

**GENERAL NOTES**  
 1. ALL PRESSURE PIPING TO BE BUILT IN ACCORDANCE WITH ASME B31.3 2010  
 2. ALL PRESSURE PIPING IS DESIGNED WITH 1/16" CORROSION ALLOWANCE  
 3. ALL PRESSURE PIPING TO BE HYDROSTATICALLY TESTED 1.5 X DESIGN @ AMBIENT  
 4. ALL TUBING TO BE 304SS WITH CS FITTINGS (SWAGelok) 1/4"-1/2" 0.035" 3/4"-1" 0.049"

**C-10**  
 FEED AIR COMPRESSOR  
 LEROI LG30143H5FE  
 L/D 1.66 VI 5.0  
 1500 SCFM @ 1800 RPM  
 MOP: 200 PSIG  
 MAWP: 220 PSIG

**V-10**  
 LUBE OIL SEPARATOR  
 LEROI 69-854-7 48543  
 SIZE: 36" OD X 60" E/E  
 MAWP: 230 PSIG  
 -20/400F  
 CRN#: TBD

**E-10A/B**  
 LUBE OIL COOLER  
 API SB7M-60 X 2  
 DUTY: 1,360,000 BTU/HR  
 MAWP: 450 PSIG  
 -148/365F  
 CRN#: TBD

**E-11**  
 FEED AIR AFTERCOOLER  
 AIR-X 108EH - IC1  
 DUTY: 152,270 BTU/HR  
 MAWP: 230 PSIG  
 -20/300F  
 MANUAL SHUTTER OPERATED  
 CRN# V4945.23  
 SERIAL# 110466.5

WARM GLYCOL  
 FE11001-PID-04  
 TO AUX/CLOW COOLER E-41  
 COLD GLYCOL  
 FE11001-PID-04  
 FROM CLOW PUMP P-41

REFERENCE DRAWINGS

DESCRIPTION	DRAWING	REV
PROCESS FLOW DIAGRAM	FE11001-PFD-01	2

REVISIONS

REV	DESCRIPTION	DATE	DWN BY	CHK BY	APR BY
A	ISSUED FOR REVIEW	05.07.2011	CM	JW	JC
B	ISSUED FOR APPROVAL	07.15.2011	CM	JW	JC
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2	RE-ISSUED FOR CONSTRUCTION	10.17.2011	JC	JW	JC
3	AS-BUILT	12.13.2011	JC	CK	TS

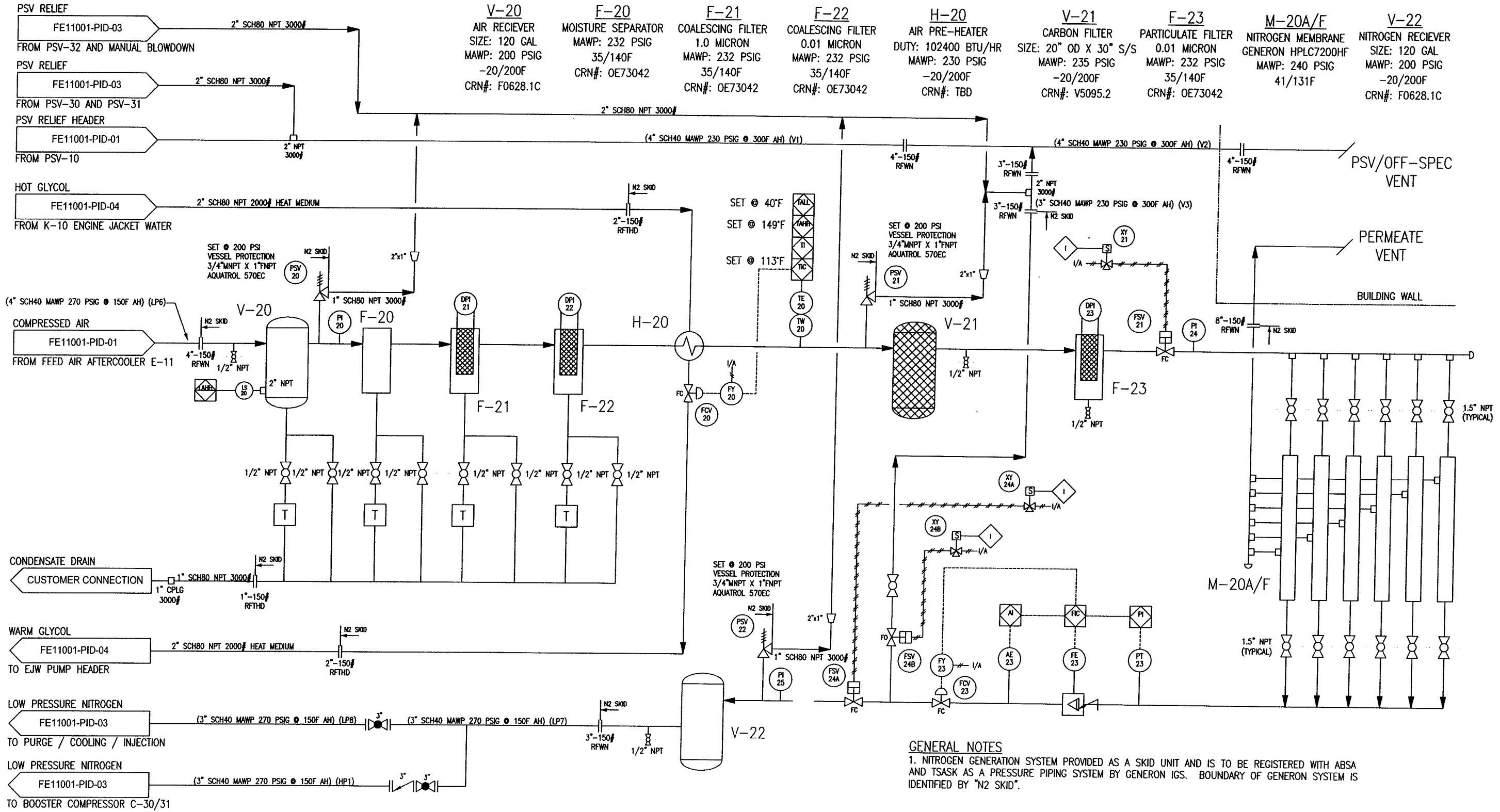
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PROJECT	REV	DWG	SHEET
	3	FE11001-PID-01	1/8

**FUEL ENERGY SERVICES LTD.**  
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 RED DEER, ALBERTA  
 CANADA  
 T4P 0J6  
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 FAX (403) 343-3994

**Husky Energy**  
 HUSKY HWVP PILOT PROJECT  
 NITROGEN GENERATION / INJECTION  
 FEED AIR COMPRESSOR PROCESS DIAGRAM

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REFERENCE DRAWINGS			REVISIONS					STAMP
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PROCESS FLOW DIAGRAM	FE11001-PFD-01	2	A	ISSUED FOR REVIEW	05.07.2011	CM	JW	JC
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			3	AS-BUILT	12.13.2011	JC	CK	TS

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HUSKY HWVP PILOT PROJECT  
NITROGEN GENERATION / INJECTION  
NITROGEN MEMBRANE PROCESS DIAGRAM

PROJECT REV 3 DWG FE11001-PID-02 SHEET 2/8

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**GENERAL NOTES**

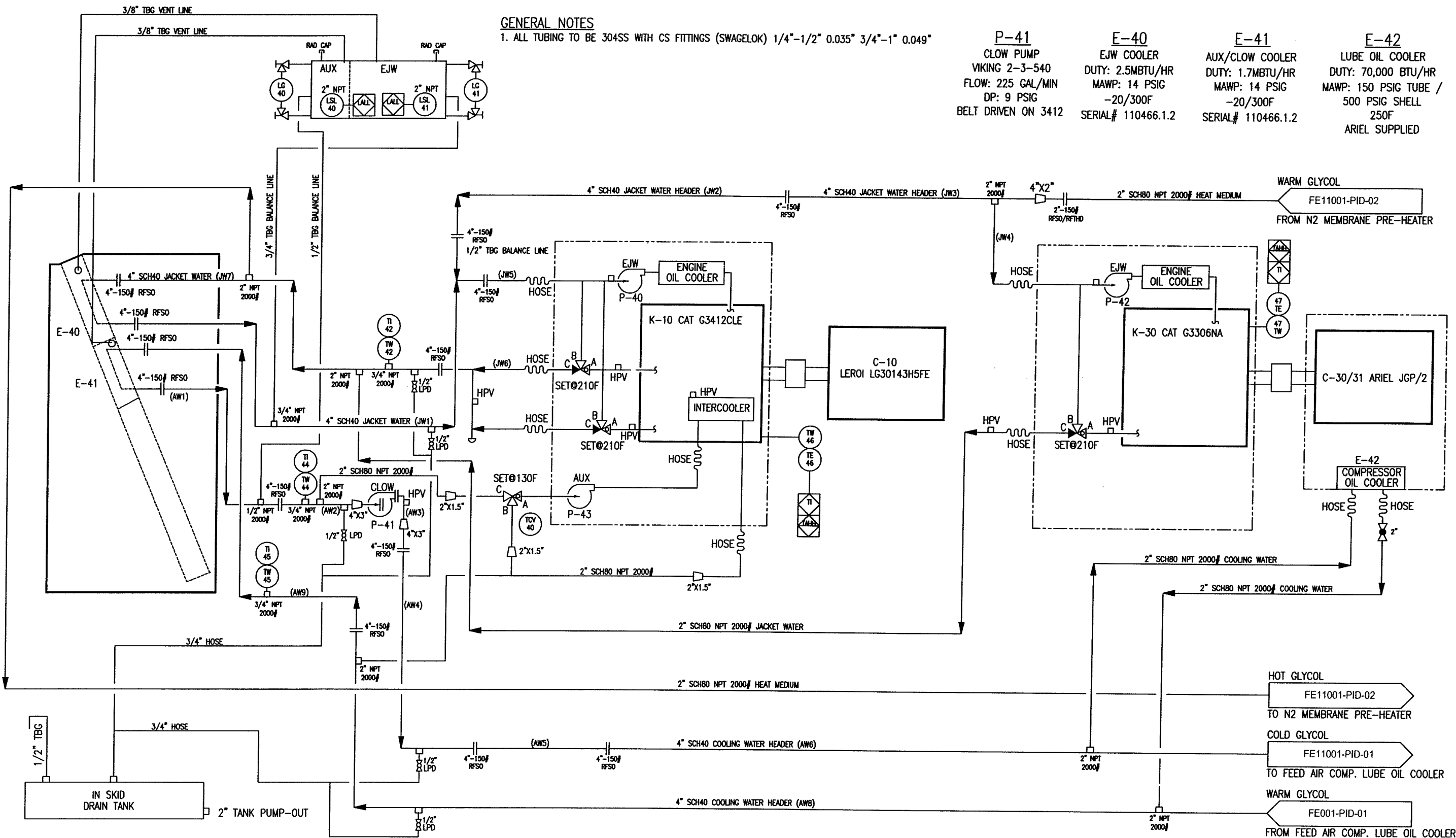
1. ALL TUBING TO BE 304SS WITH CS FITTINGS (SWAGELOK) 1/4"-1/2" 0.035" 3/4"-1" 0.049"

**P-41**  
CLOW PUMP  
VIKING 2-3-540  
FLOW: 225 GAL/MIN  
DP: 9 PSIG  
BELT DRIVEN ON 3412

**E-40**  
EJW COOLER  
DUTY: 2.5MBTU/HR  
MAWP: 14 PSIG  
-20/300F  
SERIAL# 110466.1.2

**E-41**  
AUX/CLOW COOLER  
DUTY: 1.7MBTU/HR  
MAWP: 14 PSIG  
-20/300F  
SERIAL# 110466.1.2

**E-42**  
LUBE OIL COOLER  
DUTY: 70,000 BTU/HR  
MAWP: 150 PSIG TUBE /  
500 PSIG SHELL  
250F  
ARIEL SUPPLIED



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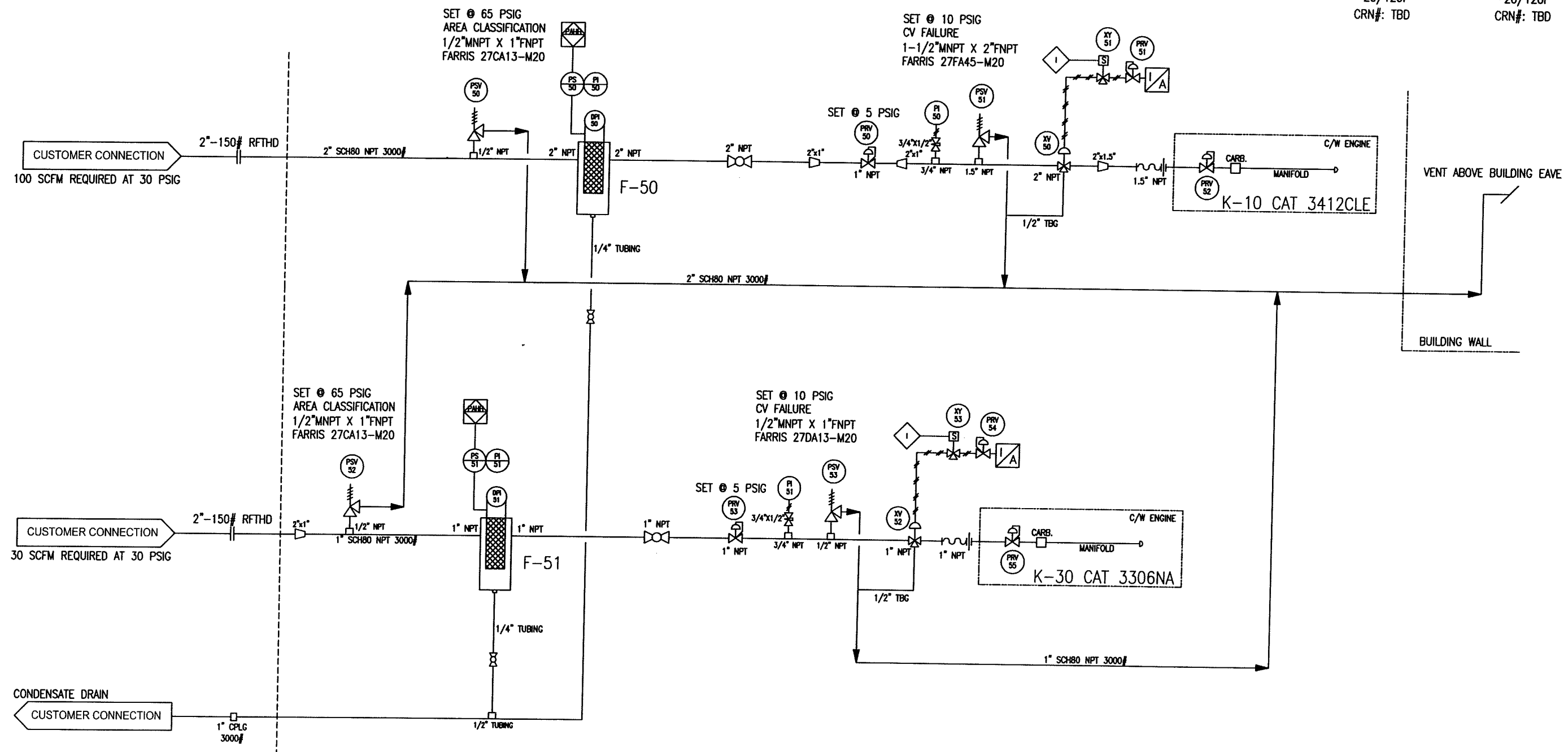
HUSKY HWVP PILOT PROJECT  
NITROGEN GENERATION / INJECTION  
COOLANT UTILITY DIAGRAM

PROJECT: FE11001-PID-04  
REV: 3  
DWG: FE11001-PID-04  
SHEET: 4/8

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**F-50**  
 FUEL GAS FILTER  
 HEADLINE 390AF-50C  
 MAWP: 250 PSIG  
 -20/120F  
 CRN#: TBD

**F-51**  
 FUEL GAS FILTER  
 HEADLINE 385AF-50C  
 MAWP: 250 PSIG  
 -20/120F  
 CRN#: TBD



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			3	AS-BUILT	12.13.2011	JC	CK	TS

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**FUEL ENERGY SERVICES LTD.**

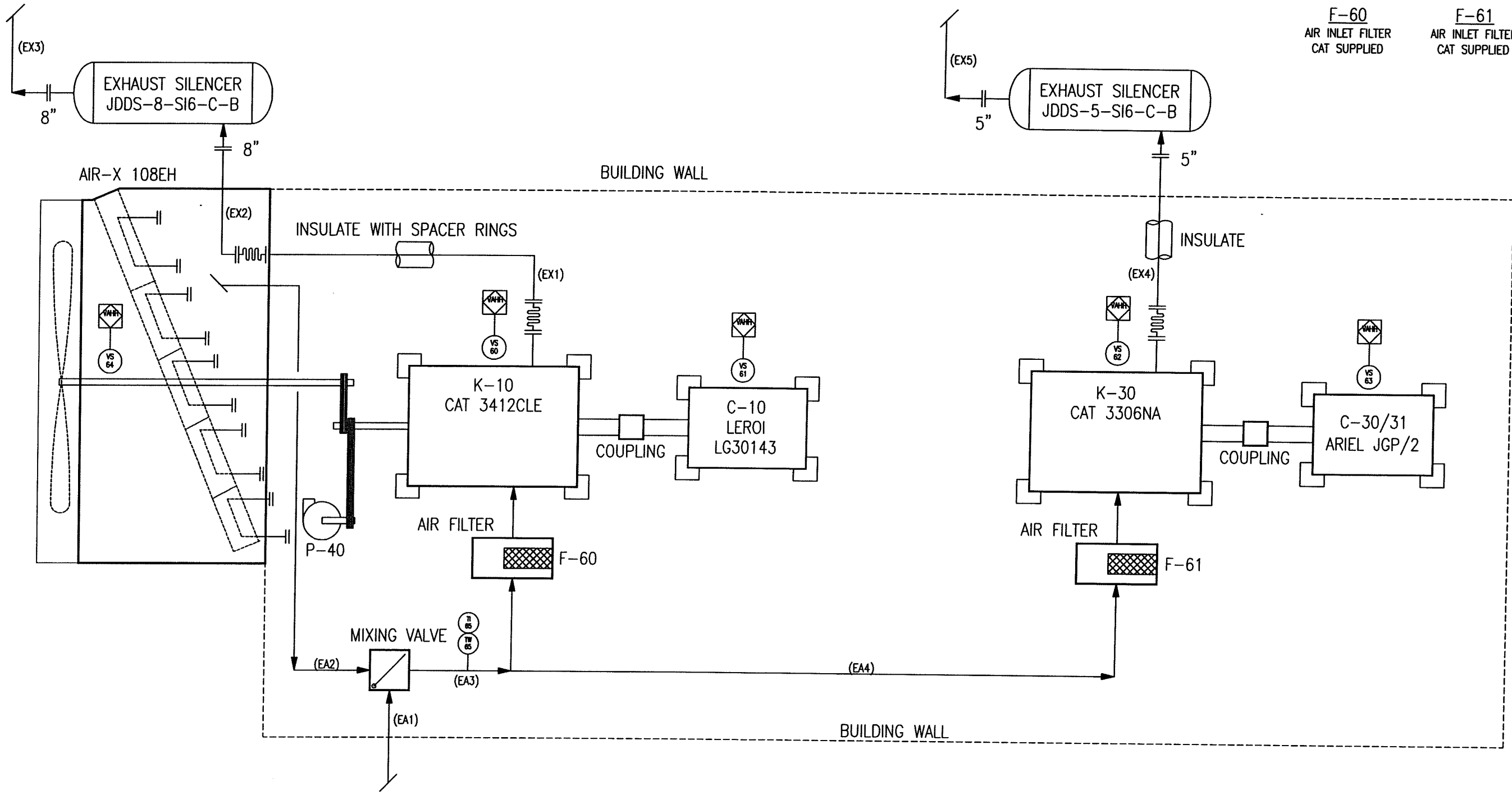
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HUSKY HWVP PILOT PROJECT  
 NITROGEN GENERATION / INJECTION  
 FUEL GAS UTILITY DIAGRAM

PROJECT: FE11001-PID-05  
 REV: 3  
 SHEET: 5/8

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F-60  
AIR INLET FILTER  
CAT SUPPLIED

F-61  
AIR INLET FILTER  
CAT SUPPLIED

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			3	AS-BUILT	12.13.2011	JC	CK	TS	

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**Husky Energy**

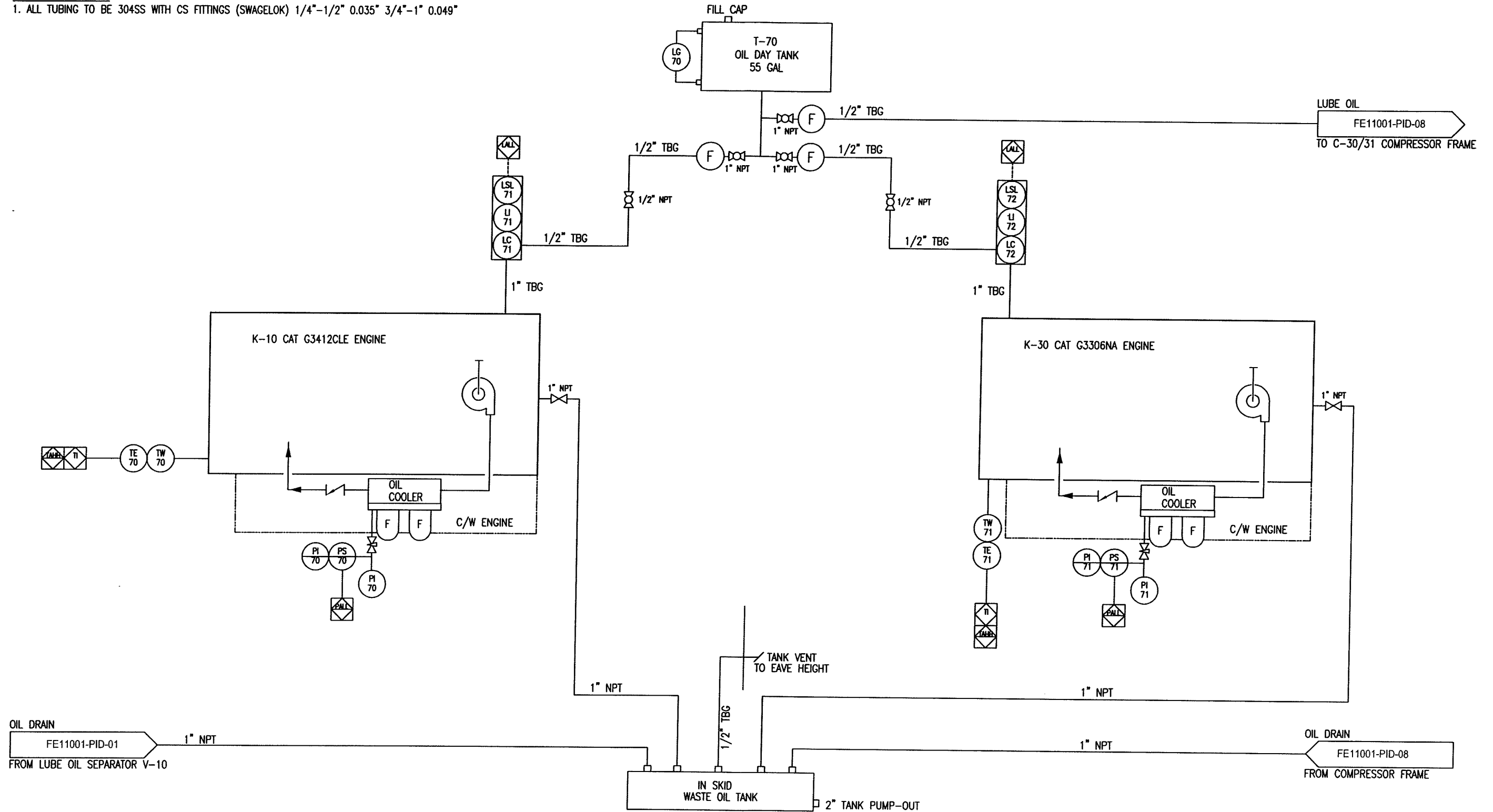
HUSKY HWVP PILOT PROJECT  
NITROGEN GENERATION / INJECTION  
MAJOR EQUIPMENT UTILITY DIAGRAM

PROJECT: FE11001-PID-06  
REV: 3  
DWG: FE11001-PID-06  
SHEET: 6/8

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PROJECT: \_\_\_\_\_  
 REV: 3  
 DWG: FE11001-PID-07  
 SHEET: 7/8

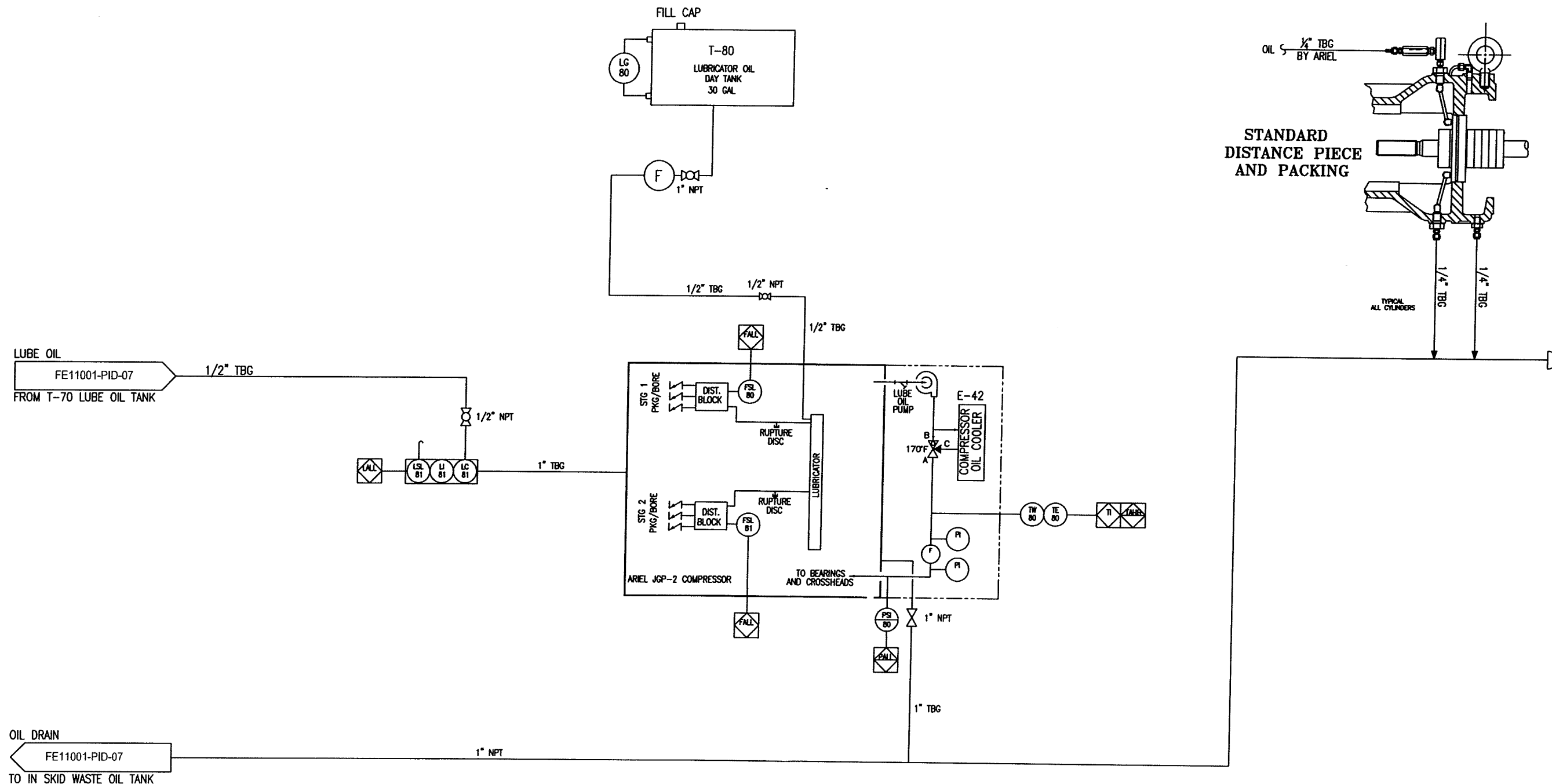
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**Husky Energy**  
 HUSKY HWVP PILOT PROJECT  
 NITROGEN GENERATION / INJECTION  
 ENGINE OIL UTILITY DIAGRAM

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**Husky Energy**

HUSKY HWVP PILOT PROJECT  
NITROGEN GENERATION / INJECTION  
COMPRESSOR OIL UTILITY DIAGRAM

PROJECT	REV	DWG	SHEET
	3	FE11001-PID-08	8/8

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