

U.S. Patent No. 8,505,332
Claims 1-4, 6-7
Wellman Processing Plant
(Terry County, Texas)

Claims 1-4, 6-7	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 1 [1.P] A method comprising: [1.1] receiving a hydrocarbon feed stream, wherein the hydrocarbon feed stream comprises carbon dioxide, natural gas liquid (NGL), heavy hydrocarbons, and acid gas, wherein the NGL comprises C₃-C₈ hydrocarbons, and wherein the heavy hydrocarbons comprise C₉+ hydrocarbons;	As do most all Enhanced Oil Recovery (“EOR”) processes, the Wellman EOR hydrocarbon feed stream includes carbon dioxide, natural gas liquid (NGL), heavy hydrocarbons, and acid gas. (Ex. 2067, Page 1, Wellman C6+ Gas/Vapor Fractional Analysis (showing Inlet to gas processing Plant for Wellman having Carbon Dioxide (91.241%), C3-C6+ hydrocarbons (6.95%), and Hydrogen Sulfide acid gas (0.024%).) The NGL includes C3-C8 hydrocarbons (Ex. 2067, Page 1, C6+ Gas/Vapor Fractional Analysis (showing Inlet to gas processing Plant for Wellman having C3-C6+ hydrocarbons); and The heavy hydrocarbons include C9+ hydrocarbons. (Ex. 2068, Page 2, Wellman Extended Crude Oil Fractional Analysis (Hexanes Plus Summary showing Wellman Crude Oil having significant amounts of C9+ hydrocarbons).)

[1.2] separating the hydrocarbon feed stream into a heavy hydrocarbon rich stream and a carbon dioxide recycle stream, wherein the heavy hydrocarbon rich stream comprises the C₉₊ hydrocarbons, and wherein the carbon dioxide recycle stream comprises the carbon dioxide, the C₃-C₈ hydrocarbons, and the acid gas;	The Wellman EOR separates the “Hydrocarbon Feed Stream” into a “Heavy Hydrocarbon Rich Stream” and a “Carbon Dioxide Recycle Stream.” This initial separation step is performed prior to the Stream No. 1 “Carbon Dioxide Recycle Stream” entering the NGL recovery gas processing plant, so is not shown on the Process Flow Diagrams (“PFDs”) exhibit used for the following steps in the process. The Wellman EOR performs this initial separation step using a Three-Phase Separator that separates the “Hydrocarbon Feed Stream” into water, oil, and gaseous components. Water exits the bottom of the Three-Phase Separator, Oil (“Heavy Hydrocarbon Rich Stream” C₉₊ hydrocarbons) out the middle, and gas (“Carbon Dioxide Recycle Stream”) out the top. The “Heavy Hydrocarbon Rich Stream” includes C₉₊ hydrocarbons The “Carbon Dioxide Recycle Stream” includes Carbon Dioxide, C₃-C₈ hydrocarbons, and acid gas Carbon Dioxide Recycle Stream = Stream No. 1, “Feed Gas” (Ex. 2065, Page 2). Stream No. 1 “Carbon Dioxide Recycle Stream” composition (Ex. 2066, Corrected Stream Table, Page 1) includes:
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	carbon dioxide	Carbon Dioxide (mol%)	90.8%
	C3-C8 hydrocarbons:		
	C3	Propane (mol%)	1.4%
	C4	i-Butane (mol%)	0.2%
		n-Butane (mol%)	0.5%
	C5	i-Pentane (mol%)	0.2%
		n-Pentane (mol%)	0.1%
	C6	n-Hexane (mol%)	0.3%
	C7	n-Heptane (mol%)	0.0%
	C8	n-Octane (mol%)	0.0%
	acid gas (H ₂ S/CO ₂)	Hydrogen Sulfide (mol%)	0.0%
	other components are: N ₂ (1.8%), Methane (3.2%), Ethane (1.1%), and Water (0.4%), which accounts for 100%		
	While the stream compositions in the Stream Table show 0.0% for components such as H ₂ S, C ₇ , and C ₈ when they are not detected at a high enough percentage to be shown (<0.1%), the C ₆ + Gas/Vapor Fractional Analysis (Ex. 2067, Page 1) shows the presence of H ₂ S (0.024%) in the inlet gas, and the C ₇ and C ₈ amounts are lumped in with the C ₆ + (0.315%). The presence of these components downstream in the process, when at a high enough percentage to be shown (>0.09%), also confirms the presence of these components in the inlet gas. For example, H ₂ S is shown as 0.4% in the Acid Gas Stream No. 47 (Ex. 2066, Corrected Stream Table, Page 7), and C ₇ (1.9% n-Heptane) and C ₈ (0.3% n-Octane) are shown in the Sweet NGL Rich Stream No. 57 (<i>id.</i> at Page 8).		

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[1.3] separating the carbon dioxide recycle stream into a sour NGL rich stream and a purified carbon dioxide recycle stream, wherein the sour NGL rich stream comprises the C₃-C₈ hydrocarbons and the acid gas, and	The Stream No. 1 “Carbon Dioxide Recycle Stream” flows to the T-601 TEG Contactor for dehydration, then returns as the dehydrated “Carbon Dioxide Recycle Stream” (Stream No. 3), which then enters the T-203 NGL Fractionator where this [1.3] separating step is performed. (Ex. 2065, Pages 1, 2.) The T-203 NGL Fractionator separates the Stream No. 1 (3) “Carbon Dioxide Recycle Stream” into a bottoms “Sour NGL Rich Stream” (Stream No. 28) and an overhead “Purified Carbon Dioxide Recycle Stream” (Stream No. 25). (Ex. 2065, Page 2.) Stream No. 26 exits the bottom of the T-203 NGL Fractionator and flows to the E-207 NGL Reboiler, exiting the bottom as the “Sour NGL Rich Stream” (Stream No. 28). (Ex. 2065, Page 2.) Stream No. 28 “Sour NGL Rich Stream” composition (Ex. 2066, Corrected Stream Table, Page 4) includes C3-C8 hydrocarbons and acid gas:

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	C3-C8 hydrocarbons: <table><tr><td>C3</td><td>Propane (mol%)</td><td>17.8%</td></tr><tr><td>C4</td><td>i-Butane (mol%)</td><td>6.1%</td></tr><tr><td></td><td>n-Butane (mol%)</td><td>26.1%</td></tr><tr><td>C5</td><td>i-Pentane (mol%)</td><td>10.4%</td></tr><tr><td></td><td>n-Pentane (mol%)</td><td>9.7%</td></tr><tr><td>C6</td><td>n-Hexane (mol%)</td><td>19.5%</td></tr><tr><td>C7</td><td>n-Heptane (mol%)</td><td>0.0%</td></tr><tr><td>C8</td><td>n-Octane (mol%)</td><td>0.0%</td></tr></table> acid gas (H2S/CO2): <table><tr><td>H2S</td><td>Hydrogen Sulfide (mol%)</td><td>0.0%</td></tr><tr><td>CO2</td><td>Carbon Dioxide (mol%)</td><td>10.0%</td></tr></table> other components are: Ethane (0.1%) and Water (0. 2%), which accounts for 99.9% While the stream compositions in the Stream Table show 0.0% for components such as H2S, C7, and C8 when they are not detected at a high enough percentage to be shown (<0.1%), the C6+ Gas/Vapor Fractional Analysis (Ex. 2067, Page 1) shows the presence of H2S (0.024%) in the inlet gas, and the C7 and C8 amounts are lumped in with the C6+ (0.315%). The presence of these components downstream in the process, when at a high enough percentage to be shown (>0.09%), also confirms the presence of these components in the inlet gas. For example, H2S is shown			C3	Propane (mol%)	17.8%	C4	i-Butane (mol%)	6.1%		n-Butane (mol%)	26.1%	C5	i-Pentane (mol%)	10.4%		n-Pentane (mol%)	9.7%	C6	n-Hexane (mol%)	19.5%	C7	n-Heptane (mol%)	0.0%	C8	n-Octane (mol%)	0.0%	H2S	Hydrogen Sulfide (mol%)	0.0%	CO2	Carbon Dioxide (mol%)	10.0%
C3	Propane (mol%)	17.8%																															
C4	i-Butane (mol%)	6.1%																															
	n-Butane (mol%)	26.1%																															
C5	i-Pentane (mol%)	10.4%																															
	n-Pentane (mol%)	9.7%																															
C6	n-Hexane (mol%)	19.5%																															
C7	n-Heptane (mol%)	0.0%																															
C8	n-Octane (mol%)	0.0%																															
H2S	Hydrogen Sulfide (mol%)	0.0%																															
CO2	Carbon Dioxide (mol%)	10.0%																															

Claims 1-4, 6-7	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			
wherein the purified carbon dioxide recycle stream comprises the carbon dioxide; and	as 0.4% in the Acid Gas Stream No. 47 (Ex. 2066, Corrected Stream Table, Page 7), and C7 (1.9% n-Heptane) and C8 (0.3% n-Octane) are shown in the Sweet NGL Rich Stream No. 57 (<i>id.</i> at Page 8). Stream No. 21 exits the top of the T-203 NGL Fractionator as the overhead stream and enters the E-204 Reflux Condenser, exiting as a non-numbered stream, which enters the V-205 NGL Reflux Accumulator. Stream No. 22 exits the V-205 NGL Reflux Accumulator as the cooled “Purified Carbon Dioxide Recycle Stream,” which flows through the E-209 Refrigerant Subcooler, exiting as the “Purified Carbon Dioxide Recycle Stream” (Stream No. 25) (aka “Residue Gas”), which flows to the “Reciprocating Gas Booster Compressor.” (Ex. 2065, Page 2.) Stream No. 25 “Purified Carbon Dioxide Recycle Stream” composition (Ex. 2066, Corrected Stream Table, Page 3) includes carbon dioxide: <table><tr><td>CO2</td><td>Carbon Dioxide (mol%)</td><td>92.7%</td></tr></table> other components are: Methane (3.2%), Ethane (1.1%), Propane (1.1%), and Nitrogen (1.8%), which accounts for 99.9%.	CO2	Carbon Dioxide (mol%)	92.7%
CO2	Carbon Dioxide (mol%)	92.7%		

[1.4] separating the sour NGL rich stream into a sweet NGL rich stream and an acid gas stream,

wherein the sweet NGL rich stream comprises the C₃-C₈ hydrocarbons, and

The Stream No. 29 cooled “Sour NGL Rich Stream” flows to the T-501 Liquid-Liquid Amine Contactor, exiting the AC-208 Sour NGL Cooler at Ex.2065 flow diagram Page 2, and entering Page 3 at the “from AC-208 Sour NGL Cooler.” (Ex. 2065, Page 3.)

The Stream No. 29 cooled “Sour NGL Rich Stream” is separated into a “Sweet NGL Rich Stream” (Stream No. 57) and an “Acid Gas Stream” (Stream No. 47) by the T-501 Liquid-Liquid Amine Contactor. (Ex. 2065, Page 3.)

Stream No. 36 exits the top of the T-501 Liquid-Liquid Amine Contactor and enters the F-500 Product Coalescer, exiting as Stream No. 57, which is the “Sweet NGL Rich Stream” that flows to the T-401 Product Stabilizer. (Ex. 2065, Page 3.)

Stream No. 57 “Sweet NGL Rich Stream” composition (Ex. 2066, Corrected Stream Table, Page 8) includes C3-C8 hydrocarbons:

C3-C8 hydrocarbons:

C3	Propane (mol%)	19.7%
C4	i-Butane (mol%)	8.2%
	n-Butane (mol%)	32.3%
C5	i-Pentane (mol%)	9.8%
	n-Pentane (mol%)	9.3%
C6	n-Hexane (mol%)	18.0%
C7	n-Heptane (mol%)	1.9%
C8	n-Octane (mol%)	0.3%

Claims 1-4, 6-7	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						
wherein the acid gas stream comprises the acid gas,	which accounts for 99.5% other components are: Ethane (0.2%), Water (0.3%), to account for 100.0%. Stream No. 37 exits the bottom of the T-501 Liquid-Liquid Amine and flows through V-502, F-504, F-503, E-505, T-507, AC-509, and V-508, exiting as the “Acid Gas Stream” (Stream No. 47) to Flare or Heater. Stream No. 47 “Acid Gas Stream” composition (Ex. 2066, Corrected Stream Table, Page 7) includes the acid gas H2S: <table><tr><td>CO2</td><td>Carbon Dioxide (mol%)</td><td>94.0%</td></tr><tr><td>H2S</td><td>Hydrogen Sulfide (mol%)</td><td>0.4%</td></tr></table> other components are: Water (5.4%), Propane (0.1%), and n-Butane (0.1%), which accounts for 100.0%	CO2	Carbon Dioxide (mol%)	94.0%	H2S	Hydrogen Sulfide (mol%)	0.4%
CO2	Carbon Dioxide (mol%)	94.0%					
H2S	Hydrogen Sulfide (mol%)	0.4%					

Claims 1-4, 6-7	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
[1.5] wherein the carbon dioxide is not removed from the hydrocarbon feed stream and is not removed from the carbon dioxide recycle stream prior to separating the carbon dioxide recycle stream into the sour NGL rich stream and the purified carbon dioxide recycle stream, and	(CO₂ is not removed from the hydrocarbon feed stream and CO₂ is not removed from the carbon dioxide recycle stream) prior to separating the carbon dioxide recycle stream into the sour NGL rich stream and the purified carbon dioxide recycle stream The only CO₂ removal steps are the [1.3] separation of the carbon dioxide recycle stream into the sour NGL rich stream and the purified carbon dioxide recycle stream, and <u>after</u> that step [1.3] separation, removal of the CO₂/H₂S acid gas from the sour NGL rich stream.
[1.6] wherein the hydrocarbon feed stream, the carbon dioxide recycle stream, and the sour NGL rich stream are not subjected to cryogenic conditions, membranes, and carbon dioxide recovery solvents between being received and being separated into the heavy hydrocarbon rich stream, the purified carbon dioxide recycle stream, the sweet NGL rich stream, and the acid gas stream.	There are no cryogenic conditions in this process. The coldest temperatures in the process are Stream Nos. 32 and 33 (both 32.6°F) (Ex. 2066, Corrected Stream Table, Page 4), which are the propane refrigerant streams entering and exiting the E-204 Reflux Condenser for the overhead Stream No. 21 from the T-203 NGL Fractionator. (Ex. 2065, Page 2.) There are no membranes in this process. There are no “carbon dioxide recovery solvents” in this process. The only solvents in the process are the dehydration solvents (TEG) in the dehydration step, and the amine solvents (DEA) in the sweetening step,

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	neither of which is a solvent used for recovery of carbon dioxide. The dehydration solvents are used to remove water from the carbon dioxide recycle stream, not to recover carbon dioxide. The amine solvents are used in the sweetening step to remove acid gas (CO ₂ /H ₂ S) from the “Sour NGL Rich Stream,” not to recover carbon dioxide.

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Claim 2 [2.1] The method of claim 1, further comprising: compressing the carbon dioxide recycle stream prior to separating the carbon dioxide recycle stream;	The Stream No. 1 “Carbon Dioxide Recycle Stream” (aka “Feed Gas”) is compressed prior to entering the gas processing plant. The process flow diagram shows this “prior compression” step by showing the pressure of the Feed Gas Stream No. 1 as 680 psia, which is one of the highest pressures of all of the streams in the process. (Ex. 2065, Page 1; Ex. 2066, Corrected Stream Table, Page 1.)

[2.2] dehydrating at least part of the carbon dioxide recycle stream using a dehydration solvent prior to separating the carbon dioxide recycle stream;	The Stream No. 1 “Carbon Dioxide Recycle Stream” is dehydrated using a dehydration solvent prior to separating the “Carbon Dioxide Recycle Stream.” The Stream No. 1 “Carbon Dioxide Recycle Stream” is dehydrated using the T-601 TEG Contactor. (Ex. 2065, Page 1.) TEG is Triethylene glycol, which is a dehydration solvent. The Stream No. 1 “Carbon Dioxide Recycle Stream” flows into the T-601 TEG Contactor, exiting as Stream No. 2, which then flows through the E-602 Gas-TEG Exchanger, exiting as the dehydrated “Carbon Dioxide Recycle Stream” (Stream No. 3). The Stream No. 3 dehydrated “Carbon Dioxide Recycle Stream” flows to the T-203 NGL Fractionator. (Ex. 2065, Page 1.) Comparison of the stream composition for the Stream No. 1 that enters the T-601 TEG Contactor (0.4% water), with the Stream 2 that exits the T-601 TEG Contactor (0.0% water), confirms that the T-601 TEG Contactor dehydrates the Stream No. 1 “Carbon Dioxide Recycle Stream.” (Ex. 2066, Corrected Stream Table, Page 1.) The Stream No. 3 dehydrated “Carbon Dioxide Recycle Stream” flows from the E-602 Gas-TEG Exchanger to the T-203 NGL Fractionator for separating the “Carbon Dioxide Recycle Stream.” (Ex. 2065, Page 2.)
[2.3] combining a carbon dioxide makeup stream external to the	As do most all Enhanced Oil Recovery (“EOR”) processes, the Wellman EOR uses a “Carbon Dioxide Makeup Stream” external to the NGL

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method with the purified carbon dioxide recycle stream; and	recovery process, and combines that makeup stream with the Stream No. 25 “Purified Carbon Dioxide Recycle Stream.”
[2.4] injecting the combined carbon dioxide makeup stream and the purified carbon dioxide recycle stream into a subterranean formation.	The Wellman EOR injects the combined “Carbon Dioxide Makeup Stream” and the Stream No. 25 “Purified Carbon Dioxide Recycle Stream” into the subterranean formation.
Claim 3 [3] The method of claim 1, further comprising cooling the carbon dioxide recycle stream with the purified carbon dioxide recycle stream.	The Stream No. 1 “Carbon Dioxide Recycle Stream” is <u>not</u> cooled with the cooled Stream No. 22 cooled “Purified Carbon Dioxide Recycle Stream.” The Wellman process uses the Stream No. 22 cooled “Purified Carbon Dioxide Recycle Stream” as cooling for the E-204 Reflux Condenser to cool and condense the Stream No. 21 overhead stream of the T-203 NGL Fractionator, rather than to cool the Stream No. 1 “Carbon Dioxide Recycle Stream” as specified in Claim No. 3. The Stream No. 22 cooled “Purified Carbon Dioxide Recycle Stream” exits the top of the V-205 NGL Reflux Accumulator and enters the E-209 Refrigerant Subcooler. The Stream No. 25 “Purified Carbon Dioxide Recycle Stream” exits the top of the E-209 Refrigerant Subcooler and flows to the Reciprocating Gas Booster Compressor. (Ex. 2065, Page 2.)

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Claim 4 [4] The method of claim 3, wherein the sweet NGL rich stream comprises no more than 1 molar percent methane, no more than 1 molar percent ethane, and no more than 1 molar percent acid gases.	The Stream No. 57 “Sweet NGL Rich Stream” composition for Methane, Ethane, and Acid Gases (H2S/CO2) is (Ex. 2066, Corrected Stream Table, Page 8): The Stream No. 57 “Sweet NGL Rich Stream” has much less than 1 molar percent Methane, Ethane, and Acid Gases. <table><tr><td>C1</td><td>Methane (mol%)</td><td>0.0%</td></tr><tr><td>C2</td><td>Ethane (mol%)</td><td>0.2%</td></tr></table> Acid gases: <table><tr><td>H2S</td><td>Hydrogen Sulfide (mol%)</td><td>0.0</td></tr><tr><td>CO2</td><td>Carbon Dioxide (mol%)</td><td>0.0%</td></tr></table>	C1	Methane (mol%)	0.0%	C2	Ethane (mol%)	0.2%	H2S	Hydrogen Sulfide (mol%)	0.0	CO2	Carbon Dioxide (mol%)	0.0%
C1	Methane (mol%)	0.0%											
C2	Ethane (mol%)	0.2%											
H2S	Hydrogen Sulfide (mol%)	0.0											
CO2	Carbon Dioxide (mol%)	0.0%											
Claim 6 [6.1] The method of claim 1, wherein separating the carbon dioxide recycle stream into the sour NGL rich stream and the purified carbon dioxide recycle stream comprises: refluxing part of the purified carbon dioxide recycle stream;	The T-203 NGL Fractionator that separates the Stream No. 1 “Carbon Dioxide Recycle Stream” into the Stream No. 28 “Sour NGL Rich Stream” and the Stream No. 25 “Purified Carbon Dioxide Recycle Stream” uses the E-204 Reflux Condenser and the V-205 NGL Reflux Accumulator to reflux part of the overhead Stream No. 21, and uses the E-207 NGL Reboiler to reboil part of the Stream No. 28 “Sour NGL Rich Stream.” (Ex. 2065, Page 2.) The T-203 NGL Fractionator overhead Stream No. 21 enters the E-204												

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	Reflux Condenser, exiting as a non-numbered stream which then enters the V-205 NGL Reflux Accumulator. Reflux Stream No. 23 exits the bottom of V-205 Reflux Accumulator and is pressured up by P-206 NGL Reflux Pump and returned to the top of the T-203 NGL Fractionator as reflux Stream No. 24. The Stream No. 22 cooled “Purified Carbon Dioxide Recycle Stream” exits the top of the V-205 NGL Reflux Accumulator and enters the E-209 Refrigerant Subcooler. The Stream No. 25 “Purified Carbon Dioxide Recycle Stream” exits the top of the E-209 Refrigerant Subcooler and flows to the Reciprocating Gas Booster Compressor. (Ex. 2065, Page 2.)
[6.2] reboiling part of the sour NGL rich stream; and	The T-203 NGL Fractionator bottoms Stream No. 26 enters the E-207 NGL Reboiler. Boil-up Stream No. 27 exits the top of the E-207 NGL Reboiler and is returned to the bottom of the T-203 NGL Fractionator. Stream No. 28 exits the bottom of the E-207 NGL Reboiler as the “Sour NGL Rich Stream” and flows to the AC-208 Sour NGL Cooler for cooling. (Ex. 2065, Page 2.)
[6.3] cooling and throttling the sour NGL rich stream.	The Stream No. 28 “Sour NGL Rich Stream” is cooled by the AC-208 Sour NGL Cooler and exits as Stream No. 29 cooled “Sour NGL Rich Stream.” (Ex. 2065, Page 2.) The Stream Table shows the temperature for Stream No. 28 as 305 °F, and Stream No. 29 as 121 °F, confirming the cooling done by the AC-208 Sour NGL Cooler. (Ex. 2066, Corrected Stream Table, Page 4.)

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	The Stream No. 29 cooled “Sour NGL Rich Stream” is throttled by the “Throttling Valve” downstream of the AC-208 Sour NGL Cooler (Ex. 2065, Page 2), which reduces the pressure of the stream so it can enter the T-501 Amine Contactor at the operating pressure of the Amine Contactor as low pressure cooled “Sour NGL Rich Stream” (Stream No. 29) (Ex. 2065, Page 2). The Stream Table shows the pressure for Stream No. 28 as 670 psia, and Stream No. 29 as 264 psia, confirming the pressure drop (“throttling”) done by the “Throttling Valve.” (Ex. 2066, Corrected Stream Table, Page 4.)									
Claim 7 [7] The method of claim 6, wherein the sour NGL rich stream comprises no more than 5 molar percent carbon dioxide, no more than 1 molar percent methane, and no more than 5 molar percent ethane, and	The Stream No. 28 “Sour NGL Rich Stream” composition for Carbon Dioxide, Methane, and Ethane is (Ex. 2066, Corrected Stream Table, Page 4): The Stream No. 28 “Sour NGL Rich Stream” has much less than 1 molar percent Methane, and much less than 5 molar percent Ethane, but does have more than 5 molar percent Carbon Dioxide. <table><tr><td>CO2</td><td>Carbon Dioxide (mol%)</td><td>11.1%</td></tr><tr><td>C1</td><td>Methane (mol%)</td><td>0.0%</td></tr><tr><td>C2</td><td>Ethane (mol%)</td><td>0.2%</td></tr></table>	CO2	Carbon Dioxide (mol%)	11.1%	C1	Methane (mol%)	0.0%	C2	Ethane (mol%)	0.2%
CO2	Carbon Dioxide (mol%)	11.1%								
C1	Methane (mol%)	0.0%								
C2	Ethane (mol%)	0.2%								

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wherein the sweet NGL rich stream is substantially free of carbon dioxide.	The Stream No. 57 “Sweet NGL Rich Stream” composition for Carbon Dioxide is (Ex. 2066, Corrected Stream Table, Page 8): The Stream No. 57 “Sweet NGL Rich Stream” is substantially free of Carbon Dioxide. <table><tr><td>CO2</td><td>Carbon Dioxide (mol%)</td><td>0.0%</td></tr></table>	CO2	Carbon Dioxide (mol%)	0.0%
CO2	Carbon Dioxide (mol%)	0.0%		

Streams:

Stream No. 1 “Carbon Dioxide Recycle Stream” flows to the T-601 TEG Contactor for dehydration, then returns as the dehydrated “Carbon Dioxide Recycle Stream” (Stream No. 3), which then enters the T-203 NGL Fractionator where this [1.3] separating step is performed

Stream No. 1 “Carbon Dioxide Recycle Stream” (aka “Feed Gas”)

Stream No. 2 exits the T-601 TEG Contactor, then flows through the E-602 Gas-TEG Exchanger, exiting as the dehydrated “Carbon Dioxide Recycle Stream” (Stream No. 3)

Stream No. 3 dehydrated “Carbon Dioxide Recycle Stream” flows from the E-602 Gas-TEG Exchanger to the T-203 NGL Fractionator for separating the “Carbon Dioxide Recycle Stream.”

Stream No. 21 exits the top of the T-203 NGL Fractionator as the overhead stream and enters the E-204 Reflux Condenser, exiting as a non-numbered stream that enters the V-205 NGL Reflux Accumulator

Stream No. 22 exits the V-205 NGL Reflux Accumulator as the cooled “Purified Carbon Dioxide Recycle Stream,” which flows through the E-209 Refrigerant Subcooler, exiting as the “Purified Carbon Dioxide Recycle Stream” (Stream No. 25) (aka “Residue Gas”), which flows to the Reciprocating Gas Booster Compressor.” (Ex. 2065, Page 2.)

Stream No. 23 (Reflux Stream No. 23) exits the bottom of V-205 Reflux Accumulator, and is pressured up by P-206 NGL Reflux Pump, as the Reflux Stream No. 24, and returned to the top of the T-203 NGL Fractionator as reflux Stream No. 24.

Stream No. 24 (Reflux Stream No. 24) is returned to the top of the T-203 NGL Fractionator

Stream No. 25 “Purified Carbon Dioxide Recycle Stream” (aka “Residue Gas”), exits the E-209 Refrigerant Subcooler, exiting as the “Purified Carbon Dioxide Recycle Stream” (Stream No. 25)

Claims 1-4, 6-7	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
Stream No. 26 exits the bottom of the T-203 NGL Fractionator and flows to the E-207 NGL Reboiler Stream No. 27 exits the top of the E-207 NGL Reboiler (as Boil-up Stream No. 27) and is returned to the bottom of the T-203 NGL Fractionator Stream No. 28 “Sour NGL Rich Stream” exits the bottom of the E-207 NGL Reboiler Stream No. 29 cooled “Sour NGL Rich Stream” exits the AC-208 Sour NGL Cooler, and flows to the “Throttling Valve” Stream No. 29 low pressure cooled “Sour NGL Rich Stream” exits the “Throttling Valve,” then flows to the T-501 Amine Contactor (on Amine System PFD) The coldest temperatures in the process are Stream Nos. 32 and 33 (both 32.6°F) (Ex. 2066, Corrected Stream Table, Page 4), which are the propane refrigerant streams entering and exiting the E-204 Reflux Condenser for the overhead Stream No. 21 from the T-203 NGL Fractionator. (Ex. 2065, Page 2.) Stream No. 36 exits the top of the T-501 Liquid-Liquid Amine Contactor and enters the F-500 Product Coalescer, exiting as Stream No. 57, which is the “Sweet NGL Rich Stream” that flows to the T-401 Product Stabilizer. (Ex. 2065, Page 3.) Stream No. 37 exits the bottom of the T-501 Liquid-Liquid Amine and flows through V-502, F-504, F-503, E-505, T-507, AC-509, and V-508, exiting as the “Acid Gas Stream” (Stream No. 47) to Flare or Heater.	