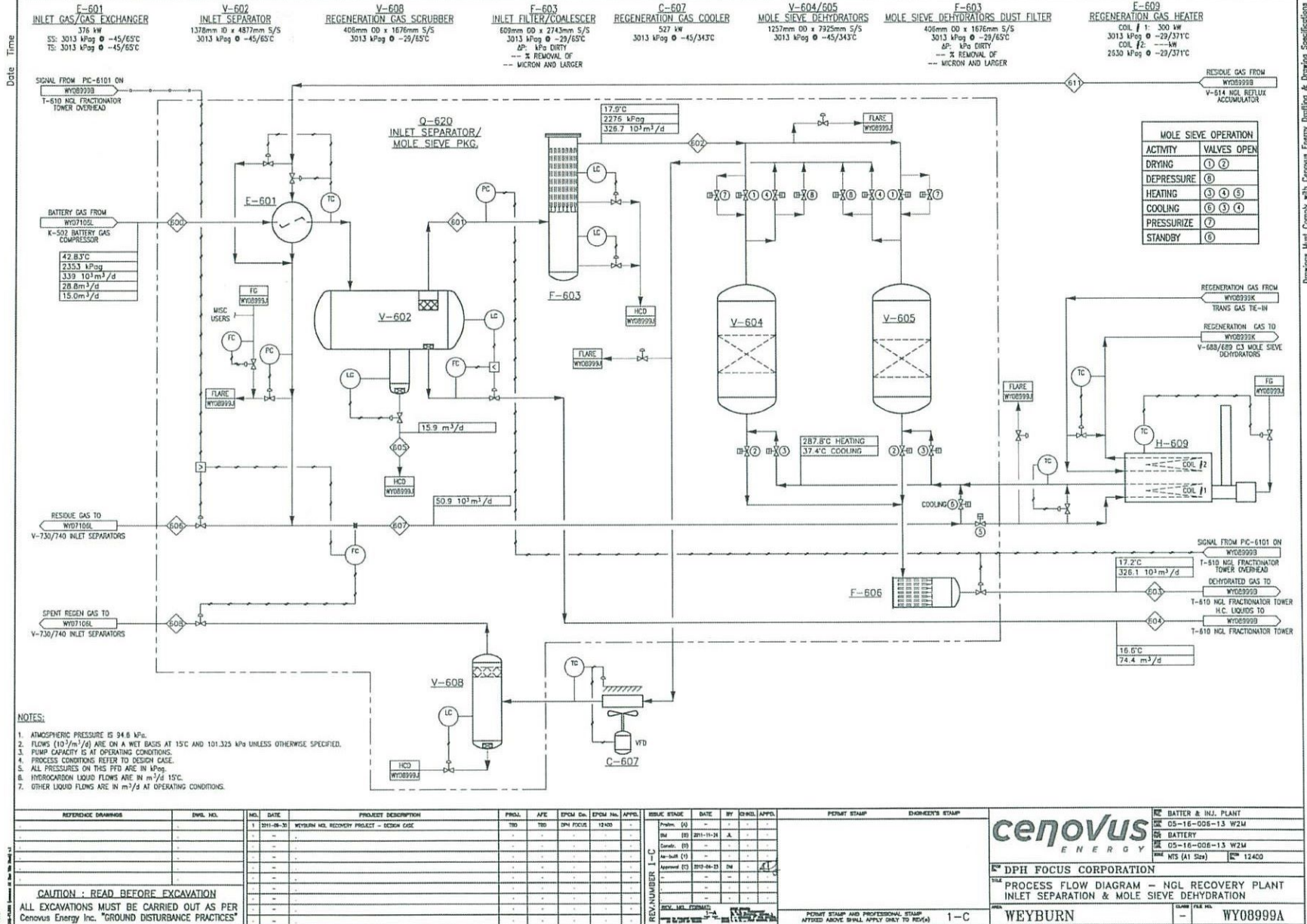
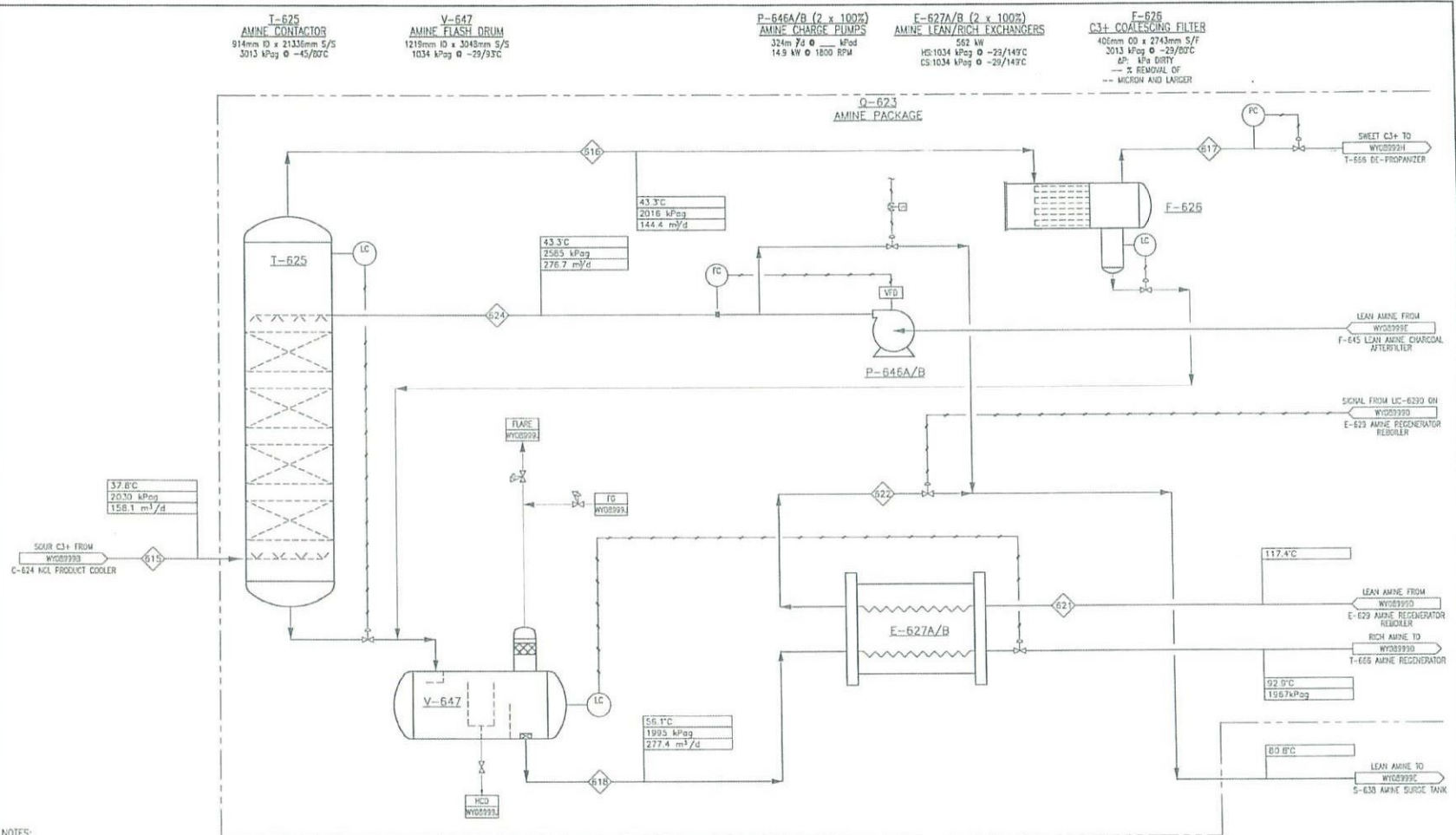




Rev 01 2012 8/13/20 10:00 AM
 Drawn by: S. V. S. (S. V. S.)
 Checked by: S. V. S. (S. V. S.)
 Approved by: S. V. S. (S. V. S.)
 Date: 2012 8/13/20

Drawings Must Comply with Cenovus Entry Drafting & Drawing Specifications

Date Time



NOTES:

1. ATMOSPHERIC PRESSURE IS 94.6 kPa
2. FLOWS (m³/h) ARE ON A WET BASIS AT 15°C AND 101.325 kPa UNLESS OTHERWISE SPECIFIED
3. PUMP CAPACITY IS AT OPERATING CONDITIONS
4. PROCESS CONDITIONS REFER TO DESIGN CASE
5. ALL PRESSURES ON THIS PFD ARE IN kPag
6. HYDROCARBON LIQUID FLOWS ARE IN m³/d 15°C
7. OTHER LIQUID FLOWS ARE IN m³/d AT OPERATING CONDITIONS
8. AMINE PACKAGE TO BE DESIGNED TO HANDLE DGA AND DEA

REFERENCE DRAWINGS	DWG. NO.	NO.	DATE	PROJECT DESCRIPTION	PROJ.	ATE	EPN CH.	EPN CH.	APPRO.
		1	2011-08-28	WEYBURN NGL RECOVERY PACKAGE - DESIGN CASE	100	100	001	1000	1000

CAUTION: READ BEFORE EXCAVATION
ALL EXCAVATIONS MUST BE CARRIED OUT AS PER Cenovus Energy Inc. "GROUND DISTURBANCE PRACTICES"

REVISION	NO.	DATE	DESCRIPTION	BY	CHKD.	APPR.
1	01	2011-01-24	JL			
2	02	2011-01-24	JL			
3	03	2011-01-24	JL			
4	04	2011-01-24	JL			
5	05	2011-01-24	JL			
6	06	2011-01-24	JL			
7	07	2011-01-24	JL			
8	08	2011-01-24	JL			
9	09	2011-01-24	JL			
10	10	2011-01-24	JL			

PERMIT STAMP	ENGINEER'S STAMP

cenovus ENERGY

DPH FOCUS CORPORATION

PROCESS FLOW DIAGRAM - NGL RECOVERY PLANT AMINE CONTACTOR & LEAN/RICH EXCHANGERS

WEYBURN

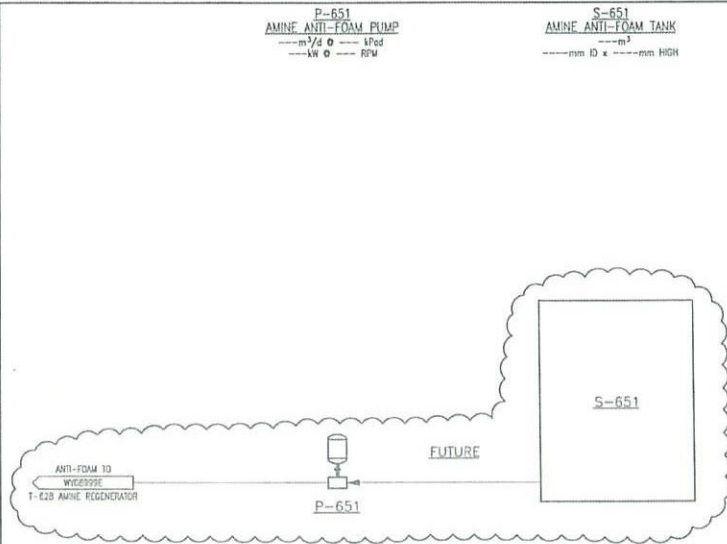
WY08999C

MAY 01 2012



1

April 30, 2012 12:19:22 p.m.
Drawing: C:\PDA\CDRAW\5117403\99945\FLOW\99945.DWG TAG NAME: MODEL
DATE



NOTES:

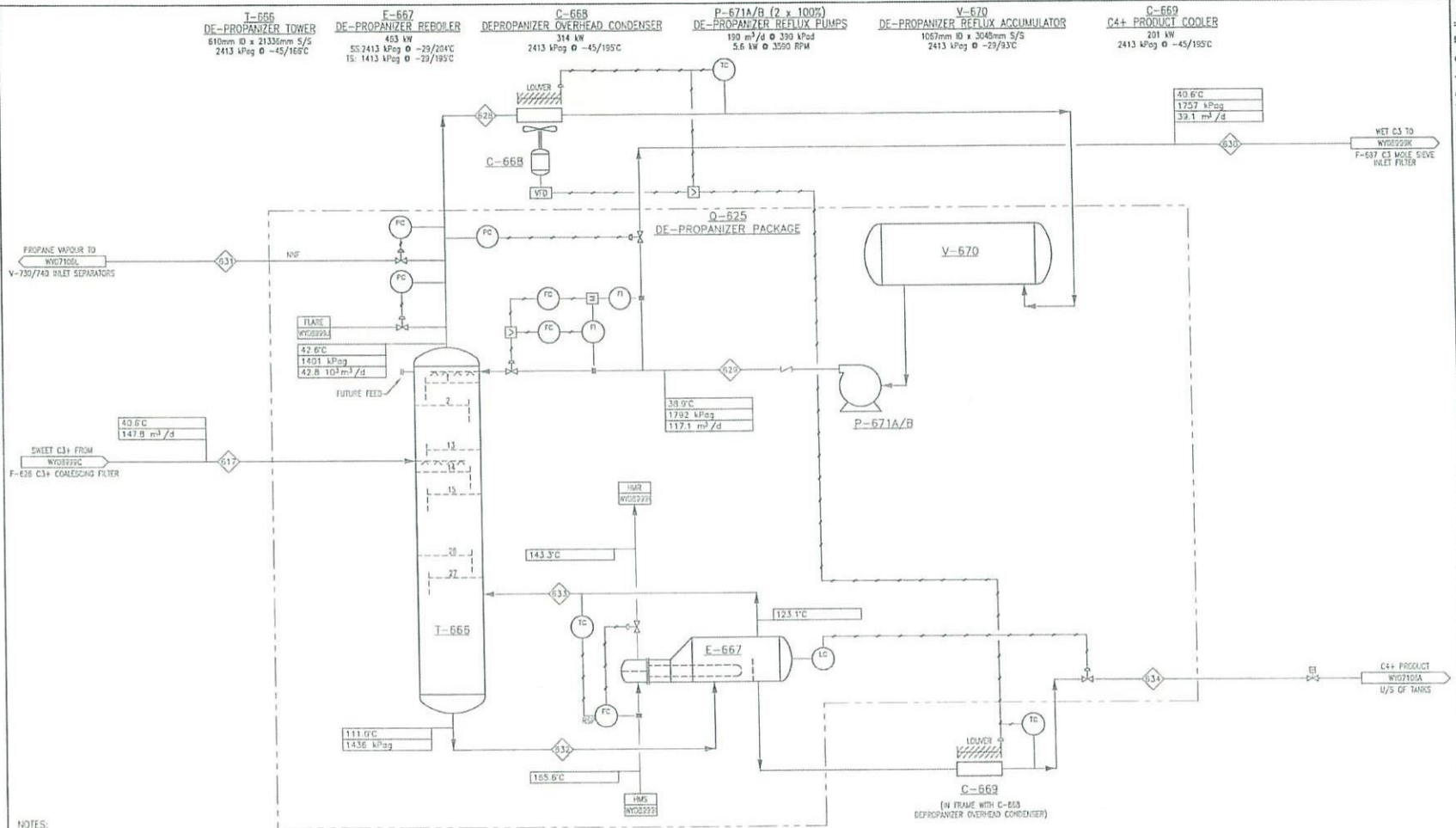
1. ATMOSPHERIC PRESSURE IS 94.6 kPa.
2. PUMP CAPACITY IS AT OPERATING CONDITIONS.
3. ABOVE GROUND PRESSURE VESSEL.
4. AMINE PACKAGE TO BE DESIGNED TO HANDLE DGA AND DEA.

REFERENCE DRAWINGS	DWG. NO.	NO.	DATE	PROJECT DESCRIPTION	PROJ.	A/E	ENGR. CH.	DWG. MAN.	APPROV.	ISSUE STAGE	DATE	BY	DWG. APPROV.	PERMIT STAMP	ENGINEER'S STAMP	 BATTERY & INJ. PLANT 05-16-COB-13 W2M 05 BATTERY 05-16-COB-13 W2M DATE NIS (At Site) REV 12400									
		1	2011-09-20	WEYBURN NGL RECOVERY PACKAGE - DESIGN DATE	100	100	DPH FOCUS	13450		Prelim. (0)	2011-01-24	JL													
		2								Iss. (0)	2011-01-24	JL													
		3								Constr. (0)															
		4								As-built (1)															
		5								Approved (5)	2012-01-23	EW	AS												
		6																							
		7																							
		8																							
		9																							
CAUTION : READ BEFORE EXCAVATION										REV. NO. FORMS 1-10 11-20 21-30 31-40 41-50 51-60 61-70 71-80 81-90 91-100						PERMIT STAMP AND PROFESSIONAL STAMP ATTACHED ABOVE, SHALL APPLY ONLY TO REV(S) 1-C		1-C							
ALL EXCAVATIONS MUST BE CARRIED OUT AS PER Cenovus Energy Inc. "GROUND DISTURBANCE PRACTICES"																									
										TITLE						PROCESS FLOW DIAGRAM - NGL RECOVERY PLANT AMINE DRAIN DRUM/PUMP & AMINE ANTI-FOAM TANK/PUMP		NO.		WEYBURN		SHEET NO.		WY08999F	

Drawings Must Comply with Consensus Energy Drilling & Drawing Specifications

May 01 2012

Date Time



NOTES:

1. ATMOSPHERIC PRESSURE IS 94.6 kPa.
2. FLOWS (m³/d) ARE ON A WET BASIS AT 15°C AND 101.325 kPa UNLESS OTHERWISE SPECIFIED.
3. PUMP CAPACITY IS AT OPERATING CONDITIONS.
4. PROCESS CONDITIONS REFER TO DESIGN CASE.
5. ALL PRESSURES ON THIS PFD ARE IN kPa(g).
6. HYDROCARBON LIQUID FLOWS ARE IN m³/d 15°C.
7. OTHER LIQUID FLOWS ARE IN m³/d AT OPERATING CONDITIONS.
8. AMINE PACKAGE TO BE DESIGNED TO HANDLE DGA AND DEA.

REVISION	DATE	DESCRIPTION	PROJ.	APP.	DATE	BY	CHK.	APP.
1	2011-08-30	WETBURN NGL RECOVERY PACKAGE - DESIGN CASE	T00	T00	2011-08-30	JL		
2	2011-09-01	REVISED FOR DESIGN CHANGES	T00	T00	2011-09-01	JL		
3	2011-09-01	REVISED FOR DESIGN CHANGES	T00	T00	2011-09-01	JL		
4	2011-09-01	REVISED FOR DESIGN CHANGES	T00	T00	2011-09-01	JL		
5	2011-09-01	REVISED FOR DESIGN CHANGES	T00	T00	2011-09-01	JL		
6	2011-09-01	REVISED FOR DESIGN CHANGES	T00	T00	2011-09-01	JL		
7	2011-09-01	REVISED FOR DESIGN CHANGES	T00	T00	2011-09-01	JL		
8	2011-09-01	REVISED FOR DESIGN CHANGES	T00	T00	2011-09-01	JL		
9	2011-09-01	REVISED FOR DESIGN CHANGES	T00	T00	2011-09-01	JL		
10	2011-09-01	REVISED FOR DESIGN CHANGES	T00	T00	2011-09-01	JL		

CAUTION : READ BEFORE EXCAVATION
ALL EXCAVATIONS MUST BE CARRIED OUT AS PER Cenovus Energy Inc. "GROUND DISTURBANCE PRACTICES"

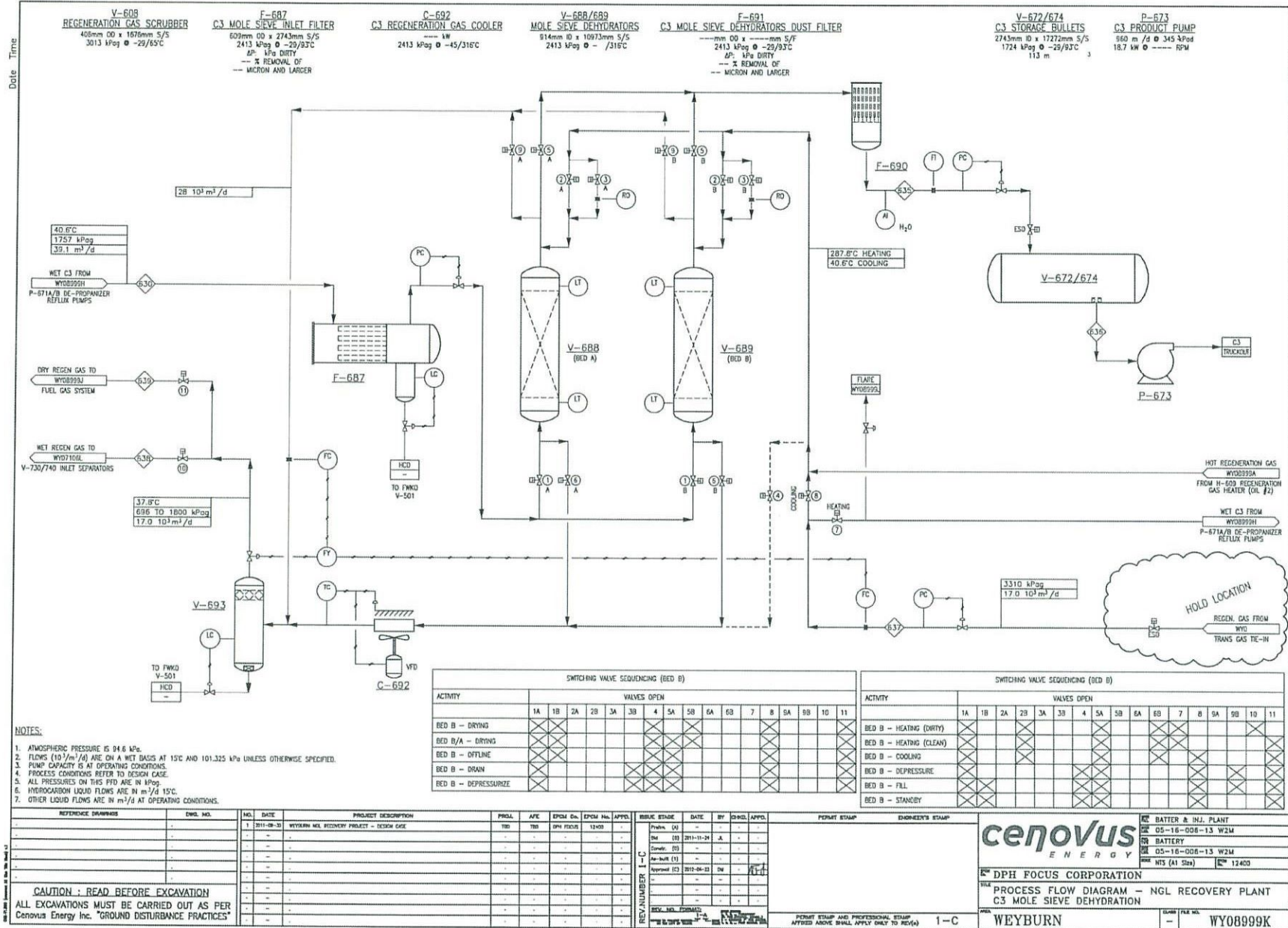
PERMIT STAMP AND PROFESSIONAL STAMP
ATTACHED ABOVE SHALL APPLY ONLY TO REV(S)

1-C

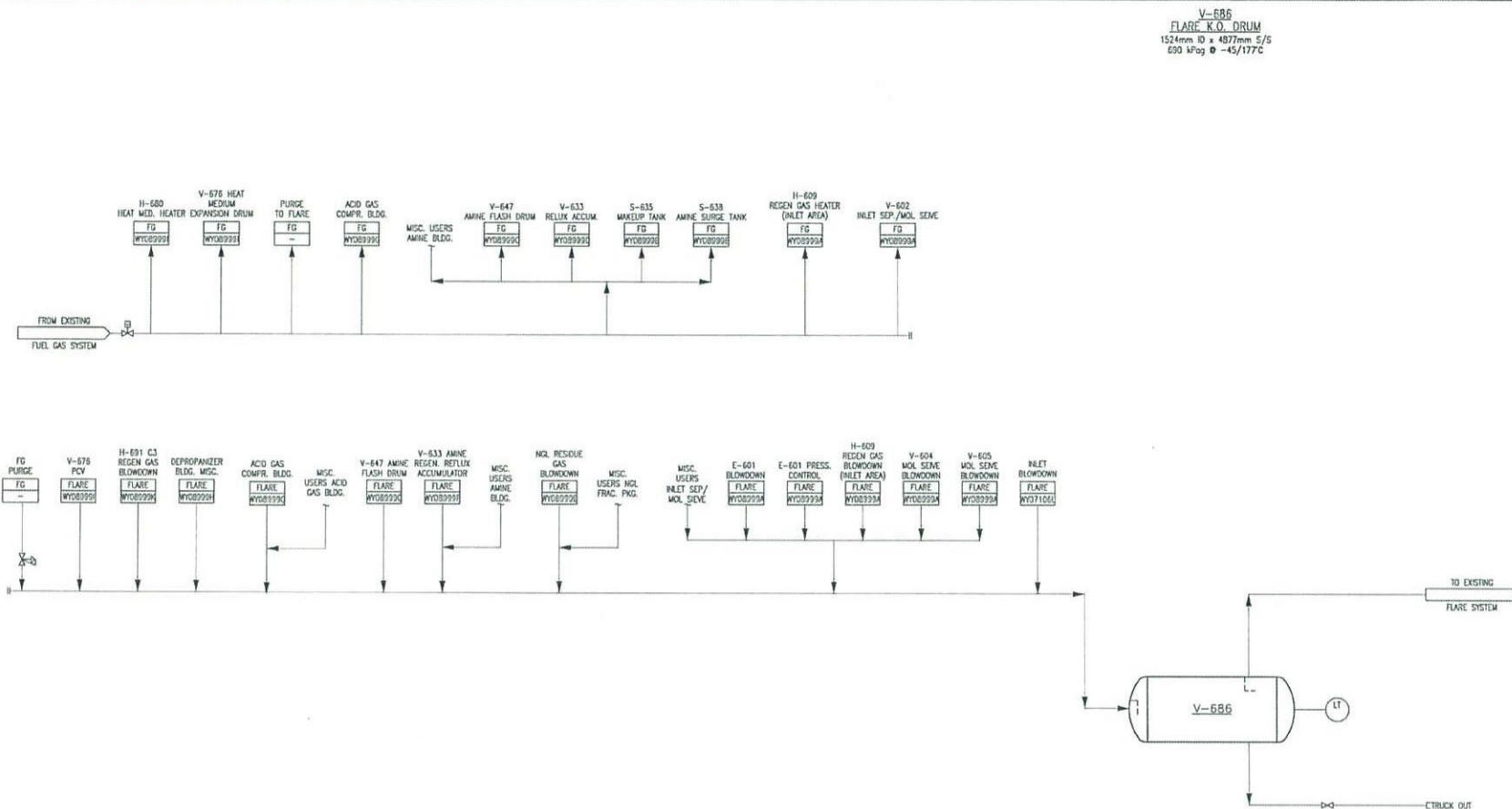
cenovus ENERGY		BATTER & INJ. PLANT	
DPH FOCUS CORPORATION		05-16-006-13 W2M	
PROCESS FLOW DIAGRAM - NGL RECOVERY PLANT		05-16-006-13 W2M	
DE-PROPANIZER PACKAGE		05-16-006-13 W2M	
WEYBURN		12403	
FILE NO.		WY08999H	

Drawings Must Comply with Cenovus Energy Drilling & Mining Specifications

MAY 01 2012



May 07, 2012 8:15:13 a.m.
Drawing: C:\PSCAD\CONVENTS\12400\PPENG\FLOW\INTERMEDIATE.DWG TAB NAME: MODEL



NOTES:

1. ATMOSPHERIC PRESSURE IS 94.8 kPa.
2. FLOWS ($10^3/\text{m}^3/\text{d}$) ARE ON A WET BASIS AT 15°C AND 101.325 kPa UNLESS OTHERWISE SPECIFIED.
3. PUMP CAPACITY IS AT OPERATING CONDITIONS.
4. PROCESS CONDITIONS REFER TO DESIGN CASE.
5. ALL PRESSURES ON THIS PFD ARE IN kPa_g.
6. HYDROCARBON LIQUID FLOWS ARE IN m^3/d 15°C.
7. OTHER LIQUID FLOWS ARE IN m^3/d AT OPERATING CONDITIONS.

REFERENCE DRAWING DWG. NO.		NO. DATE PROJECT DESCRIPTION 1 2011-09-30 WEYBURN NGL RECOVERY PACKAGE - DESIGN DATE		PERIL AFE EPDM DIA. EPDM IN. APPS. YES YES 0PM FOCUS 132IN		ISSUE DATE DATE BY CHG. APPD. Design (2) 2011-11-24 A. AL Consult (2) 2011-11-24 A. AL As-built (1) 2011-09-30 Dn AL Approved (2) 2011-09-30 Dn AL Rev. No. Formed		PERMIT STAMP ENGINEER'S STAMP 1-C		CE BATTER & INJ. PLANT CE 05-18-008-13 W2M CE BATTERY CE 05-18-008-13 W2M CE NTS (A1 Size) CE 12400	
CAUTION - READ BEFORE EXCAVATION ALL EXCAVATIONS MUST BE CARRIED OUT AS PER Cenovus Energy Inc. "GROUND DISTURBANCE PRACTICES"		REV. NUMBER 1-C		PERMIT STAMP AND PROFESSIONAL STAMP WEYBURN		DPH FOCUS CORPORATION PROCESS FLOW DIAGRAM - NGL RECOVERY PLANT FUEL GAS & FLARE SYSTEM		1-C		WY080999J	

Drawings Must Comply with Consensus Energy Drafting & Drawing Specifications

MAY 07 2012

NOTES:
1. VAPOUR FLOW RATES ARE AT STANDARD CONDITIONS OF 101.325kPa_{abs} AND 15°C. ATMOSPHERIC PRESSURE IS 94.6 kPa_{abs}.

MAY 07 2012

Date Time

Component Name	Units	610 NGL Overheads To Condenser	611 Residue Gas To Gas/Gas Exchanger	612 Reflux To NGL Frac Tower	613 Bottoms To NGL Frac Reboiler	614 Boilup To NGL Frac Tower	615 Sour C3+ To Amine Contactor	616 Sweet C3+ To C3+ Filter	617 Sweet C3+ To De-Propanizer	618 Rich Amine To Lean/Rich Exchanger	619 Overheads To Amine Regen Cond
Nitrogen	kgmole/h	2.32	2.25	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CO2	kgmole/h	745.78	493.22	252.56	54.75	47.73	7.02	0.09	0.09	7.04	6.55
Methane	kgmole/h	12.06	11.39	0.67	0.01	0.01	0.00	0.00	0.03	0.00	0.00
Ethane	kgmole/h	15.36	12.18	3.18	4.23	3.31	0.92	0.77	0.92	0.00	0.00
Propane	kgmole/h	13.30	7.68	5.63	44.68	25.97	17.91	17.64	17.91	0.07	0.07
i-Butane	kgmole/h	0.29	0.11	0.17	9.69	4.34	5.55	5.51	5.55	0.01	0.01
n-Butane	kgmole/h	0.14	0.04	0.10	24.81	9.50	15.31	15.25	15.31	0.02	0.02
i-Pentane	kgmole/h	0.00	0.00	0.00	6.61	1.61	4.99	4.99	4.99	0.01	0.01
n-Pentane	kgmole/h	0.00	0.00	0.00	6.57	1.45	5.12	5.11	5.12	0.01	0.01
n-Hexane	kgmole/h	0.00	0.00	0.00	4.74	0.48	4.26	9.43	4.26	0.01	0.01
n-Heptane	kgmole/h	0.00	0.00	0.00	2.55	0.15	2.80	0.00	2.80	0.00	0.00
n-Octane	kgmole/h	0.00	0.00	0.00	2.43	0.06	2.37	0.00	2.37	0.00	0.00
H2O	kgmole/h	0.00	0.00	0.15	0.13	0.02	0.05	0.05	0.05	463.87	16.65
H2S	kgmole/h	20.55	12.36	8.18	15.84	12.13	3.72	0.00	0.00	4.20	4.15
COS	kgmole/h	0.00	0.00	0.13	0.08	0.05	0.00	0.00	0.00	0.00	0.00
CS2	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M-Mercaptan	kgmole/h	0.00	0.00	0.00	0.21	0.10	0.11	0.00	0.06	0.00	0.00
E-Mercaptan	kgmole/h	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00
dM-Sulphide	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2C3Mercaptan	kgmole/h	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
t-B-Mercapta	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C2C4Sulphide	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TrC1-Sulfid	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Thiophene	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2Butanethiol	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
dMaSulphid	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EGlycol	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DEAmine	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34.07	0.09
Total	kgmole/h	809.80	539.24	270.55	178.23	103.05	70.17	59.04	59.46	509.31	27.91
Mass Flow Rate	kg/h	34853.56	23087.59	11765.97	9027.71	4903.66	4123.85	3562.24	3687.51	12398.76	755.31
Mass Flow Rate (dry)	kg/h	34853.56	23087.59	11765.97	9025.00	4901.53	4123.47	3561.26	3686.53	12398.76	455.17
Vapour Flow Rate	kg/h	34853.56	23087.54	—	0.00	4903.66	—	—	—	—	692.46
Hydrocarbon Std. Flow Rate	m ³ /h	—	0.00	14.44	13.59	—	6.59	6.02	6.16	0.01	—
Water Std. Flow Rate	m ³ /h	—	—	—	—	—	—	—	—	11.56	0.05
Pressure	kPa	2224.8	2204.1	2732.7	2238.6	2238.6	2124.5	2110.6	1723.7	2089.5	175.6
Temperature	C	-16.8	-17.6	-17.2	9.0	59.9	37.8	43.3	40.6	55.1	97.9
Molecular Weight	—	43.0	42.8	43.5	50.7	45.4	58.0	60.3	62.0	24.3	27.1
Specific Gravity (at 15°C)	—	1.4951	—	0.8156	0.6647	1.5670	0.6267	0.5926	0.5992	1.0734	—
Gas Density	kg/m ³	57.9	57.0	—	51.1	45.0	—	—	—	—	1.6
Hydrocarbon Density	kg/m ³	—	999.3	999.6	675.7	—	597.1	561.3	570.7	532.9	—
Water Density	kg/m ³	—	—	—	—	—	—	—	—	1055.9	1072.0
Viscosity	cP	0.0131	0.0131	0.1416	0.1698	0.0131	0.1556	0.1572	0.1585	0.6380	—
Vapour Fraction	—	1.0000	1.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.8751

NOTES:

1. VAPOUR FLOW RATES ARE AT STANDARD CONDITIONS OF 101.325kPa
AND 15°C. ATMOSPHERIC PRESSURE IS 94.6 kPa.

REFERENCE DRAWINGS	ENCL. NO.	NO.	DATE	PROJECT DESCRIPTION	PROJ.	A/E	ENCL. NO.	ENCL. NO.	APPL.	ISSUE STAGE	DATE	BY	CHKS.	APPL.	POINT STAMP	ENGINEER'S STAMP	CE NOVUS ENERGY	CE BATTERY & INJ. PLANT
		1	2011-09-30	WEYBURN NGL RECOVERY PHASE - DESIGN CASE	TBD	TBD	SPN	FIGURE	12400	Final (S)	—	—	—	—			CE 05-16-006-13 W2M	CE BATTERY
		2	—	—	—	—	—	—	—	Rev (S)	2011-11-24	A	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		3	—	—	—	—	—	—	—	Design (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		4	—	—	—	—	—	—	—	As-built (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		5	—	—	—	—	—	—	—	Approved (S)	2012-09-23	DN	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		6	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		7	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		8	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		9	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		10	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		11	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		12	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		13	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		14	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		15	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		16	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		17	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		18	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		19	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		20	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
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		22	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		23	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		24	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
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		27	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		28	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		29	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		30	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		31	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		32	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		33	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		34	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		35	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		36	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		37	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		38	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		39	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		40	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		41	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		42	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		43	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		44	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		45	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		46	—	—	—	—	—	—	—	Rev (S)	—	—	—	—			CE 05-16-006-13 W2M	CE 05-16-006-13 W2M
		47	—	—	—	—	—	—	—	Rev (S)	—							

Date Time

Component Name	Units	620 Reflux To Amine Regen Tower	621 Reflux To Amine Regen Tower	622 Lean Amine To Amine Surge Tank	623 Lean Amine To Lean Amine Cooler	624 Lean Amine To Amine Contactor	625 Water Make Up To Amine Surge Tank	626 Acid Gas To Compressor Suction	627 Acid Gas To Inlet Separators	628 Overheads To De-Prop Cond	629 Reflux To De-Prop Tower
Nitrogen	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CO2	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	6.38	6.35	0.36	0.27
Methane	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ethane	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.69	2.76
Propane	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.07	69.91	52.41
i-Butane	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	1.11	0.83
n-Butane	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.29	0.21
i-Pentane	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
n-Pentane	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
n-Hexane	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
n-Heptane	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
n-Octane	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H2O	kgmole/h	15.97	463.92	463.92	463.92	463.92	0.45	0.64	0.05	0.00	0.00
H2S	kgmole/h	0.00	0.05	0.05	0.05	0.05	0.00	3.81	0.00	0.00	0.00
COS	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CS2	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M-Mercaptan	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.03
E-Mercaptan	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d-M-Sulphide	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2C3Mercaptan	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
i-B-Mercapta	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C2iC4Sulfide	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TrnC1=Sulfid	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Thiophene	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2Butanethiol	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
dMd-Sulphid	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
E-Glycol	kgmole/h	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DEAmine	kgmole/h	0.00	34.07	34.07	34.07	34.07	0.00	0.00	0.00	0.00	0.00
Total	kgmole/h	15.97	498.12	498.12	498.12	498.12	0.45	10.96	6.52	75.48	55.57
Mass Flow Rate	kg/h	287.69	11944.61	11944.61	11944.61	11944.61	8.17	429.19	287.25	3295.99	2470.80
Mass Flow Rate (dry)	kg/h	0.05	3587.03	3587.03	3587.03	3587.03	0.00	417.72	286.43	3295.99	2470.80
Vapour Flow Rate	kg/h	---	3587.66	---	---	---	---	429.04	287.21	3295.99	---
Hydrocarbon Std. Flow Rate	m3/h	---	---	---	---	---	---	---	---	---	4.88
Water Std. Flow Rate	m3/h	0.29	7.85	11.53	11.53	11.53	0.01	0.00	0.00	---	---
Pressure	kPa	182.6	163.5	156.7	577.2	2679.6	99.0	154.6	1818.6	1496.2	1866.1
Temperature	C	43.3	117.4	80.8	80.8	43.3	15.6	43.3	48.9	42.6	38.9
Molecular Weight	---	18.0	24.0	24.0	24.0	24.0	18.0	39.2	44.0	43.7	43.7
Specific Gravity (at 15°C)	---	0.9995	---	1.0369	1.0369	1.0369	0.9995	---	---	1.5080	0.5066
Gas Density	kg/m3	---	0.9	---	---	---	---	2.3	32.7	32.9	---
Hydrocarbon Density	kg/m3	---	---	---	---	---	---	---	---	---	468.7
Water Density	kg/m3	990.9	937.5	1003.6	1003.6	1026.0	993.6	990.6	1040.5	---	---
Viscosity	cP	0.6059	---	0.7496	0.7496	1.6839	1.1306	---	---	0.0096	0.0855
Vapour Fraction	---	0.0000	0.4106	0.0000	0.0000	0.0000	0.0000	0.9922	0.9997	1.0000	0.0000

NOTES:
1. VAPOUR FLOW RATES ARE AT STANDARD CONDITIONS OF 101.325kPa
AND 15°C. ATMOSPHERIC PRESSURE IS 94.6 kPa.

REFERENCE DRAWINGS	DWG. NO.	NO.	DATE	PROJECT DESCRIPTION	PROJ.	AFE	EPDM Ch.	EPDM No.	APPRO.	REVISION	DATE	BY	CHKD.	APPRO.	PERMIT STAMP	ENGINEER'S STAMP	 BATTERY & INJ. PLANT CS-16-006-13 W2M BATTERY CS-16-006-13 W2M HTS (At Site) 12400
CAUTION : READ BEFORE EXCAVATION					ALL EXCAVATIONS MUST BE CARRIED OUT AS PER Cenovus Energy Inc. "GROUND DISTURBANCE PRACTICES"										DPH FOCUS CORPORATION WEYBURN NGL RECOVERY - MATERIAL BALANCE DESIGN CASE - 10% CO2 WEYBURN		
REV. NO. 1					REV. NO. 1										PERMIT STAMP AND PROFESSIONAL STAMP AFFIXED ABOVE SHALL APPLY ONLY TO REV(S) 1-C		
REV. NO. 1					REV. NO. 1										FILE NO. WY08999N		

Drawings Must Conform with Cenovus Energy Drilling & Mining Specifications

MAY 02 2012

NOTES:
1. VAPOUR FLOW RATES ARE AT STANDARD CONDITIONS OF 101.325 kPa
AND 15°C. ATMOSPHERIC PRESSURE IS 94.6 kPa.

MAY 03 2012