

U.S. Patent No. 8,505,332
Claim 5
Wellman CO2Flex® Plant
(Terry County, Texas)

Claim 5	Wellman Processing Plant (Terry County, Texas) Ex. 2065, Wellman CO2Flex® Plant, Process Flow Diagram (February 19, 2015 – Final as Built) Ex. 2066, Wellman CO2Flex® Plant, Corrected Stream Table
Claim 5 [5.1] The method of claim 1, wherein the sweet NGL rich stream comprises from 20 molar percent to 40 molar percent of the C3+ hydrocarbons from the carbon dioxide recycle stream, and	The composition for the Stream No. 1 “Carbon Dioxide Recycle Stream” is shown in EX2066 (“Wellman CO2Flex® Plant, Corrected Stream Table”) at Page 1. The composition for the Stream No. 57 “Sweet NGL Rich Stream” is shown in EX2066 at Page 6. The calculations on the attached spreadsheet confirm that the Stream No. 57 “Sweet NGL Rich Stream” has 57.4 molar percent of the C3+ hydrocarbons from the Stream No. 1 “Carbon Dioxide Recycle Stream,” above the limit of the 20-40 molar percent range specified in this Claim 5. (See O8, which is the sum of M8:M15 divided by the sum of C8:C15.)

Claim 5	Wellman Processing Plant (Terry County, Texas) Ex. 2065, Wellman CO2Flex[®] Plant, Process Flow Diagram (February 19, 2015 – Final as Built) Ex. 2066, Wellman CO2Flex[®] Plant, Corrected Stream Table
[5.2] wherein the purified carbon dioxide recycle stream comprises at least 94 molar percent of the carbon dioxide,	The composition for the Stream No. 25 “Purified Carbon Dioxide Recycle Stream” is shown in EX2066 at Page 3. The calculations on the attached spreadsheet confirm that the Stream No. No. 25 “Purified Carbon Dioxide Recycle Stream” has 99.8 molar percent of the carbon dioxide from the Stream No. 1 “Carbon Dioxide Recycle Stream,” which is within the at least 94 molar percent specified in this Claim 5. (See F5, which is E5/C5.)
[5.3] at least 94 molar percent of the methane, and	The calculations on the attached spreadsheet confirm that the Stream No. No. 25 “Purified Carbon Dioxide Recycle Stream” has 100 molar percent of the methane from the Stream No. 1 “Carbon Dioxide Recycle Stream,” which is within the at least 94 molar percent specified in this Claim 5. (See F6, which is E6/C6.)
[5.4] at least 93 molar percent of the ethane from the carbon dioxide recycle stream.	The calculations on the attached spreadsheet confirm that the Stream No. No. 25 “Purified Carbon Dioxide Recycle Stream” has 99.6 molar percent of the ethane from the Stream No. 1 “Carbon Dioxide Recycle Stream,” which is within the at least 93 molar percent specified in this Claim 5. (See F7, which is E7/C7.)

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	A	B	C	D	E	F	G
1	EX2066	Carbon Dioxide Recycle Stream No. 1		Purified CO2 Recycle Stream 25			
2		Molar Flow = 5459 lbmol/hr		Molar Flow = 5340 lbmol/hr			C3-C8
3		Mole Frac.	lbmol/hr	Mole Frac.	lbmol/hr	%	Disregarded
4	N	0.0178	97	0.0182	97	100.0%	
5	CO2	0.9085	4,960	0.9266	4,948	99.8%	
6	C1	0.0316	173	0.0323	172	100.0%	
7	C2	0.0107	58	0.0109	58	99.6%	
8	C3	0.0139	76	0.0111	59	78.1%	43.1%
9	i-C4	0.0016	9	0.0004	2	24.5%	
10	n-C4	0.0053	29	0.0003	2	5.5%	
11	i-C5	0.0015	8	0.0000	0	0.0%	
12	n-C5	0.0014	8	0.0000	0	0.0%	
13	n-C6	0.0028	15	0.0000	0	0.0%	
14	n-C7	0.0003	2	0.0000	0	0.0%	
15	n-C8	0.0000	0	0.0000	0	0.0%	
16	H2O	0.0043	23	0.0000	0	0.0%	
17	H2S	0.0000	0	0.0000	0	0.0%	
18		0.9997		0.9998			

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	A	H	I	J	K	L	M	N	O
1	EX2066	Sour NGL Rich Stream 28			Sweet NGL Rich Stream 57				
2		Molar Flow = 94.94 lbmol/hr			Molar Flow = 84.47 lbmol/hr				C3-C8
3		Mole Frac.	lbmol/hr	%	C3-C8	Mole Frac.	lbmol/hr	%	Recovered
4	N	0.0000	0	0.0%		0	0	0.0%	
5	CO2	0.1112	11	0.2%		0	0	0.0%	
6	C1	0.0000	0	0.0%		0	0	0.0%	
7	C2	0.0015	0	0.2%		0.0017	0	0.2%	
8	C3	0.1760	17	22.0%	57.5%	0.1974	17	22.0%	57.4%
9	i-C4	0.0729	7	79.2%		0.0817	7	79.0%	
10	n-C4	0.2875	27	94.3%		0.3227	27	94.2%	
11	i-C5	0.0875	8	101.5%		0.0982	8	101.3%	
12	n-C5	0.0824	8	102.4%		0.0925	8	102.2%	
13	n-C6	0.1603	15	99.6%		0.18	15	99.5%	
14	n-C7	0.0172	2	99.7%		0.0193	2	99.5%	
15	n-C8	0.0029	0	0.0%		0.0032	0	0.0%	
16	H2O	0.0002	0	0.0%		0.0033	0	0.0%	
17	H2S	0.0000	0	0.0%		0	0		
18		0.9996				1.0000			

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	A	P	Q	R
1	EX2066	Acid Gas Stream 47		
2		Molar Flow = 11.25 lbmol/hr		
3		Mole Frac.	lbmol/hr	%
4	N	0.0000	0	0.0%
5	CO2	0.9396	97	2.0%
6	C1	0.0000	0	0.0%
7	C2	0.0000	0	0.0%
8	C3	0.0010	0	0.1%
9	i-C4	0.0005	0	0.6%
10	n-C4	0.0009	0	0.3%
11	i-C5	0.0001	0	0.1%
12	n-C5	0.0001	0	0.1%
13	n-C6	0.0002	0	0.1%
14	n-C7	0.0000	0	0.0%
15	n-C8	0.0000	0	0.0%
16	H2O	0.0541	6	0.0%
17	H2S	0.0035	0	0.0%
18				