARICINA**  
**LABORATORIA**

**HOCS PROJECTS**

SW SECTION 26-85-19 WAM  
 SALESKI SC SAGO PILOT PROJECT  
 WASTE WATER TANK AND SUMP PUMP  
 PIPING AND INSTRUMENTATION DIAGRAM

JOB NO. 1461  
 DRAWING NO. SAL-011-41-PID-9401-1

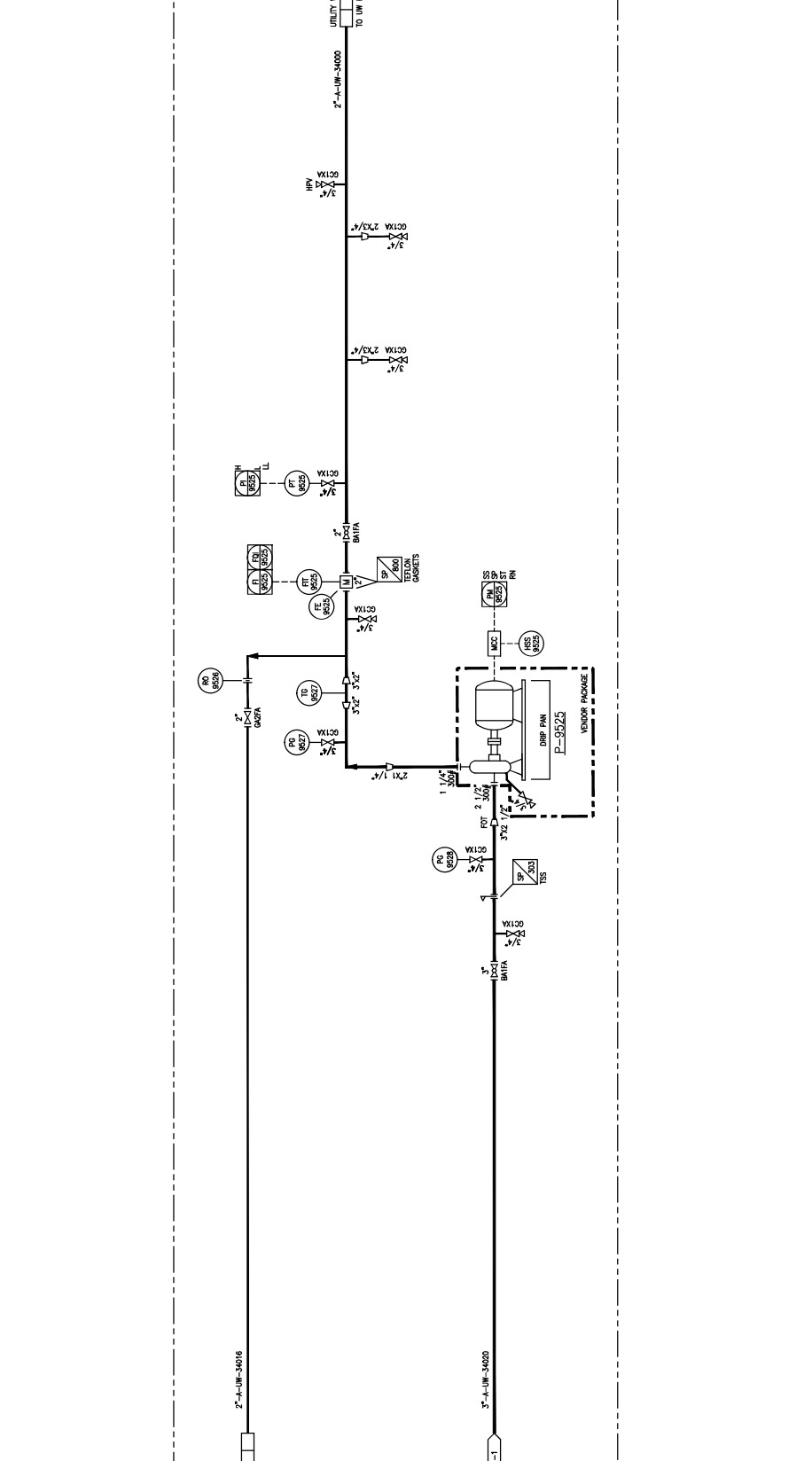
DESIGNED:	CHECKED:	APPROVED:	DATE	DATE	DATE
L. TURNO	L. BATANA-REASMIR	L. TURNO	09/12/21	09/12/21	09/12/21

DATE	BY	DESCRIPTION
09/12/21	PE	ISSUED FOR CONSTRUCTION
09/12/21	PE	RE-ISSUED FOR CONSTRUCTION
09/12/21	PE	AS BUILT
09/12/21	PE	AS BUILT - GENERAL REVISION (AUGUST 2008-793)
09/12/21	PE	AS BUILT PER CLIENT MARK-UPS (HOCS #1461)

DATE	BY	DESCRIPTION
09/12/21	PE	ISSUED FOR CONSTRUCTION
09/12/21	PE	RE-ISSUED FOR CONSTRUCTION
09/12/21	PE	AS BUILT
09/12/21	PE	AS BUILT - GENERAL REVISION (AUGUST 2008-793)
09/12/21	PE	AS BUILT PER CLIENT MARK-UPS (HOCS #1461)

1 2 3 4 5 6 7 8

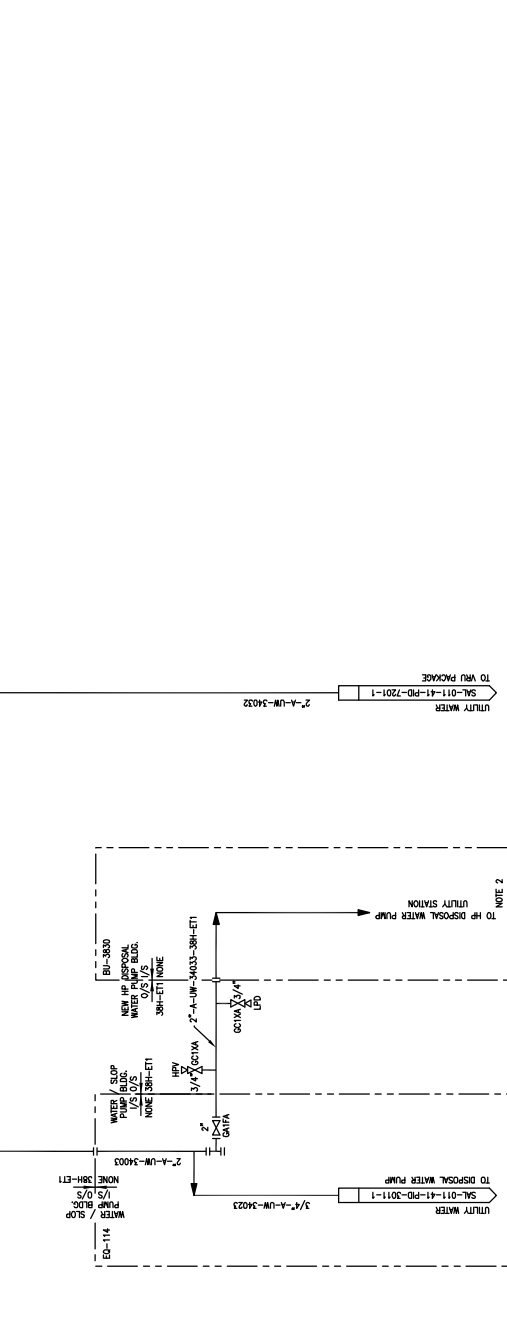
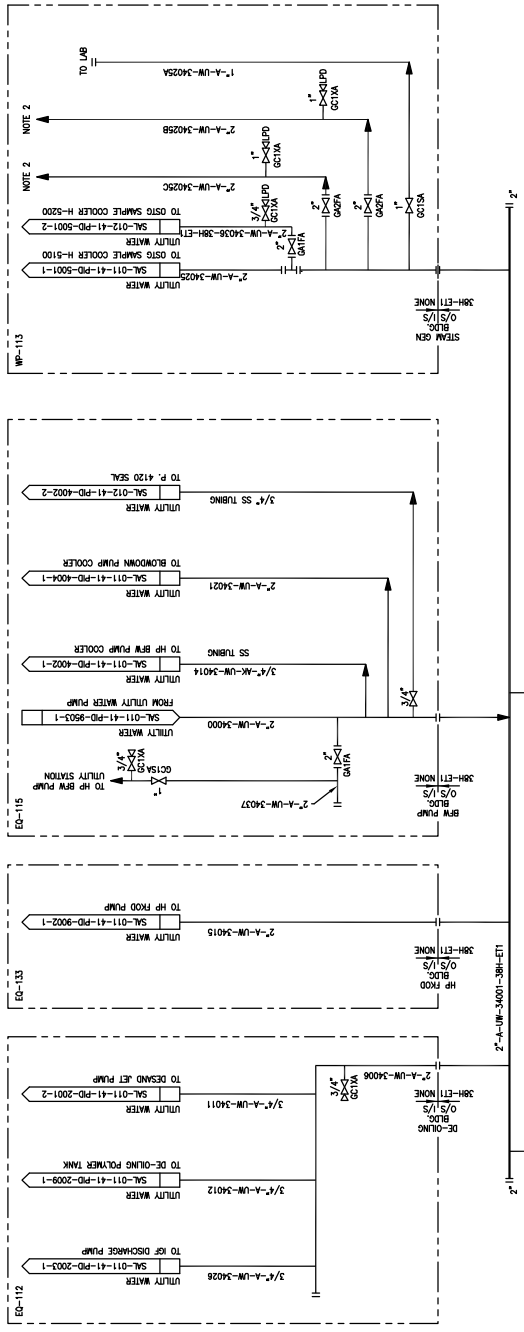
P-9525  
UTILITY WATER PUMP  
RATED CAPACITY: 7.7 MGAL @ 360 RPM  
HEAD: 75 FT / 2.6 PH / 60 HZ / 1750 RPM  
SPL: 2000 COUPLER PAK 14



NOTES:  
1. ALL INSTRUMENT TAG NUMBERS, SECURITY TAG NUMBERS, EQUIPMENT TAGS AND BUILDING NUMBERS ARE PRECEDED BY PREFIX 'SAL-011'.

DRAWING NO. #1461		HOC'S PROJECTS		REV.	
DATE	09/12/21	DATE	09/12/21	DATE	09/12/21
BY	M. ORFIT	BY	M. ORFIT	BY	M. ORFIT
CHK	FE	CHK	FE	CHK	FE
APP.		APP.		APP.	
SCALE	N.T.S.	SCALE	N.T.S.	SCALE	N.T.S.
TITLE	UTILITY WATER PUMP PIPING AND INSTRUMENTATION DIAGRAM	TITLE	UTILITY WATER PUMP PIPING AND INSTRUMENTATION DIAGRAM	TITLE	UTILITY WATER PUMP PIPING AND INSTRUMENTATION DIAGRAM
DESIGNED	L. TURNO	DESIGNED	L. TURNO	DESIGNED	L. TURNO
CHECKED	L. BATINA-BEAMER	CHECKED	L. BATINA-BEAMER	CHECKED	L. BATINA-BEAMER
DATE	09/12/21	DATE	09/12/21	DATE	09/12/21
APPROVED		APPROVED		APPROVED	
DATE	09/12/21	DATE	09/12/21	DATE	09/12/21
JOB NO.	1461	JOB NO.	1461	JOB NO.	1461
DRAWING NO.	SAL-011-41-PD-9503-1	DRAWING NO.	SAL-011-41-PD-9503-1	DRAWING NO.	SAL-011-41-PD-9503-1
REV.	5	REV.	5	REV.	5

8 7 6 5 4 3 2 1



**NOTES:**  
 1. ALL INSTRUMENT TAG NUMBERS, SPECIALTY ITEM NUMBERS, EQUIPMENT TAG NUMBERS AND PIPING TAG NUMBERS SHOWN ON THIS DRAWING ARE REFERENCED BY SHEET 'SAL-011'.  
 2. TO UTILITY WATER STATION, BY OTHERS.

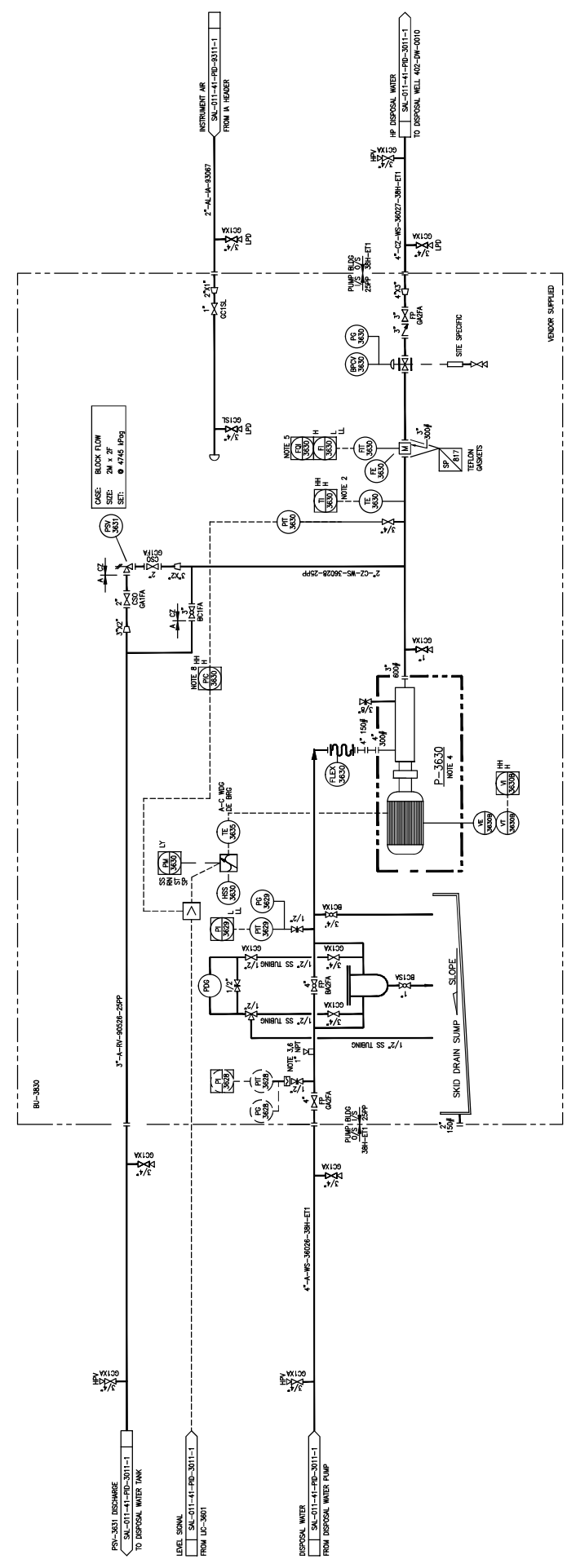
DRAWING NO.		JOB NO.		SCALE		DRAWING NO.	
REFERENCE DRAWINGS		N.T.S.		SAL-011-41-PD-9503-2		REV. 9	
DATE	09/09/01	DATE	09/11/07	DATE	09/11/07	DATE	09/11/07
DESIGNED:	R. PARAL	DESIGNED:	L. TURNO	DESIGNED:	L. TURNO	DESIGNED:	L. TURNO
CHECKED:	N. STRUBENHORN	CHECKED:	N. STRUBENHORN	CHECKED:	N. STRUBENHORN	CHECKED:	N. STRUBENHORN
APPROVED:	L. TURNO	APPROVED:	L. TURNO	APPROVED:	L. TURNO	APPROVED:	L. TURNO
BY	DATE	BY	DATE	BY	DATE	BY	DATE
9	AS-BUILT - GENERAL REVISION (AUBMT UARC-793)						
8	AS BUILT (PROJECT 0620)						
7	RE-ASSUED FOR CONSTRUCTION (PROJECT 0620)						
6	ISSUED FOR CONSTRUCTION (PROJECT 0620)						
5	ISSUED FOR REVIEW (PROJECT 0620)						
REV.	DESCRIPTION	REV.	DESCRIPTION	REV.	DESCRIPTION	REV.	DESCRIPTION



**TITLE**  
 SW SECTION 26-85-19 WAM  
 SALESKI SC SAGO PILOT PROJECT-STEAM ADDITION  
 UTILITY WATER DISTRIBUTION  
 PIPING AND INSTRUMENTATION DIAGRAM

**DRAWN:** R. PARAL  
**DESIGNED:** L. TURNO  
**CHECKED:** N. STRUBENHORN  
**APPROVED:** L. TURNO  
**DATE:** 09/09/01  
**DATE:** 09/11/07  
**DATE:** 09/11/07  
**DATE:** 09/11/07

**P-3630**  
**HP DISPOSAL WATER PUMP**  
 RATED CAPACITY: 55 m<sup>3</sup>/hr @ 3622 kPa & P  
 MOTOR: (MANSV) 812.99 (125 HP) / 3600 RPM  
 SPARKING: 1.8 TOOK  
 SEAL COOLING FLUID: N/A



- NOTES:**
1. ALL INSTRUMENT TAG NUMBERS, SPECIALTY ITEM NUMBERS, EQUIPMENT TAGS AND BUILDING NUMBERS ARE PRECEDED BY PREFIX "SAL-017".
  2. ALL INSTRUMENT TAG NUMBERS ARE PRECEDED BY PREFIX "SAL-017".
  3. FOR FUTURE SCALE INJECTION.
  4. FLOW SETPOINT UNITS REQUIRED TO KEEP PUMP WITHIN OPERATING RANGE.
  5. THROUGH CHEMICAL INJECTION GULL PART # SS-600-1-1 (BPT, PURCHASED BY MODULE FABRICATOR).
  6. HI PIPELINE PRESSURE OVERIDE.

REV.	DESCRIPTION	DATE	BY	CHK	APP.	FE	PE	DATE	SCALE	JOB NO.	DRAWING NO.	REV.
4	AS BUILT PER CLIENT MARK-UP (NO. #48)	11/09/22	MX	CH	AP	FE	PE	11/09/22	N.T.S.	1461	SAL-017-41-PID-3011-2	4
3	AS-BUILT - GENERAL RESPONSE (ASBPT-JACC-76)	11/07/23	MX	CH	AP	FE	PE	11/07/23				
2	AS-BUILT (PROJECT 0620)	11/07/23	MX	CH	AP	FE	PE	11/07/23				
1	RE-DESIGNED FOR CONSTRUCTION (PROJECT 0620)	11/07/23	MX	CH	AP	FE	PE	11/07/23				
0	ISSUED FOR CONSTRUCTION (PROJECT 0620)	11/07/23	MX	CH	AP	FE	PE	11/07/23				
C	ISSUED FOR DESIGN (PROJECT 0620)	11/07/23	MX	CH	AP	FE	PE	11/07/23				
B	ISSUED FOR HAZOP (PROJECT 0620)	11/07/23	MX	CH	AP	FE	PE	11/07/23				
A	ISSUED FOR APPROVAL (PROJECT 0620) (REPLACING SAL-01-41-PID-3011-2)	11/09/22	MX	CH	AP	FE	PE	11/09/22				

**HOCS PROJECTS #1461**

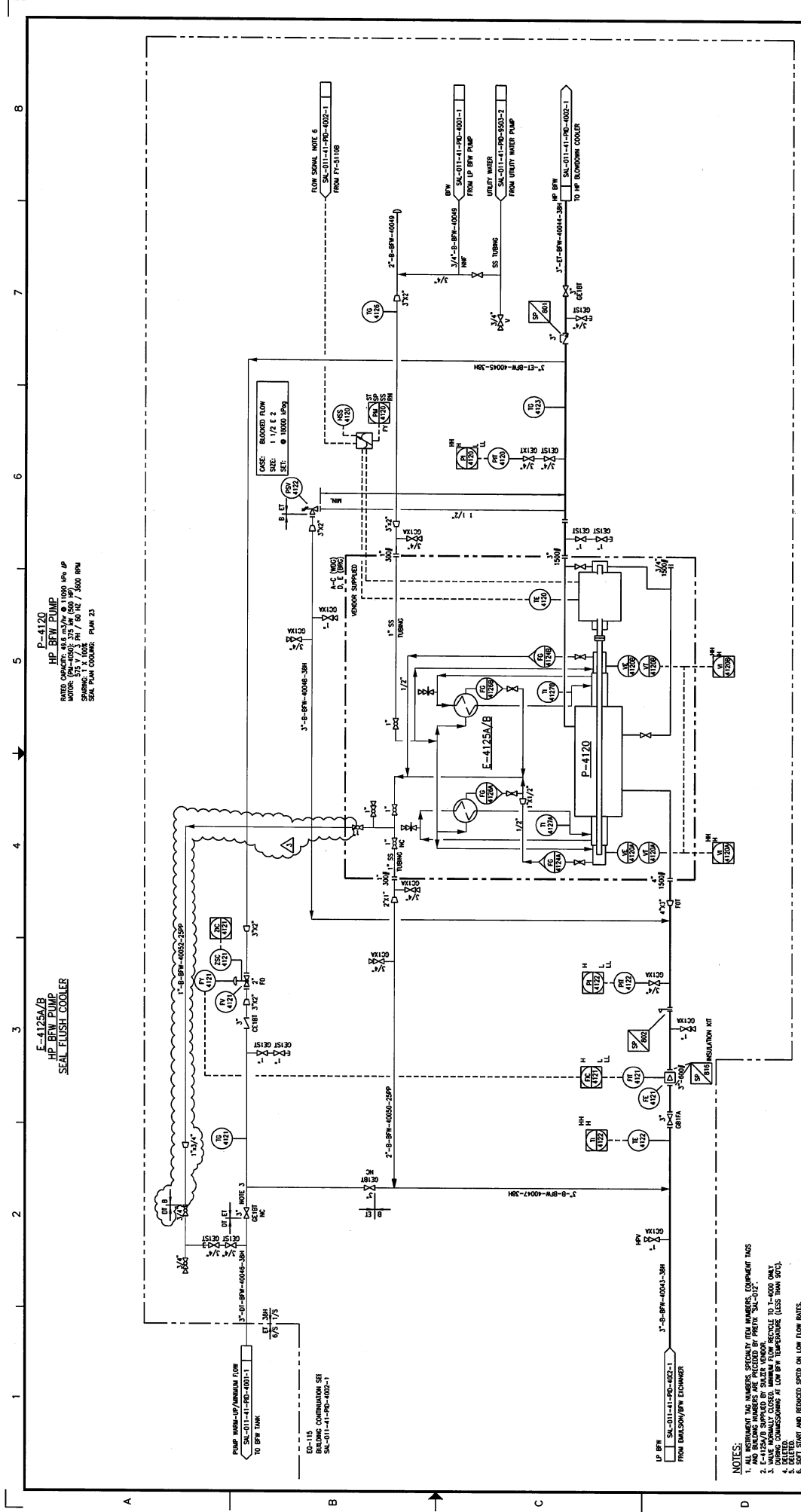
**LARICINA**  
**ENGINEERS**

**HOCS PROJECTS**

DATE: 11/09/22  
 DRAWN: M.MU  
 DESIGNED: -  
 CHECKED: -  
 APPROVED: -

TITLE: SW SECTION 26-85-19 WAM SALESKI SC SAGD PILOT PROJECT-STEAM ADDITION HP DISPOSAL WATER PUMP PIPING AND INSTRUMENTATION DIAGRAM

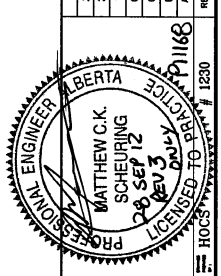
SCALE: N.T.S.  
 JOB NO.: 1461  
 DRAWING NO.: SAL-017-41-PID-3011-2  
 REV.: 4



**P-4120  
HP BREW PUMP**  
AUTO CONTROL: 4.5 m<sup>3</sup>/hr @ 1100 RPM  
SPEED: 1100 RPM / 1700 RPM  
SEAL FLUSH COOLING: PLAN 23

**E-4125A/B  
HP BREW PUMP  
SEAL FLUSH COOLER**

- NOTES:**
1. INSTRUMENT TAG NUMBERS DESIGN BY FEI NUMBERS. EQUIPMENT TAGS AND BUILDING NUMBERS ARE PREFIXED BY PRETIN "SAI-01-11-19-002-1".
  2. E-4125A/B SUPPLIED BY SALTRA VENDOR.
  3. DURING COMMISSIONING AT LOW BFW TEMPERATURE (LESS THAN 90°C), DELTID TO BE USED.
  4. DELTID.
  5. DELTID.
  6. SLOW START AND REDUCED SPEED ON LOW FLOW RATES.

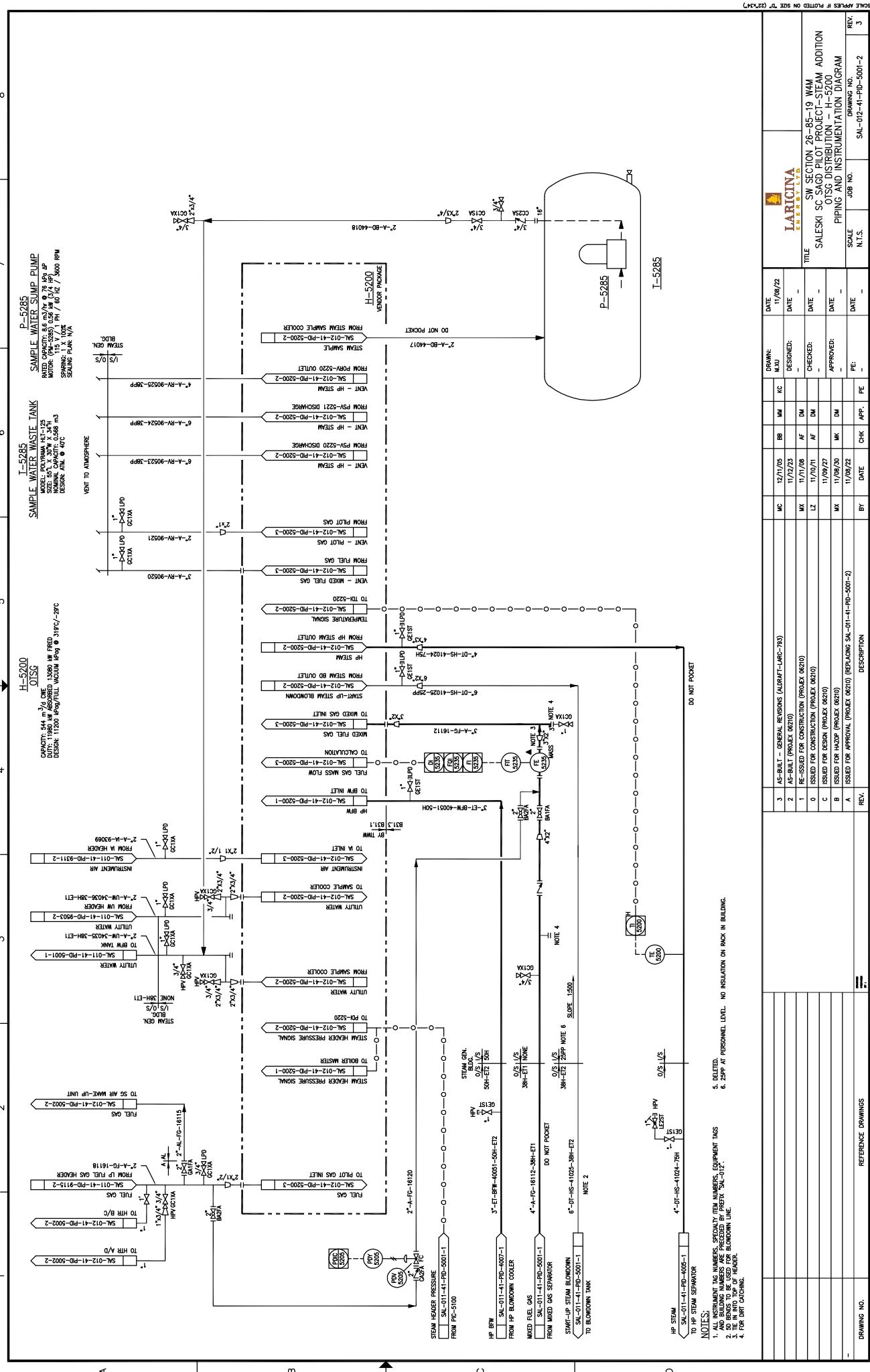


**HOC'S PROJECTS**  
I.A.P.I.C.I.N.A.  
S.W. SECTION 76-85-19 WAM  
SALESKI SC SAGO PILOT PROJECT - STEAM ADDITION  
HP BREW PUMP  
PIPING AND INSTRUMENTATION DIAGRAM  
SCALE: N.T.S.  
JOB NO.: 1230  
DRAWING NO.: SAI-01-11-19-002-2  
REV. 3

REV.	DESCRIPTION	BY	DATE	CHK	APP.	PE	DATE	DATE	DATE	DATE	DATE
3	ISSUED FOR CONSTRUCTION - HCS #1230	M	09-20-12	PE	PE	PE	11/08/12	DESIGNED:	11/08/12		
2	AS BUILT (PROJECT 0210)	M	11/02/13	AF	DM	DM	11/01/08	CHECKED:	11/01/08		
1	RE-ISSUED FOR CONSTRUCTION (PROJECT 0210)	M	11/01/08	AF	DM	DM	11/01/01	APPROVED:	11/02/01		
0	ISSUED FOR CONSTRUCTION (PROJECT 0210)	LZ	11/01/01	AF	DM	DM	11/02/01	DESIGNED:	11/02/01		
C	ISSUED FOR DESIGN (PROJECT 0210)	M	11/02/01	AF	DM	DM	11/02/01	DESIGNED:	11/02/01		
B	ISSUED FOR 3D/2D (PROJECT 0210)	LZ	11/02/01	AF	DM	DM	11/02/01	DESIGNED:	11/02/01		
A	ISSUED FOR APPROVAL (PROJECT 0210) (REPLACING SAI-01-11-19-002-2)	LZ	11/02/12	AF	DM	DM	11/02/12	DESIGNED:	11/02/12		

REFERENCE DRAWINGS

DRAWING NO.	DESCRIPTION
SAI-01-11-19-002-1	



**LARICINA ENERGY LTD.**  
 SW SECTION 26-85-19 WAM  
 SALESKI SC SAGO PILOT PROJECT - STEAM ADDITION  
 OTSG DISTRIBUTION - H-5200  
 PIPING AND INSTRUMENTATION DIAGRAM

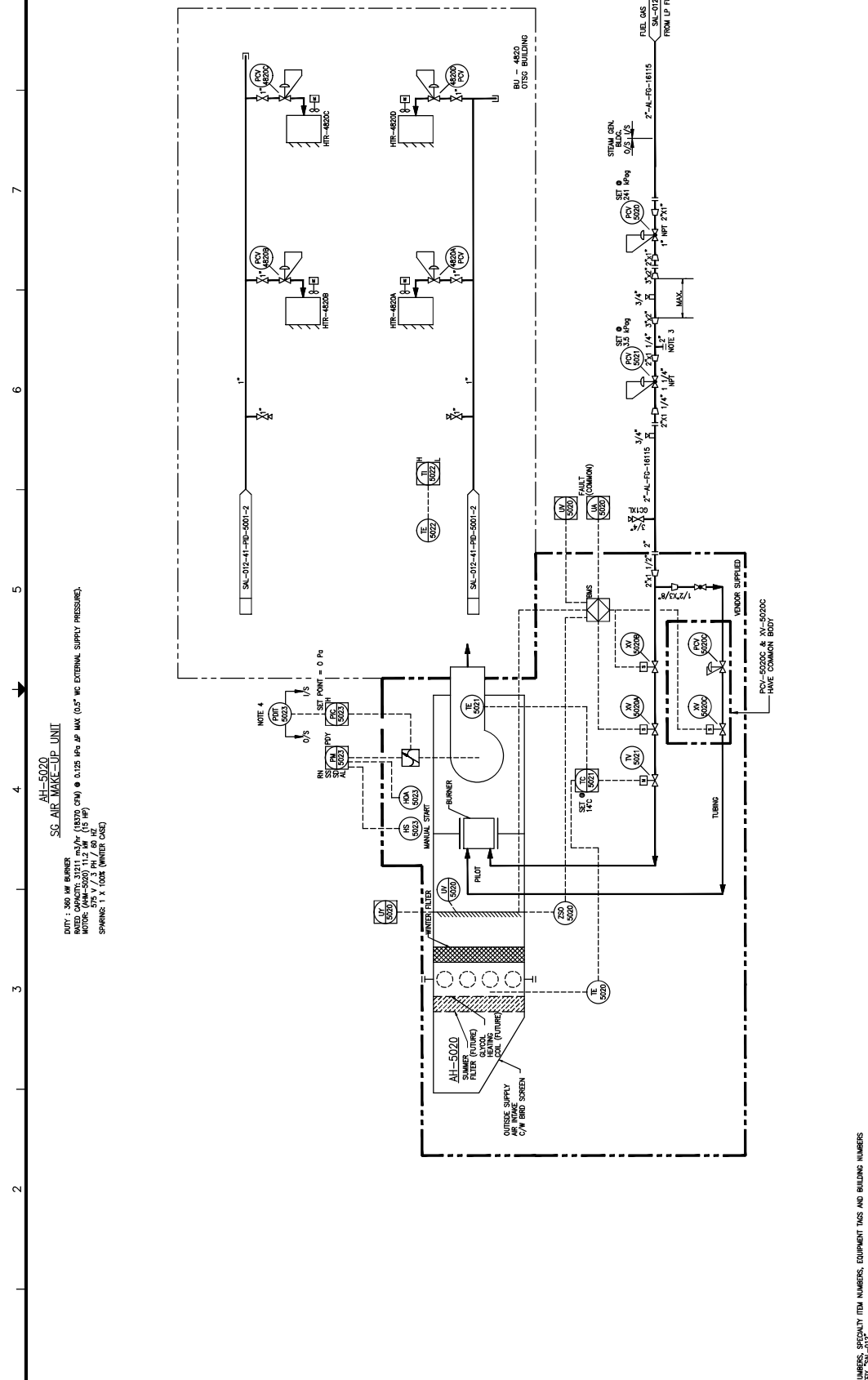
REV.	DATE	DESCRIPTION
3	11/08/01	AS-BUILT - GENERAL REVISIONS (AIRRAJ-LARC-783)
2	11/08/01	AS-BUILT (PROXY 06210)
1	11/08/01	RE-ISSUED FOR CONSTRUCTION (PROXY 06210)
0	11/08/01	ISSUED FOR CONSTRUCTION (PROXY 06210)
C	11/08/01	ISSUED FOR DESIGN (PROXY 06210)
B	11/08/01	ISSUED FOR APPROVAL (PROXY 06210)
A	11/08/01	ISSUED FOR APPROVAL (PROXY 06210) (REPLACES SAI-012-H-PID-5001-2)

DATE	BY	CHK	APP.	PE
11/08/01				
11/08/01				
11/08/01				
11/08/01				
11/08/01				

DATE	BY	CHK	APP.	PE
11/08/01				
11/08/01				
11/08/01				
11/08/01				
11/08/01				

DATE	BY	CHK	APP.	PE
11/08/01				
11/08/01				
11/08/01				
11/08/01				
11/08/01				

SCALE: N.T.S.  
 JOB NO.: SAI-012-41-PID-5001-2  
 DRAWING NO.: 3



**AH-5020**  
**SG AIR MAKE-UP UNIT**  
 DWT: 300 MM BANDS  
 1000 RPM  
 MOTOR: (AH-5020) 11.2 MW (15 HP)  
 575 V / 3 Ph / 80 Hz  
 SPARK: 1 X TIGER (WATER GAS)

NOTE 4:  
 SET POINT = 0 Pa  
 0.5 / 1/8

- NOTES:**
1. ALL INSTRUMENT TAG NUMBERS, SECURITY ITEM NUMBERS, EQUIPMENT TAGS AND BUILDING NUMBERS ARE PRECEDED BY PREFIX "SAL-012".
  2. FOR BAK CATCHING.
  3. FOR BAK CATCHING.
  4. LOCATE PLOT INSIDE BUILDING AND TUBE TO OUTSIDE.

DRAWING NO.		REFERENCE DRAWINGS		HOCS PROJECTS #1461		REV.		
4	AS BUILT PER CLIENT MARK-UP (NOCS #141)	BT	DATE	17/09/22	DATE	17/09/22	REV.	4
3	AS-BUILT - GENERAL RESPONSES (AS-BUILT-LAC-76)	MC	DESIGNED BY	M.U.	DESIGNED		SCALE	N.T.S.
2	AS-BUILT (PROJECT 0610)	MM	CHECKED BY	AF	CHECKED		JOB NO.	1461
1	RE-ASSIGNED FOR CONSTRUCTION (PROJECT 0610)	LZ	APPROVED BY	AF	APPROVED		DRAWING NO.	SAL-012-41-PID-5002-2
0	ISSUED FOR CONSTRUCTION (PROJECT 0610)	MM	DATE	11/09/21	DATE	11/09/21	TITLE	SW SECTION 26-85-19 W4M SALESKI SC SAGD PILOT PROJECT-STEAM ADDITION SC AIR MAKE-UP UNIT PIPING AND INSTRUMENTATION DIAGRAM
C	ISSUED FOR DESIGN (PROJECT 0610)	MM	DATE	11/09/21	DATE	11/09/21	DESIGNED BY	
B	ISSUED FOR HAZOP (PROJECT 0610)	MM	DATE	11/09/20	DATE	11/09/20	CHECKED BY	
A	ISSUED FOR APPROVAL (PROJECT 0610) (REPLACING SAL-01-41-PID-5002-2)	MM	DATE	11/09/22	DATE	11/09/22	APPROVED BY	

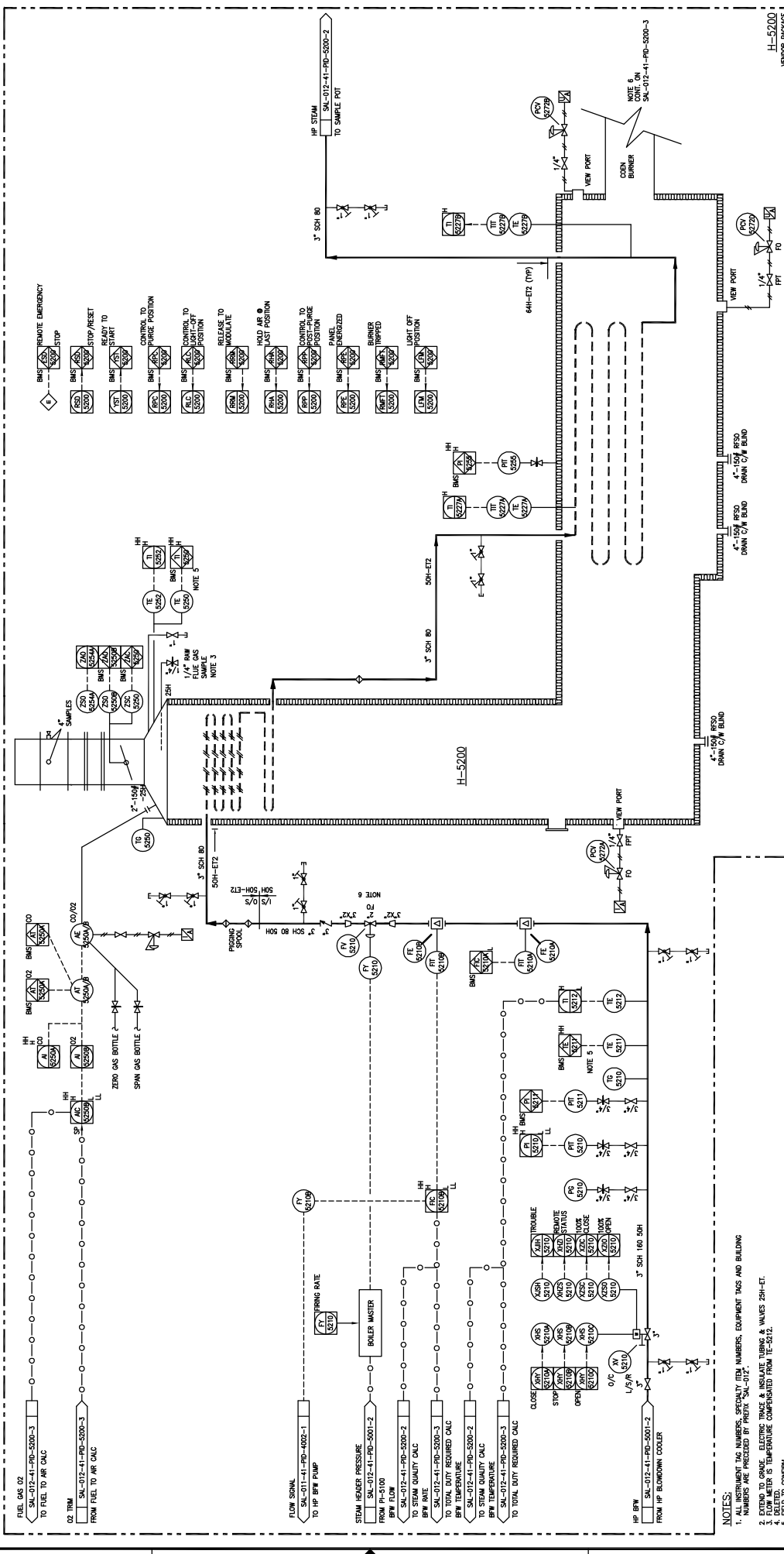


HOCS PROJECTS  
 LARICINA CONSULTING  
 SW SECTION 26-85-19 W4M  
 SALESKI SC SAGD PILOT PROJECT-STEAM ADDITION  
 SC AIR MAKE-UP UNIT  
 PIPING AND INSTRUMENTATION DIAGRAM

REV.	DESCRIPTION	BY	DATE	CHK	APP.	FE.



H-5200  
HP STEAM GENERATOR  
100% FUEL  
STEAM PRESSURE: 8000 kPa



REV.	DESCRIPTION	DATE	CHK	APP.	PE
2	AS-BUILT - GENERAL REVISIONS (AIRRAFT-JARC-743)	12/11/05	BB	MM	KC
1	AS-BUILT (PROJECT 06210)	11/12/03	LZ	MM	AF
0	ISSUED FOR CONSTRUCTION (PROJECT 06210)	11/09/01	MM	MM	MM
C	ISSUED FOR DESIGN (PROJECT 06210)	11/09/01	MM	MM	MM
B	ISSUED FOR APPROVAL (PROJECT 06210)	11/09/01	MM	MM	MM
A	ISSUED FOR APPROVAL (PROJECT 06210) (REPLACES SAL-011-HP-5100-4)	11/09/01	MM	MM	MM

DATE	DESIGNED:	CHECKED:	APPROVED:	SCALE	JOB NO.	DRAWING NO.
11/09/01	MM	MM	MM	N.T.S.	SAL-012-41-PD-5200-1	H-5200

DATE	DATE	DATE	DATE	DATE
11/09/01	11/09/01	11/09/01	11/09/01	11/09/01

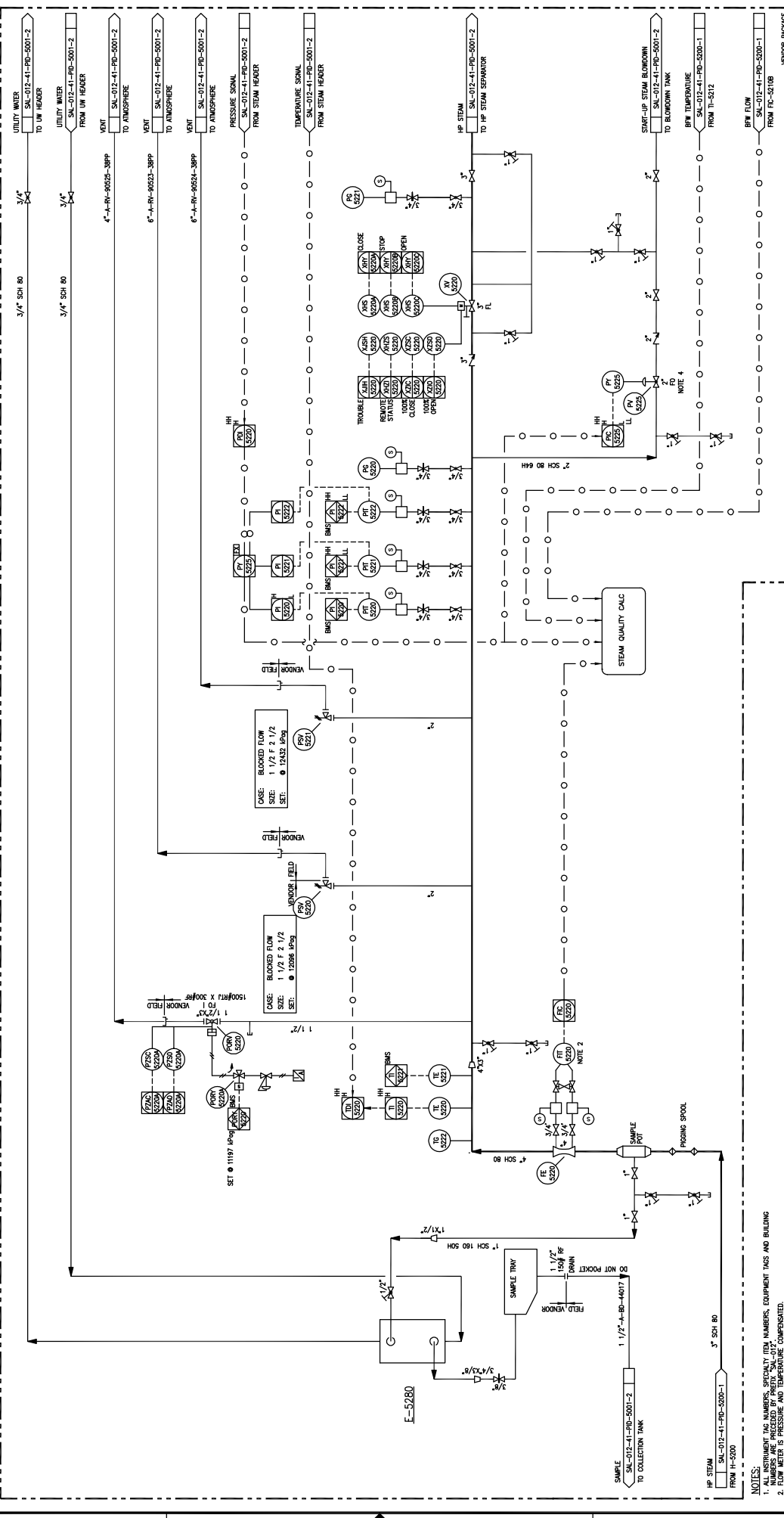
  

LARICINA  
 ENGINEERS & ARCHITECTS  
 SW SECTION 26-85-19 WAM  
 SALESKI SC SAGO PILOT PROJECT - STEAM ADDITION  
 HP STEAM GENERATOR - H-5200  
 PIPING AND INSTRUMENTATION DIAGRAM

NOTES:  
 1. ALL INSTRUMENT TAG NUMBERS, SPECIALTY ITEM NUMBERS, EQUIPMENT TAGS AND BUILDING NUMBERS ARE PREFIXED BY PREFIX "SAL-012".  
 2. EXTEND TO CHANGE. ELECTRIC TRACE & INSULATE TUBING & VALVES 25H-ET.  
 3. FLOW METER IS TEMPERATURE COMPENSATED FROM TE-5512.  
 4. FLOW METER IS TEMPERATURE COMPENSATED FROM TE-5512.  
 5. FIELD TO CONFORM.  
 6. GEEBEL.

REFERENCE DRAWINGS

**E-5280**  
**HP STEAM SAMPLE COOLER**  
 MODEL:



**NOTES:**  
 1. INSTRUMENT TAG NUMBERS, SPECIFIC TAG NUMBERS, EQUIPMENT TAGS AND BUILDING NUMBERS ARE PRECEDED BY PREFIX 'SAL-012'.  
 2. FLOW METER IS PRESSURE AND TEMPERATURE COMPENSATED.  
 3. FLOW METER IS PRESSURE AND TEMPERATURE COMPENSATED.  
 4. PV-5225 MUST HAVE A MECHANICAL TRAVEL STOP AT 25% OTIS FLOW (VPOUR FRACTION=0.91; VELOCITY=8.0M/S; MATH=0.21)

REV.	DESCRIPTION	DATE	BY	CHK	APP.	PE
3	AS-BUILT - GENERAL REVISIONS (AIRRAFT-LARC-793)	12/11/05	MC	BB	MM	KC
2	AS-BUILT (PROXY 06210)	11/12/23	MA	AF	DM	
1	RE-ISSUED FOR CONSTRUCTION (PROXY 06210)	11/17/06	LZ	AF	DM	
0	ISSUED FOR CONSTRUCTION (PROXY 06210)	11/30/01	MM	MK	DM	
C	ISSUED FOR DESIGN (PROXY 06210)	11/09/27	MM	MK	DM	
B	ISSUED FOR HAZOP (PROXY 06210)	11/09/20	MM	MK	DM	
A	ISSUED FOR APPROVAL (PROXY 06210) (REPLACING SAL-011-HP-PD-5100-5)	11/09/20	MM	MK	DM	

DATE	DRAWN:	M:JU	KC	MM	BB	AF	DM	DM	DM	DM	DM	DM
11/09/22	DESIGNED:											
	CHECKED:											
	APPROVED:											

SCALE	JOB NO.	DRAWING NO.	REV.
N.T.S.	SAL-012-41-PD-5200-2		3

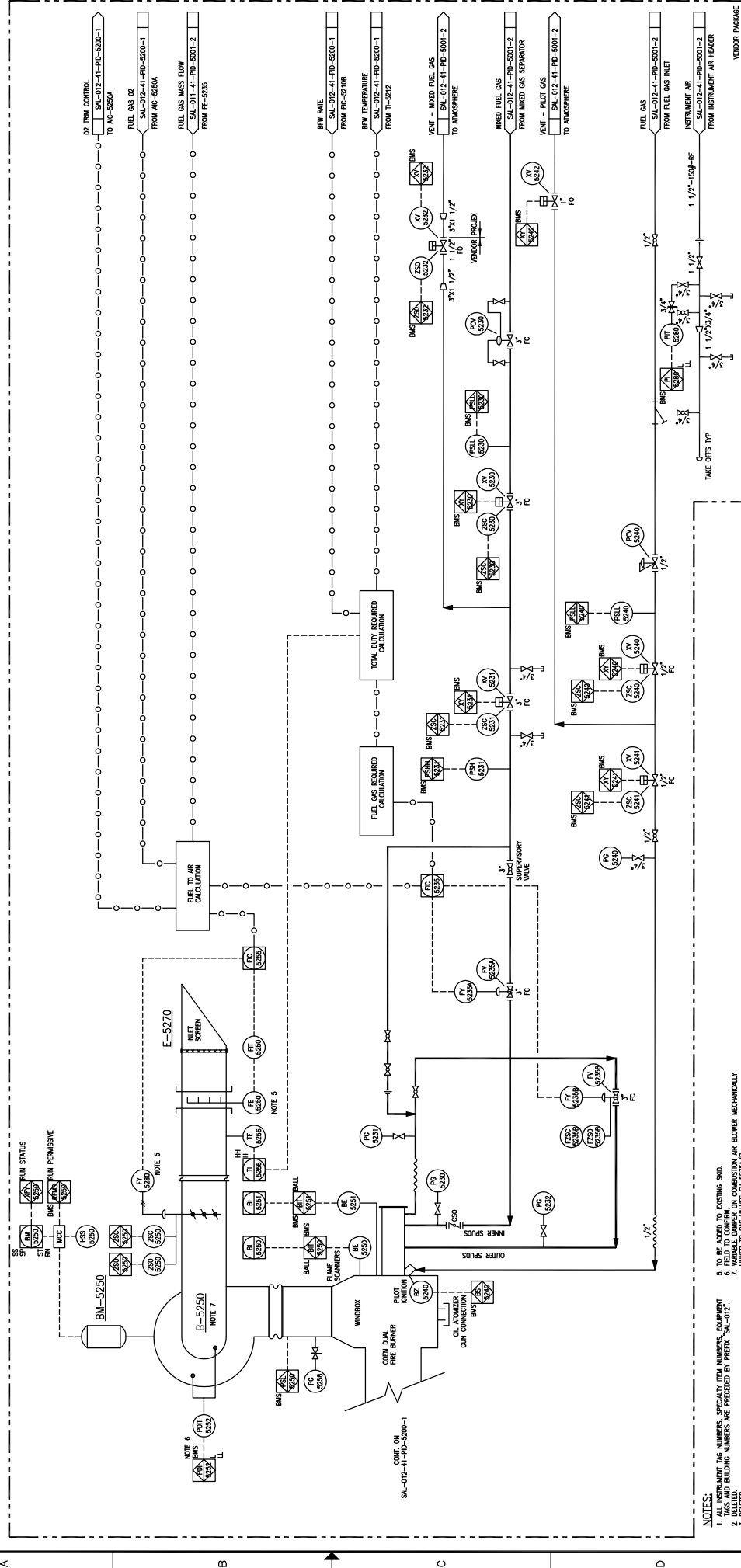
DRAWING NO.	REFERENCE DRAWINGS

**BM-5250  
COMBUSTION AIR BLOWER MOTOR**

**B-5250  
COMBUSTION AIR BLOWER**

MODEL CHORDO 1300  
DIFF: 3 InPa IP

POWER: 2834 W (40 HP)  
575 V / 3 PH / 60 HZ / 3600 RPM



- NOTES:**
1. ALL INSTRUMENT TAG NUMBERS, SPECIAL TAG NUMBERS, EQUIPMENT TAG NUMBERS AND VALVE TAG NUMBERS ARE PRECEDED BY PREFIX 'SAL-012'.
  2. DELETED TAG NUMBERS ARE PRECEDED BY PREFIX 'SAL-012'.
  3. INSTRUMENT TAG NUMBERS ARE PRECEDED BY PREFIX 'SAL-012'.
  4. DELETED.
  5. TO BE ADDED TO EXISTING SKID.
  6. VARIABLE DAMPER ON COMBUSTION AIR BLOWER MECHANICALLY LINKED TO GAS VALVES HV-5250A/B.

REV.	DESCRIPTION	DATE	CHK	APP.	DATE	BY
2	AS-BUILT - GENERAL REVISIONS (AIRRAFT-LARC-793)	12/11/95	BB	MM	KC	
1	AS-BUILT (PROJECT 06210)	11/27/93	LZ	AF	DM	
0	ISSUED FOR CONSTRUCTION (PROJECT 06210)	11/30/91	MM	KK	DD	
C	ISSUED FOR DESIGN (PROJECT 06210)	11/09/87	MM	KK	DD	
B	ISSUED FOR HAZOP (PROJECT 06210)	11/09/87	MM	KK	DD	
A	ISSUED FOR APPROVAL (PROJECT 06210) (REPLACES SAL-011-H-PD-5100-6)	11/09/87	MM	KK	DD	

DRAWN:	DATE:
M. DU	11/09/92
DESIGNED:	DATE:
MM	
CHECKED:	DATE:
AF	
APPROVED:	DATE:
DM	
PE:	DATE:
PE	

SCALE:	JOB NO.:	DRAWING NO.:	REV.:
N.T.S.	SAL-012-41-PD-5200-3		2

**LARICINA**  
ENGINEERS & ARCHITECTS

SW SECTION 26-85-19 WAW  
SALESKI SC SAGO PILOT PROJECT - STEAM ADDITION  
HP STEAM GENERATOR - H-5200  
PIPING AND INSTRUMENTATION DIAGRAM

DATE:	BY:	DATE:
11/09/92		

REV.	DESCRIPTION
2	AS-BUILT - GENERAL REVISIONS (AIRRAFT-LARC-793)
1	AS-BUILT (PROJECT 06210)
0	ISSUED FOR CONSTRUCTION (PROJECT 06210)
C	ISSUED FOR DESIGN (PROJECT 06210)
B	ISSUED FOR HAZOP (PROJECT 06210)
A	ISSUED FOR APPROVAL (PROJECT 06210) (REPLACES SAL-011-H-PD-5100-6)

SCALE:	JOB NO.:	DRAWING NO.:	REV.:
N.T.S.	SAL-012-41-PD-5200-3		2

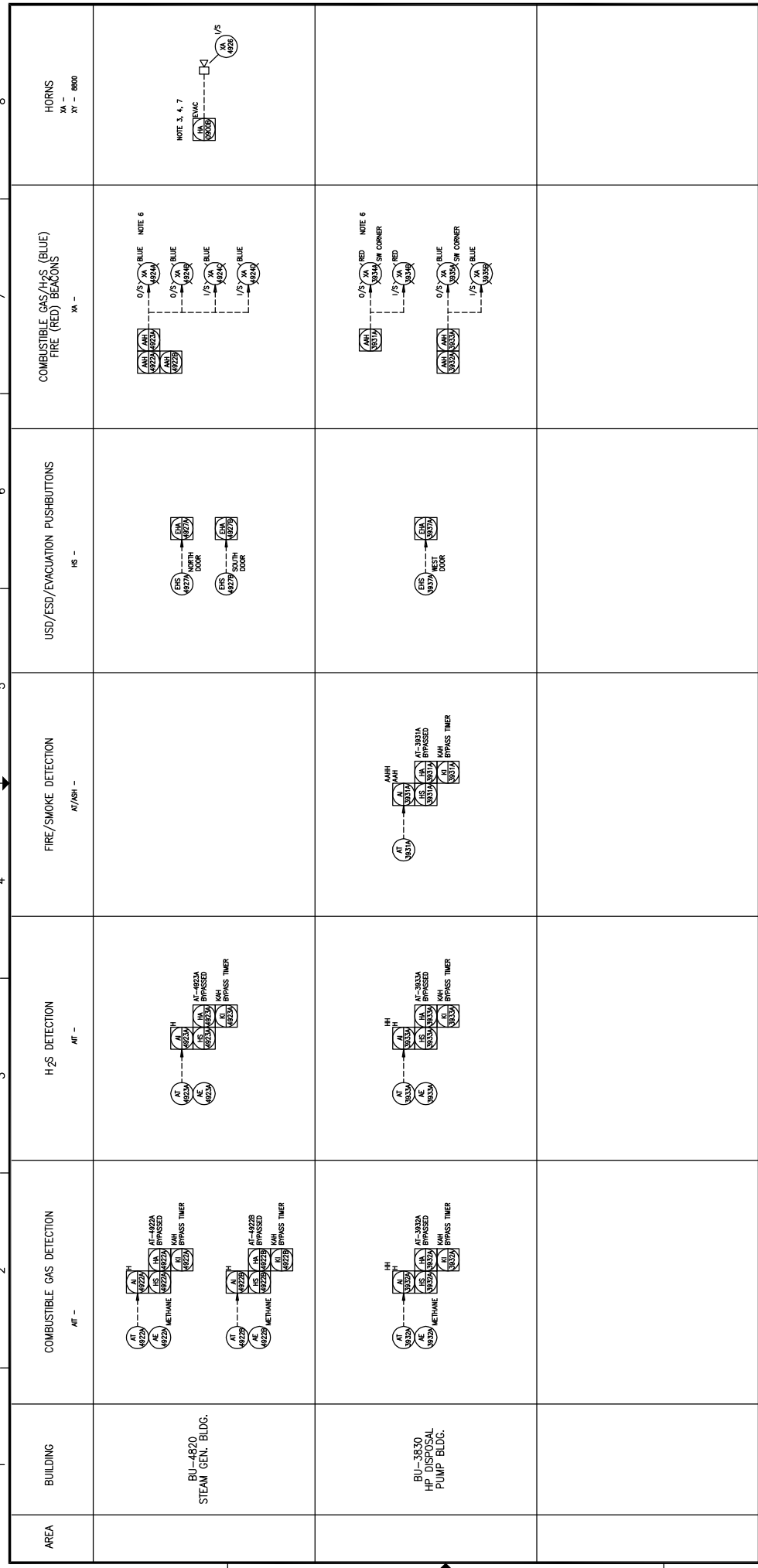
DATE:	BY:	DATE:
11/09/92		

DATE:	BY:	DATE:
11/09/92		

DATE:	BY:	DATE:
11/09/92		

DATE:	BY:	DATE:
11/09/92		

DATE:	BY:	DATE:
11/09/92		



**NOTES:**

- INSTRUMENT TAG NUMBERS PRECEDED BY PREFIX "SW-0117" ARE SUPPLIER.
- TIME HORNS/TONE 1, TIME 2, TONE 2, FIRE AND GAS DETECTION.
- OUTSIDE BEACONS MOUNTED ON STEAM AND TO BE ELIMINATED.
- FOR VISIBILITY FROM ALL ENTRANCES.
- HORN MOUNTED ON STEAM AND TO BE ELIMINATED.
- HORN MOUNTED ON STEAM AND TO BE ELIMINATED.
- HORN MOUNTED ON STEAM AND TO BE ELIMINATED.
- HORN MOUNTED ON STEAM AND TO BE ELIMINATED.
- HORN MOUNTED ON STEAM AND TO BE ELIMINATED.
- HORN MOUNTED ON STEAM AND TO BE ELIMINATED.

SW-0117-11-PIB-700-1 AND SW-0117-11-PIB-710-1.

REV.	DESCRIPTION	DATE	BY	CHK	APP.	PE
3	AS-BUILT - GENERAL REVISIONS (MURRAY-LARC-793)	12/11/05	MC	BB	MM	RC
2	AS-BUILT (PROJECT 06210)	11/17/03	MA	AF	DM	
1	RE-ISSUED FOR CONSTRUCTION (PROJECT 06210)	11/17/03	LZ	AF	DM	
0	ISSUED FOR CONSTRUCTION (PROJECT 06210)	11/07/01				
A	ISSUED FOR DESIGN (PROJECT 06210)	11/09/97				

DATE	11/09/97
DESIGNED:	
CHECKED:	
APPROVED:	
SCALE:	N.T.S.
JOB NO.:	SAL-012-41-PIB-8302-3
DRAWING NO.:	
REV.:	3

**LARICINA**  
INSTRUMENTS

SW SECTION 26-85-19 WAM  
SALESKI SC SAGO PILOT PROJECT-STEAM ADDITION  
SAFETY SYSTEM  
PIPING AND INSTRUMENTATION DIAGRAM

SCALE APPLIES IF PLOTTED ON SIZE "D" (22"x34")