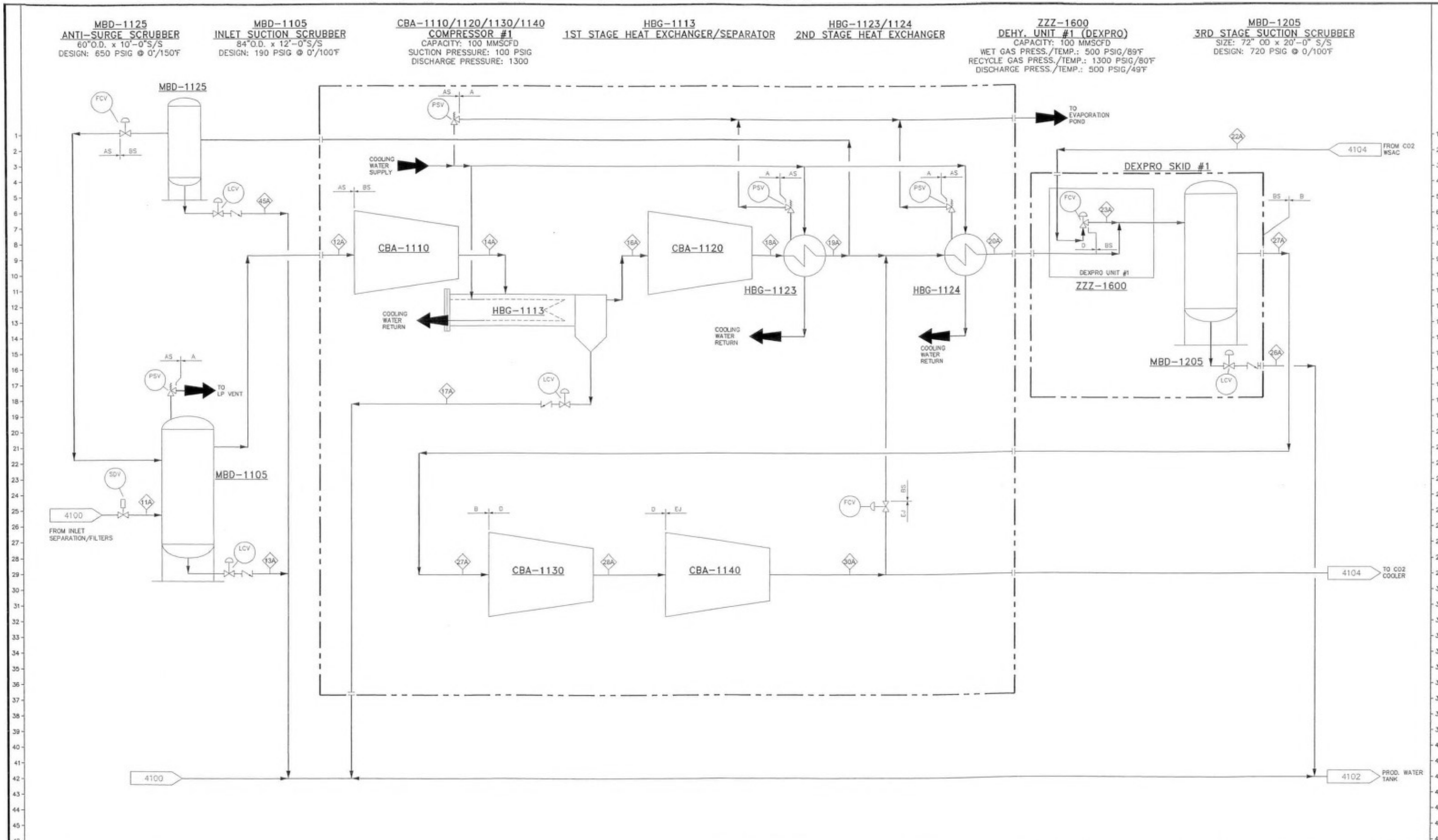

NOTES:

PELICAN Energy Consultants, LLC

REVISIONS			
A	ISSUED FOR REVIEW	10/09/14	NMG

PROCESS FLOW DIAGRAM

DRAWN BY: NMG	REVIEWED BY:	SCALE: N/A
CHECKED BY:	APPROVED BY:	DRAWING NUMBER 4101-131040

PLOT TIME: December 2, 2014 7:52 AM BY: NICOLE GROCE FILE PATH: F:\DRAFTING\CLIENT PROJECTS\

Process Streams		1A/B/C/D	2	3A/B/C	4A/B/C	5A/B/C	6	7A/B/C	7D	8A/B/C	8D	9A/B/C	9D	10	11A/B/C	12A/B/C	13A/B/C	14A/B/C	16A/B/C	17A/B/C	18A/B/C	19A/B/C	20A/B/C
Total	**Units**								(SPARE)		(SPARE)		(SPARE)										
Mole Fraction Vapor		0.8377	0.8377	0.8377	1.0000	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	1.0000	1.0000	1.0000	0.0000	1.0000	1.0000	0.0000	1.0000	1.0000	0.9992
Temperature	°F	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	190	89	89	179	122	89
Pressure	psia	140.2	140.2	140.2	137.2	137.2	137.2	137.2	137.2	136.3	136.3	136.3	136.3	136.3	136.3	135.8	135.8	286.4	280.9	280.9	513.3	508.3	503.3
Molar Flow	MMSCFD	89.5	358.1	119.4	100.0	19.4	300.0	100.0	0.0	100.0	0.0	0.0	0.0	300.0	100.0	100.0	0.0	100.0	100.0	0.0	100.0	100.0	100.0
Mass Flow	lb/h	389057.1	1556228.4	518737.6	480163.0	38574.6	1440489.1	480163.0	0.0	480163.0	0.0	0.0	0.0	1440489.1	480163.0	480163.0	0.0	480163.0	480084.1	79.0	480084.1	480084.1	480084.1
Molar Enthalpy	Btu/lbmol	-160323	-160322	-160323	-167496	-123299	-167496	-167496	-167496	-167496	-167496	-123300	-123300	-167496	-167496	-167496	-123301	-166514	-167576	-123179	-166881	-167522	-167922
Molecular Weight	lb/lbmol	39.57	39.57	39.57	43.73	18.13	43.73	43.73	43.73	43.73	43.73	18.13	18.13	43.73	43.73	43.73	18.13	43.73	43.74	18.21	43.74	43.74	43.74
Mass Density	lb/ft^3	1.2180	1.2180	1.2180	1.1043	63.0637	1.1043	1.1043	1.1043	1.0969	1.0969	53.2667	53.2667	1.0969	1.0969	1.0928	53.2677	1.9085	2.3271	62.7911	3.6895	4.2281	4.6455
Phase: Vapor	**Units**																						
Mass Flow	lb/h	360116.7	1440466.7	480150.8	480163.0	0.0	1440489.1	480163.0	0.0	480163.0	0.0	0.0	0.0	1440489.1	480163.0	480163.0	0.0	480163.0	480084.1	0.0	480084.1	480084.1	479913.2
Molar Flow	MMSCFD	75.0	300.0	100.0	100.0	0.0	300.0	100.0	0.0	100.0	0.0	0.0	0.0	300.0	100.0	100.0	0.0	100.0	100.0	0.0	100.0	100.0	99.9
Vapor Volumetric Flow	ft^3/h	1363446.8	5453787.0	1817910.8	1858710.1	0.0	5576130.3	1858710.1	0.0	1871185.8	0.0	0.0	0.0	5613557.3	1871185.8	1878188.3	0.0	1075464.1	881862.4	0.0	556217.1	485362.0	441746.0
Std Vapor Volumetric Flow	MMSCFD	74.9	299.4	99.8	99.8	0.0	299.5	99.8	0.0	99.8	0.0	0.0	0.0	299.5	99.8	99.8	0.0	99.8	99.8	0.0	99.8	99.8	99.7
Molecular Weight	lb/lbmol	43.73	43.73	43.73	43.73	43.73	43.73	43.73	43.73	43.73	43.73	43.73	43.73	43.73	43.73	43.73	43.73	43.73	43.74	43.74	43.74	43.74	43.76
Mass Density	lb/ft^3	1.1290	1.1290	1.1290	1.1043	1.1043	1.1043	1.1043	1.1043	1.0969	1.0969	1.0969	1.0969	1.0969	1.0969	1.0928	1.0928	1.9085	2.3271	2.3271	3.6895	4.2281	4.6440
Dynamic Viscosity	cP	0.0149	0.0149	0.0149	0.0149	0.0149	0.0149	0.0149	0.0149	0.0149	0.0149	0.0149	0.0149	0.0149	0.0149	0.0149	0.0149	0.0187	0.0157	0.0157	0.0190	0.0174	0.0166
Thermal Conductivity	Btu/(h*ft*°F)	0.0103	0.0103	0.0103	0.0103	0.0103	0.0103	0.0103	0.0103	0.0103	0.0103	0.0103	0.0103	0.0103	0.0103	0.0103	0.0103	0.0136	0.0112	0.0112	0.0141	0.0129	0.0123
Phase: Liquid	**Units**																						
Mass Flow	lb/h	28940.4	115761.7	38586.9	-	38574.6	-	-	-	-	-	0.0	0.0	-	-	-	0.0	-	-	79.0	-	-	170.9
Molar Flow	MMSCFD	14.5	58.1	19.4	-	19.4	-	-	-	-	-	0.0	0.0	-	-	-	0.0	-	-	0.0	-	-	0.1
Liquid Volumetric Flow	usgpm	57.2	228.9	76.3	-	76.3	-	-	-	-	-	0.0	0.0	-	-	-	0.0	-	-	0.2	-	-	0.3
Std Liquid Volumetric Flow	barrel/day	1990.2	7961.0	2653.6	-	2652.7	-	-	-	-	-	0.0	0.0	-	-	-	0.0	-	-	5.4	-	-	11.8
Molecular Weight	lb/lbmol	18.1	18.1	18.1	-	18.1	-	-	-	-	-	18.1	18.1	-	-	-	18.1	-	-	18.2	-	-	18.3
Mass Density	lb/ft^3	63.1	63.1	63.1	-	63.1	-	-	-	-	-	53.3	53.3	-	-	-	53.3	-	-	62.8	-	-	62.9
Dynamic Viscosity	cP	0.9	0.9	0.9	-	0.9	-	-	-	-	-	0.8	0.8	-	-	-	0.8	-	-	0.8	-	-	0.8
Thermal Conductivity	Btu/(h*ft*°F)	0.3	0.3	0.3	-	0.3	-	-	-	-	-	0.3	0.3	-	-	-	0.3	-	-	0.4	-	-	0.4
Surface Tension	lbf/ft	71.93	71.93	71.93	-	71.96	-	-	-	-	-	71.98	71.98	-	-	-	71.98	-	-	70.42	-	-	70.04
Mole Fraction																							
CO2		82.67%	82.67%	82.67%	98.60%	0.45%	98.60%	98.60%	98.60%	98.60%	98.60%	0.45%	0.45%	98.60%	98.60%	98.60%	0.45%	98.60%	98.64%	0.75%	98.64%	98.64%	98.64%
Nitrogen		0.79%	0.79%	0.79%	0.94%	0.00%	0.94%	0.94%	0.94%	0.94%	0.94%	0.00%	0.00%	0.94%	0.94%	0.94%	0.00%	0.94%	0.94%	0.00%	0.94%	0.94%	0.94%
Helium		0.07%	0.07%	0.07%	0.08%	0.00%	0.08%	0.08%	0.08%	0.08%	0.08%	0.00%	0.00%	0.08%	0.08%	0.08%	0.00%	0.08%	0.08%	0.00%	0.08%	0.08%	0.08%
Methane		0.02%	0.02%	0.02%	0.02%	0.00%	0.02%	0.02%	0.02%	0.02%	0.02%	0.00%	0.00%	0.02%	0.02%	0.02%	0.00%	0.02%	0.02%	0.00%	0.02%	0.02%	0.02%
Ethylene Glycol		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
H2O		16.46%	16.46%	16.46%	0.36%	99.55%	0.36%	0.36%	0.36%	0.36%	0.36%	99.55%	99.55%	0.36%	0.36%	0.36%	99.55%	0.36%	0.32%	99.25%	0.32%	0.32%	0.32%
Mass Fraction																							
CO2		91.94%	91.94%	91.94%	99.24%	1.09%	99.24%	99.24%	99.24%	99.24%	99.24%	1.09%	1.09%	99.24%	99.24%	99.24%	1.09%	99.24%	99.25%	1.82%	99.25%	99.25%	99.25%
Nitrogen		0.56%	0.56%	0.56%	0.60%	0.00%	0.60%	0.60%	0.60%	0.60%	0.60%	0.00%	0.00%	0.60%	0.60%	0.60%	0.00%	0.60%	0.60%	0.00%	0.60%	0.60%	0.60%
Helium		0.01%	0.01%	0.01%	0.01%	0.00%	0.01%	0.01%	0.01%	0.01%	0.01%	0.00%	0.00%	0.01%	0.01%	0.01%	0.00%	0.01%	0.01%	0.00%	0.01%	0.01%	0.01%
Methane		0.01%	0.01%	0.01%	0.01%	0.00%	0.01%	0.01%	0.01%	0.01%	0.01%	0.00%	0.00%	0.01%	0.01%	0.01%	0.00%	0.01%	0.01%	0.00%	0.01%	0.01%	0.01%
Ethylene Glycol		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
H2O		7.49%	7.49%	7.49%	0.15%	98.91%	0.15%	0.15%	0.15%	0.15%	0.15%	98.91%	98.91%	0.15%	0.15%	0.15%	98.91%	0.15%	0.13%	98.18%	0.13%	0.13%	0.13%

NOTES:

PELICAN Energy Consultants, LLC

REVISIONS

A	ISSUED FOR REVIEW	10/09/14	NMG

PROCESS FLOW DIAGRAM

DRAWN BY: NMG
REVIEWED BY:
SCALE: N/A
CHECKED BY:
APPROVED BY:
DRAWING NUMBER 4108-131040

PLOT TIME: December 2, 2014 7:55 AM BY: NICOLE GROCE FILE PATH: F:\DRAFTING\CLIENT PROJECTS\

Process Streams		22A/B/C	23A/B/C	24A/B/C	26A/B/C	27A/B/C	28AB/C	30A/B/C	31	32	33	34	35	36AB/C/D	37AB/C/D	38	39	48	49	50	51	52	53A
Total	**Units**																						
Mole Fraction Vapor		0.0000	0.3375	0.9979	0.0043	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0045	1.0000	0.0000	0.0000	0.0000	0.0000
Temperature	°F	80	30	51	70	49	124	197	197	110	80	80	80	80	100	100	95	75	75	75	75	75	75
Pressure	psia	1295.0	503.2	503.2	495.2	495.3	819.0	1315.0	1315.0	1305.0	1295.0	1295.0	1295.0	1295.0	2121.3	2121.3	2116.3	11.3	11.3	11.3	61.3	11.3	11.3
Molar Flow	MMSCFD	15.8	15.8	115.8	0.3	115.5	115.5	115.5	346.5	346.5	346.5	47.4	299.1	74.8	74.8	299.1	299.1	59.1	0.3	58.8	58.8	58.8	29.4
Mass Flow	lb/h	75998.8	75998.8	556082.8	559.6	555523.3	555523.3	555523.3	1666572.0	1666572.0	1666572.0	227998.7	1438573.4	359643.3	359643.3	1438573.4	1438573.4	117639.4	1264.2	116375.2	116375.2	116375.2	58187.6
Molar Enthalpy	Btu/lbmol	-171832	-171832	-168457	-124149	-168565	-168129	-167698	-167698	-169704	-171832	-171832	-171832	-171832	-171642	-171642	-171802	-123310	-166836	-123112	-123109	-123109	-123109
Molecular Weight	lb/lbmol	43.81	43.81	43.75	18.55	43.81	43.81	43.81	43.81	43.81	43.81	43.81	43.81	43.81	43.81	43.81	43.81	18.14	43.03	18.02	18.02	18.02	18.02
Mass Density	lb/ft^3	43.9863	14.7777	5.4357	56.6961	5.3403	7.7716	10.9612	10.9612	21.1220	43.9861	43.9861	43.9861	43.9861	46.2316	46.2316	47.7940	7.0537	0.0853	62.9529	62.9579	62.8316	62.8316
Phase: Vapor	**Units**																						
Mass Flow	lb/h	-	25490.2	555578.0	5.7	555523.3	555523.3	555523.3	1666572.0	1666572.0	-	-	-	-	-	-	-	1264.2	1264.2	0.0	-	0.3	0.1
Molar Flow	MMSCFD	-	5.3	115.5	0.0	115.5	115.5	115.5	346.5	346.5	-	-	-	-	-	-	-	0.3	0.3	0.0	-	0.0	0.0
Vapor Volumetric Flow	ft^3/h	-	18281.8	437266.3	4.9	444664.2	305555.3	216641.6	649924.9	337277.6	-	-	-	-	-	-	-	63388.7	63388.7	0.0	-	14.6	7.3
Std Vapor Volumetric Flow	MMSCFD	-	5.3	115.3	0.0	115.3	115.3	115.3	345.8	345.8	-	-	-	-	-	-	-	0.3	0.3	0.0	-	0.0	0.0
Molecular Weight	lb/lbmol	-	43.53	43.80	43.95	43.81	43.81	43.81	43.81	43.81	-	-	-	-	-	-	-	43.03	43.03	43.03	-	43.03	43.03
Mass Density	lb/ft^3	-	5.9601	5.4312	4.9229	5.3403	7.7716	10.9612	10.9612	21.1220	-	-	-	-	-	-	-	0.0853	0.0853	0.0853	-	0.0852	0.0852
Dynamic Viscosity	cP	-	0.0153	0.0157	0.0160	0.0156	0.0190	0.0230	0.0230	0.0275	-	-	-	-	-	-	-	0.0141	0.0141	0.0141	-	0.0141	0.0141
Thermal Conductivity	Btu/(h*ft*°F)	-	0.0115	0.0117	0.0119	0.0116	0.0147	0.0182	0.0182	0.0231	-	-	-	-	-	-	-	0.0098	0.0098	0.0098	-	0.0098	0.0098
Phase: Liquid	**Units**																						
Mass Flow	lb/h	75998.8	50508.5	504.8	553.9	-	-	-	-	-	1666572.0	227998.7	1438573.4	359643.3	359643.3	1438573.4	1438573.4	116375.2	-	116375.2	116375.2	116374.9	58187.5
Molar Flow	MMSCFD	15.8	10.5	0.2	0.3	-	-	-	-	-	346.5	47.4	299.1	74.8	74.8	299.1	299.1	58.8	-	58.8	58.8	58.8	29.4
Liquid Volumetric Flow	usgpm	215.4	108.0	1.0	1.1	-	-	-	-	-	4723.8	646.3	4077.6	1019.4	969.9	3879.5	3752.7	230.5	-	230.5	230.5	230.5	115.2
Std Liquid Volumetric Flow	barrel/day	6309.4	4190.6	35.0	38.3	-	-	-	-	-	138357.9	18928.3	119429.6	29857.4	29857.4	119429.6	119429.6	7986.1	-	7986.1	7986.1	7986.1	3993.1
Molecular Weight	lb/lbmol	43.8	43.9	18.6	18.4	-	-	-	-	-	43.8	43.8	43.8	43.8	43.8	43.8	43.8	18.0	-	18.0	18.0	18.0	18.0
Mass Density	lb/ft^3	44.0	58.3	64.2	63.5	-	-	-	-	-	44.0	44.0	44.0	44.0	46.2	46.2	47.8	63.0	-	63.0	63.0	62.9	62.9
Dynamic Viscosity	cP	0.1	0.1	1.1	0.9	-	-	-	-	-	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.9	-	0.9	0.9	0.9	0.9
Thermal Conductivity	Btu/(h*ft*°F)	0.0	0.1	0.3	0.3	-	-	-	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	-	0.4	0.4	0.4	0.4
Surface Tension	lbf/ft	1.18	8.32	73.06	71.62	-	-	-	-	-	1.18	1.18	1.18	1.18	0.04	0.04	0.04	72.29	-	72.29	72.28	72.27	72.27
Mole Fraction																							
CO2		98.90%	98.90%	98.67%	2.06%	98.90%	98.90%	98.90%	98.90%	98.90%	98.90%	98.90%	98.90%	98.90%	98.90%	98.90%	98.90%	0.47%	96.22%	0.04%	0.04%	0.04%	0.04%
Nitrogen		0.94%	0.94%	0.94%	0.00%	0.94%	0.94%	0.94%	0.94%	0.94%	0.94%	0.94%	0.94%	0.94%	0.94%	0.94%	0.94%	0.00%	0.03%	0.00%	0.00%	0.00%	0.00%
Helium		0.09%	0.09%	0.08%	0.00%	0.09%	0.09%	0.09%	0.09%	0.09%	0.09%	0.09%	0.09%	0.09%	0.09%	0.09%	0.09%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Methane		0.02%	0.02%	0.02%	0.00%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Ethylene Glycol		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
H2O		0.05%	0.05%	0.28%	97.94%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%	99.53%	3.75%	99.96%	99.96%	99.96%	99.96%
Mass Fraction																							
CO2		99.36%	99.36%	99.27%	4.89%	99.36%	99.36%	99.36%	99.36%	99.36%	99.36%	99.36%	99.36%	99.36%	99.36%	99.36%	99.36%	1.15%	98.41%	0.09%	0.09%	0.09%	0.09%
Nitrogen		0.60%	0.60%	0.60%	0.00%	0.60%	0.60%	0.60%	0.60%	0.60%	0.60%	0.60%	0.60%	0.60%	0.60%	0.60%	0.60%	0.00%	0.02%	0.00%	0.00%	0.00%	0.00%
Helium		0.01%	0.01%	0.01%	0.00%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Methane		0.01%	0.01%	0.01%	0.00%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Ethylene Glycol		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
H2O		0.02%	0.02%	0.12%	95.11%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%	98.85%	1.57%	99.91%	99.91%	99.91%	99.91%

NOTES:

PELICAN
Energy Consultants, LLC

REVISIONS

A	ISSUED FOR REVIEW	10/09/14	NMG

PROCESS FLOW DIAGRAM

DRAWN BY: NMG	REVIEWED BY:	SCALE: N/A
CHECKED BY:	APPROVED BY:	DRAWING NUMBER 4109-131040

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