Sound Environmental Solutions, Inc.

January 22, 2014 BY UPS OVERNIGHT

Ms. Melanie Magee
EPA Region 6
Air Permits Section 6PD-R
1445 Ross Avenue
Dallas, TX 75202-2733

Re: GHG PSD Permit Application
Nuevo Midstream, LLC (CN604322891)
Ramsey Gas Plant (RN100228899)
Reeves County, Texas
Title V Permit O3546

Dear Ms. Magee:

Nuevo Midstream, LLC (Nuevo) currently owns and operates the Ramsey Gas Plant (Ramsey), a natural gas processing facility located in Reeves County, Texas, north of Orla. The continued development of the shale gas plays in the area has exceeded all predictions and has resulted in the need for additional processing and treating capacity. In preparation to handle this future gas, Nuevo is proposing to expand the plant. The expansion triggers Prevention of Significant Deterioration (PSD) permitting. Since the Texas Commission on Environmental Quality (TCEQ) has not yet promulgated rules regulating Greenhouse Gases (GHG), the Environmental Protection Agency (EPA) Region 6 currently has jurisdiction over the issuance of GHG PSD permits for facilities in Texas.

The purpose of this transmittal is to submit the GHG Prevention of Significant Deterioration (PSD) Permit Application to EPA Region 6, as well as a CD of the Criteria Pollutants PSD Application, which was submitted to TCEQ last week.

A copy of the GHG PSD application is also being provided to the main TCEQ office in Austin, TCEQ's Region 7 office, and, because the Ramsey Gas Plant is within 100 km (62 miles) of the New Mexico (NM) border, a copy of the GHG PSD permit application is also being sent to the Air Quality Bureau of the NM Environmental Department.

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If you have any questions, please feel free to contact Rachel Pappworth at (713) 973-6085 or rpappworth@ses-inc.net or Dwight Serrett at his direct office number of (713) 337-6510, his Orla, Texas cell number of (432) 257-2094 or his Houston cell number of (713) 562-6635 or at ds@nuevomidstream.com

Sincerely,
Sound Environmental Solutions, Inc.

SLR Pappworth

S.S. Rachel Pappworth, P.E.

c: TCEQ
Air Permits Initial Review Team (APIRT)
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12100 Park 35 Circle
Austin, TX 78753

Ms. Lorinda Gardner, Regional Director
TCEQ Region 7 Office
9900 W. IH-20, Ste. 100
Midland, TX 79706

New Mexico Environmental Department
Air Quality Bureau
1301 Siler Rd., Building B
Santa Fe, NM 87507-3113

Mr. Dwight Serrett, Nuevo Midstream, Houston
Mr. Clint Cone, Nuevo Midstream, Ramsey Gas Plant

enclosures: CD of TCEQ GHG PSD Application
Hard Copy of GHG PSD Application
CD of TCEQ Criteria Pollutant PSD Application

NUEVO MIDSTREAM, LLC

RAMSEY GAS PLANT
REEVES COUNTY, TEXAS

U. S. ENVIRONMENAL PROTECTION AGENCY, REGION 6

PREVENTION OF SIGNIFICANT DETERIORATION (PSD) FOR GREENHOUSE GAS EMISSIONS AIR PERMIT APPLICATION

January 2014

TABLE OF CONTENTS

SECTION 6 TECHNICAL SPECIFICATIONS

APPENDIX A

Available and Emerging Technologies for reducing Greenhouse Gas Emissions from the Petroleum Refining Industry EPA. October 2010

Comprehensive Report RBLC ID: LA-0271 (draft) BACT-PSD for a Natural Gas Liquids (NGL) Fractionation Plant

Statement of Basis, Greenhouse Gas Prevention of Significant Deterioration Preconstruction Permit for Channel Energy Center (CEC), LLC, Permit Number: PSD-TX-955-GHG. EPA. August 2012

Application for Prevention of Significant Deterioration for Greenhouse Gas Emissions, Delaware Basin JV Gathering LLC, Avalon Mega CCF, Loving County, Texas. Trinity Consultants. January 22, 2013

SECTION 1.0

1.0 INTRODUCTION

The Ramsey Gas Plant (Ramsey) is a natural gas processing plant located in Reeves County, Texas, north of Orla. The facility is owned and operated by Nuevo Midstream, LLC (Nuevo).

1.1 Currently Permitted Facility

After Nuevo acquired the original plant (Ramsey I Plant), the development of shale gas plays in the area led to an opportunity to treat and process additional gas. In order to accommodate the increase, the Ramsey Gas Plant has been expanded and permitted for the Ramsey I Plant, the 100 MMSCF/D Ramsey II Plant, the 200 MMSCF/D Ramsey III Plant and the associated 475-gallon per minute (gpm) and 1,300-gpm amine units. The original plant and these expansions are authorized by Standard Permit 101511 and General Operating Permit (GOP #514, No. O3546). Nuevo is currently finishing the commissioning of the Ramsey II Plant and the 475-gpm and 1,300-gpm amine units and is in the process of constructing the 200 MMSCF/D Ramsey III Plant.

As is common in the construction of multi-phased projects, there were some changes from the originally facility design, for example because of equipment availability or because of changing market conditions. A streamlined minor modification application was submitted to the TCEQ in November 2013, with additional data having been provided in December 2013.

1.2 Proposed Expansion Covered by this application

The continued development of the shale gas plays in the area has exceeded all predictions and has resulted in the need for additional processing and treating capacity. In preparation to handle this future gas, Nuevo is proposing to build an additional three facilities (Ramsey IV, V and VI Plants). It is currently predicted that the Ramsey IV Plant, a 200 MMSCF/D cryogenic plant and associated 1,000-gpm Amine Plant I, will be needed in late 2015, the Ramsey V Plant, another 200 MMSCF/D cryogenic plant, will be needed in late 2017, and that the Ramsey VI Plant, another 200 MMSCF/D cryogenic plant and associated 1,000-gpm Amine Plant II, will be installed in 2019. The timing of the phases will be dependent on actual market conditions and are provided as a best current estimate only.

The purpose of this application is to apply for a Prevention of Significant Deterioration (PSD) Permit for greenhouse gases (GHGs), to cover the expansion of the currently permitted facility. As the Texas Commission on Environmental Quality (TCEQ) does not currently have the regulations in place to process a PSD permit for greenhouse gases (GHGs), this PSD permit application for GHGs is being submitted to the Environmental Protection Agency (EPA) Region 6. An application for the criteria pollutants has been submitted to TCEQ. An electronic copy of this document is being submitted to EPA with this document.

1.3 Gas Sources

The Ramsey Gas Plant currently receives inlet gas from three main sources. The first, Avalon Shale gas, comes from the area north of the plant. It typically contains higher concentrations of CO_2 as well as traces of H_2S and enters the Plant through the Avalon Inlet. The second gas stream comes from the Wolfcamp formation around the plant and enters the Plant through the

Wolfcamp Inlet. It typically contains no H_2S, but does have low levels of CO_2. The third source of gas is the Bone Spring gas which enters through the Plant already combined with the Avalon and/or Wolfcamp streams. This gas contains some CO_2 but no H_2S. It is obviously not known at this stage what the exact make-up of the inlet gas will be for the proposed expansion. However, conservatively, the percent of Avalon gas entering the plant is anticipated to be about 33%. In order to be even more conservative and develop a "worst case scenario", it has been assumed that the amount of Avalon gas in the inlet would be 40%, with the Wolfcamp and Bone Spring each making up 30%.

A summary of the typical analyses for the Ramsey Gas Plant raw inlet gas streams is presented in Table 1.

Copies of laboratory results are presented in the Technical Specification Section (Section 6).

TABLE 1
TYPICAL INLET GAS ANALYSES

Component	Avalon Inlet	Wolfcamp Inlet	Bone Spring Inlet	Typical Inlet Composite Gas
	Mole Percent			
Methane	71.9545	78.872	76.814	75.488
Ethane	9.499	10.672	11.674	10.503
Propane	5.133	4.474	5.907	5.168
Iso Butane	0.653	0.865	0.758	0.748
Nor Butane	1.564	1.598	1.861	1.663
Iso Pentane	0.409	0.510	0.399	0.436
Nor Pentane	0.436	0.559	0.498	0.492
Hexane+	0.620	1.584	0.660	0.921
Nitrogen	1.562	0.592	1.102	1.133
Carbon Dioxide	8.169	0.274	0.327	3.448
H_2S	0.0005	0.000	0.000	0.0002
Total %	**100.00**	**100.00**	**100.00**	**100.00**

1.4 Facility Description

The Ramsey Gas Plant is located in Reeves County (see Figure 1– Site Location Map, Section 5). Reeves County is rural with no large town or any industry in the immediate area. Most of the county, including the area around the Ramsey Gas Plant, is a broad gently-sloping plain, with sparse grasses, scrub brush, cacti and mesquite. The currently permitted facility occupies about 21.5 acres. After the proposed modification is completed it will occupy approximately 50 acres.

1.4.1 Currently Permitted Facility

The currently permitted Ramsey I through Ramsey III Plants consist of inlet separators, low pressure inlet gas compression, ten (10) residue gas compressors, one (1) 100-MMSCF/D and one (1) 200 MMSCF/D cryogenic processing plant, molecular sieve dehydration and associated

heaters, 475-gpm and 1,300-gpm amine treaters with associated heaters, a Regenerative Thermal Oxidizer (RTO), an emergency flare, pressurized product storage, truck loading, seven (7) condensate and produced water storage tanks and two (2) natural gas-fired generator packages to provide electricity on an interim basis while the power company establishes the full required power supply, after which they will be removed or be converted to emergency back-up generators.

1.4.2 Proposed Expansion of the Ramsey Facility

It is anticipated that the new development will be constructed in phases as market conditions allow, in a similar manner to the previous expansions. It is proposed that the expansions will consist of:

- Ramsey IV Plant
- 1,000-gpm Amine Plant I
- Ramsey V Plant
- Ramsey VI Plant
- 1,000-gpm Amine Plant II.

The equipment associated with the currently permitted facility and these expansions is summarized in Table 2 and are also shown on the Site Plot Plan (see Figure 2 in Section 5).

TABLE 2

EMISSION UNITS ASSOCIATED EXPANSION OF RAMSEY GAS PLANT

RAMSEY I PLANT	RAMSEY II PLANT	RAMSEY III PLANT	RAMSEY IV PLANT	RAMSEY V PLANT	RAMSEY VI PLANT
Currently Permitted			**This Application**		
ENGINES					
Caterpillar G3408C LE (COMP-1B)	Caterpillar G3516B LE (COMP-5)	Caterpillar G3612 LE (COMP-10) or equivalent	Caterpillar G3612 LE (COMP-15) or equivalent	Caterpillar G3612 LE (COMP-20) or equivalent	Caterpillar G3612 LE (COMP-25) or equivalent
Caterpillar G-3412 TA (COMP-2)	Caterpillar G3516B LE (COMP-6)	Caterpillar G3612 LE (COMP-11) or equivalent	Caterpillar G3612 LE (COMP-16) or equivalent	Caterpillar G3612 LE (COMP-21) or equivalent	Caterpillar G3612 LE (COMP-26) or equivalent
	Caterpillar G3516B LE (COMP-7)	Caterpillar G3612 LE (COMP-12) or equivalent	Caterpillar G3612 LE (COMP-17) or equivalent	Caterpillar G3612 LE (COMP-22) or equivalent	Caterpillar G3612 LE (COMP-27) or equivalent
	Caterpillar G3516B LE (COMP-8)	Caterpillar G3612 LE (COMP-13) or equivalent	Caterpillar G3612 LE (COMP-18) or equivalent	Caterpillar G3612 LE (COMP-23) or equivalent	Caterpillar G3612 LE (COMP-28) or equivalent
	Caterpillar G3516B LE (COMP-9)	Caterpillar G3612 LE (COMP-14) or equivalent	Caterpillar G3612 LE (COMP-19) or equivalent	Caterpillar G3612 LE (COMP-24) or equivalent	Caterpillar G3612 LE (COMP-29) or equivalent
	Caterpillar G3520C-HV (G-1)				
	Caterpillar G3516 TALE (G-2)				
Blowdowns (BD)		Blowdowns (BD2)	Blowdowns (BD3)	Blowdowns (BD4)	Blowdowns (BD5)
HEATERS and STILL VENTS					
	11.44 MMBtu/hr Regen Gas Heater (H-	36 MMBtu/hr or equivalent Hot Oil Heater	36 MMBtu/hr or equivalent Regen Gas	36 MMBtu/hr or equivalent Regen Gas	36 MMBtu/hr or equivalent Regen Gas

RAMSEY I PLANT	RAMSEY II PLANT	RAMSEY III PLANT	RAMSEY IV PLANT	RAMSEY V PLANT	RAMSEY VI PLANT
Currently Permitted			**This Application**		
	3)	(H-6)	Heater (H-8)	Heater (H-10)	Heater (H-12)
1 MMBtu/hr Hot Oil Heater (H-2)	33.4 MMBtu/hr Hot Oil Heater (H-4)	40.4 MMBtu/hr Hot Oil Heater (H-7A)	60 MMBtu/hr or equivalent Hot Oil Heater (H-9)		60 MMBtu/hr or equivalent Hot Oil Heater (H-11)
		40.4 MMBtu/hr Hot Oil Heater (H-7B)			
	24 MMBtu/hr Hot Oil Heater (H-5)				
	Amine Still Vent (A-2)	Amine Still Vent (A-3)	Amine Still Vent (A-4)		Amine Still Vent (A-5)
	Emergency Flare (F-2R)	Regenerative Thermal Oxidizer (RTO-3)	Regenerative Thermal Oxidizer (RTO-4)		Regenerative Thermal Oxidizer (RTO-5)
TANKS					
210 bbl Condensate Tank (T-1)	210 bbl Condensate Tank (T-2)	210 bbl Condensate Tank (T-4)			
	210 bbl Condensate Tank (T-3)	210 bbl Condensate Tank (T-5)			
	210 bbl Produced Water Tank (T-8)	210 bbl Produced Water Tank (T-9)			
MISC					
Truck Loading		Truck Loading			
FUG1		FUG2	FUG4	FUG5	FUG6

The shaded area of the Table denotes the currently permitted facilities

2.0 PROCESS DESCRIPTION

2.1 Currently Permitted

Currently, inlet gas from the low-pressure inlet separator is compressed by the Caterpillar G3408C LE IC engine driven screw compressor (COMP-1B) and boosted to plant inlet pressure by the Caterpillar 3412 TA IC engine driven booster compressor (COMP-2). This gas is combined with the high pressure Avalon, Bone Spring and Wolfcamp inlets and routed to one or both of the amine units (475-gpm or 1,300-gpm).

In the existing amine units, lean amine solution is fed to the amine contactor and absorbs the H_2S and CO_2 (acid gas) in the inlet gas. The rich amine solution from the amine contactor is flashed in the amine flash drum and routed to the appropriate amine still where the acid gas is stripped from the amine solution with steam generated by heat exchanged with hot oil in the amine reboilers. The hot oil used to regenerate the amine is heated by hot oil heaters (H-4 and/or H-7A and H-7B). The gas flashed in the amine flash drum is recycled to the suction of the low pressure inlet compressors and is not an emissions source. The acid gas from the amine still vents (A-2 and A-3) is normally routed to the Regenerative Thermal Oxidizer (RTO-3) with the back-up option of routing the still vents to the emergency flare (F-2R) in the event the RTO is down during routine maintenance or an upset situation.

The sweet gas from the amine units is routed to the molecular sieve dehydrators of Ramsey II Plant and/or Ramsey III Plant. The molecular sieve dehydrators are regenerated by Mole Sieve Regen Heaters (H-3 and/or H-6). From the molecular sieve dehydrators the gas is routed to the respective cryogenic plants.

The clean dry gas goes through multiple heat exchangers where the temperature is dropped and the ethane and heavier components of the gas stream are liquefied. The remaining gas and liquids mixture is sent to the demethanizer where the methane gas is stripped from the ethane rich liquid by warm vapors as it flows across the trays and through the packed sections of the demethanizer tower. The heat required for this distillation is supplied by exchange with the warm inlet gas. If deethanization is required, additional heat is supplied by hot oil heaters (H-5) for Ramsey II Plant or (H-6) for Ramsey III Plant.

Propane refrigeration is required for inlet gas chilling and the single column overhead recycle process is contained in a closed-loop process. Liquid propane is evaporated, drawing the latent heat of vaporization from the process. The low pressure vapor is compressed using four (4) 1,250-hp electric driven screw compressors for Ramsey II Plant and three (3) 1,750-hp electric driven screw compressors for the Ramsey III Plant. The vapor is condensed in an aerial cooler and flows into the propane accumulator. Liquid propane is level controlled into the economizer where the non-condensable gases flash, cooling the propane to 55 ^{o}F. The vapor from the economizer is returned to the refrigerant compressor inter-stage, reducing the compression horsepower required. The liquid propane in the economizer is routed to the chillers in the cryogenic plant, vaporized and returned to the electric driven screw compressors where the process is repeated inside the closed-loop.

The Y-grade liquid product normally flows from the cryogenic section to the product surge tank prior to being shipped off-site by pipeline. If necessary, the facility also has the ability to "deethanize" the liquid product in the demethanizer and store it in pressurized tanks prior to being shipped offsite by truck. The pressurized product loading operation is a closed system with no emissions.

Condensate collected from the low pressure inlet separator is routed to the existing Condensate Tanks (T-1 through T-4) prior to being loaded into trucks. High pressure liquids from the high pressure inlet separators, and compressor dumps are flashed to the flash tank. The condensate from the flash tank is stabilized using hot oil from hot oil heater (H-2) and is also routed to the existing storage tanks (T-1 through T-4). The facility is permitted for up to seven (7) condensate or produced water storage tanks. In the event that the condensate and produced water volumes warrant the need for additional storage capacity, the three (3) remaining permitted tanks will be installed. The vapors from the flash tank become part of the suction of the low-pressure compressor (COMP-1B).

The compressor blow downs (BD), which includes routine maintenance, start-up and shutdown of the facility, and temporary maintenance VOC emissions are authorized by the new PBR 106.359, until they were rolled into the Title V permit.

There are two (2) generators (G-1 and G-2) that were installed to temporarily provide power while a substation is built, and will be converted to emergency back-up use or removed once the substation is completed.

The existing, permitted equipment also includes one (1) 100 MMSCF/D cryogenic plant (currently operational) and one (1) 200 MMSCF/D cryogenic plant (currently under construction). Hot oil heaters H-5 and H-6 supply process heat used in the demethanizer for each of these plants.

The residue gas from the demethanizer is compressed for sale by five (5) Caterpillar G3516B LE (or equivalent) gas engine driven compressors (COMP-5, COMP-6, COMP-7, COMP-8 and COMP-9) for Ramsey II Plant and five (5) Caterpillar G3612 LE (or equivalent) gas engine driven compressors (COMP-10, COMP-11, COMP-12, COMP-13 and COMP-14) for Ramsey III Plant.

Pipeline quality residue gas is used for fuel gas under normal circumstances.

2.2 Proposed Facility Expansion

The facility expansion will include the addition of two (2) 1,000-gpm amine units (Amine Plants I and II). The process description is identical to the 475-gpm and 1,300-gpm amine units above. The amine will be regenerated by heat from hot oil heaters H-9 and H-11 respectively. Amine Plants I and II will be associated with Amine still vent A-4 and RTO-4 and amine still vent A-5 and RTO-5 respectively.

The facility expansion will also include the addition of three (3) 200 MMSCF/D cryogenic processing plants. The plants will be Ramsey IV Plant, Ramsey V Plant and Ramsey VI Plant. The process description for these plants is as described above for Ramsey II Plant and Ramsey III Plant. The molecular sieve regeneration and process heat for these plants will be furnished by

regen heaters H-8, H-10 and H-12 respectively. The residue gas from each plant will be compressed by five (5) Caterpillar G3612 LE (or equivalent) gas engine driven compressors. Ramsey IV Plant will have COMP-15, COMP-16, COMP-17, COMP-18 and COMP-19. Ramsey V Plant will have COMP-20, COMP-21, COMP-22, COMP-23 and COMP-24. Ramsey VI Plant will have COMP-25, COMP-26, COMP-27, COMP-28 and COMP-29.

Pipeline-quality facility residual gas will continue to be used for fuel gas under normal circumstances.

A process flow diagram is provided as Figure 3 in Section 5.

3.0 PSD APPLICABILITY FOR GHG

Under the Clean Air Act (CAA), new major stationary sources of certain air pollutants, defined as "regulated NSR pollutants," and major modifications to existing major sources are required to, among other things, obtain a PSD permit prior to construction or major modification. Once major sources become subject to PSD, these sources must, in order to obtain a PSD permit, meet the various PSD requirements. For example, they must apply BACT, demonstrate compliance with air quality related values and PSD increments, address impacts on special Class I areas (e.g., some national parks and wilderness areas), and assess impacts on soils, vegetation, and visibility. How the proposed project meets these PSD requirements for GHGs is the subject of this section of this document.

The CAA applies the PSD requirements to any "major emitting facility" that is constructed (if the facility is new) or undertakes a modification (if the facility is an existing source). The term "major emitting facility" is defined as a stationary source that emits, or has a potential to emit (PTE) of, at least 100 TPY, if the source is in one of 28 listed source categories, or, if the source is not, then at least 250 TPY, of "any air pollutant." For existing facilities, the CAA adds a definition of modification, which, in general, is any physical or operational change that "increases the amount" of any air pollutant emitted by the source.

EPA's regulations implement these PSD applicability requirements through use of different terminology, and, in the case of GHGs, with additional limitations. Specifically, the regulations apply the PSD requirements to any major stationary source that begins actual construction (if the source is new) or that undertakes a major modification (if the source is existing). The term major stationary source is defined as a stationary source that emits, or has a PTE of, at least 100 TPY if the source is in one of 28 listed source categories, or, if the source is not, then at least 250 TPY, of regulated NSR pollutants, "Criteria Pollutants". The proposed project is not included in one of the 28 listed source categories and is therefore subject to the 250 TPY major source threshold.

A major modification is defined as "any physical change in or change in the method of operation of a major stationary source that would result in a significant emissions increase of a regulated NSR pollutant; and a significant net emissions increase of that pollutant from the major stationary source."

EPA rules specify what amount of emissions increase is "significant" for listed regulated NSR pollutants (e.g., 40 TPY for sulfur dioxide, 100 TPY for carbon monoxide), but for any regulated NSR pollutant that is not listed in the regulations, any increase is significant. A pollutant is a "regulated NSR pollutant" if it meets at least one of four requirements, which are, in general, any pollutant for which EPA has promulgated a NAAQS or a new source performance standard (NSPS), certain ozone depleting substances, and "[a]ny pollutant that otherwise is subject to regulation under the Act." PSD applies on a regulated-NSR-pollutant-by-regulated-NSR-pollutant basis. The PSD requirements do not apply to regulated NSR pollutants for which the area is designated as nonattainment. Further, some modifications are exempt from PSD review (e.g., routine maintenance, repair and replacement). A explained above, Nuevo has already submitted a criteria pollutant PSD application for the Ramsey Expansion to the TCEQ and is sending an electronic copy of that application to EPA, with this GHG PSD appplication.

Beginning on January 2, 2011, GHGs also became a regulated NSR pollutant under the PSD major source permitting program when they are emitted by new sources or modifications in amounts that meet specified applicability thresholds. For PSD purposes, GHGs are a single air pollutant defined as the aggregate group of the following six gases:

- carbon dioxide (CO_2)
- nitrous oxide (N_2O)
- methane (CH_4)
- hydrofluorocarbons (HFCs)
- perfluorocarbons (PFCs)
- sulfur hexafluoride (SF_6)

Emissions of GHGs, in at least specified threshold amounts, are also treated as subject to regulation and therefore as a regulated NSR pollutant. The process for determining whether a source is emitting GHGs in an amount that would make the GHGs a regulated NSR pollutant includes a calculation of, and applicability threshold for, the source based on CO_2 equivalent (CO_2e) emissions, as well as its GHG mass emissions. Consequently, when determining the applicability of PSD to GHGs, there is a two-part applicability process that evaluates both:

- the sum of the CO_2e emissions in TPY of the six GHGs, in order to determine whether the source's emissions are a regulated NSR pollutant; and, if so
- the sum of the mass emissions in TPY of the six GHGs, in order to determine if there is a major source or major modification of such emissions.

CO_2e emissions are defined as the sum of the mass emissions of each individual GHG adjusted for its global warming potential (GWP). GWP values have been published in Table A-1 of the Greenhouse Gas Reporting Program (GHGRP) (40 CFR Part 98, Subpart A, Table A-1). For any source, since GHG emissions may be a mixture of up to six compounds, the amount of GHG emissions calculated for the PSD applicability analysis is a sum of the compounds emitted at the emissions unit.

The Ramsey Plant is currently a major source for CO, and the proposed project is considered to be a modification. PSD applies to the GHG emissions from a modification if any of the following is true:

Both of the following are true:

- Not considering its emissions of GHGs, the modification would be considered a major modification anyway and therefore would be required to obtain a PSD permit (called an "anyway modification"), and
- The emissions increase and the net emissions increase of GHGs from the modification would be equal to or greater than 75,000 TPY on a CO_2e basis and greater than zero TPY on a mass basis.

Or both:

- The existing source's PTE for GHGs is equal to or greater than 100,000 TPY on a CO_2e basis and is equal to or greater than 100/250 TPY (depending on the source category) on a mass basis, and

- 75,000 TPY on a CO_2e basis and greater than zero TPY on a mass basis.

Or both:

- The existing source is minor for PSD (including GHGs) before the modification, and
- The actual or potential emissions of GHGs from the modification alone would be equal to or greater than 100,000 TPY on a CO_2e basis and equal to or greater than the applicable major source threshold of 100/250 TPY on a mass basis. Note that minor PSD sources cannot "net" out of PSD review.

Assessing PSD applicability for a modification at an existing major stationary source against the GHG emissions thresholds is a two-step process. Step 1 of the applicability analysis considers only the emissions increases from the proposed modification itself and is presented above. Step 2 of the applicability analysis, which is often referred to as "contemporaneous netting," considers all creditable emissions increases and decreases (including decreases resulting from the proposed modification) occurring at the source during the "contemporaneous period." The federal "contemporaneous period" for GHG emissions is no different than the federal contemporaneous period for other regulated NSR pollutants, which covers the period beginning 5 years before construction of the proposed modification through the date that the increase from the modification occurs.

Because PSD applicability for modifications at existing sources requires a two-step analysis, and because, for GHGs, each step requires a mass-based calculation and a CO_2e-based calculation, a total of four applicability conditions must be met in order for modifications involving GHG emissions at existing major sources to be subject to PSD. These four conditions are summarized below.

1) The CO_2e emissions increase resulting from the modification, calculated as the sum of the six GHGs on a CO_2e basis (i.e., with GWPs applied) is equal to or greater than 75,000 TPY CO_2e. No emissions decreases are considered in this calculation (i.e.., if the sum of the change in the six GHGs on a CO_2e basis from an emissions unit included in the modification results in a negative number, that negative sum is not included in this calculation to offset increases at other emissions units).

2) The "net emissions increase" of CO_2e over the contemporaneous period is equal to or greater than 75,000 TPY.

3) The GHG emissions increase resulting from the modification, calculated as the sum of the six GHGs on a mass basis (i.e., with no GWPs applied) is greater than zero TPY. No emissions decreases are considered in this calculation (i.e., if the sum of the change in the six GHGs on a mass basis from an emissions unit included in the modification results in a negative number, that negative sum is not included in this calculation to offset increases at other emissions units).

4) The "net emissions increase" of GHGs (on a mass basis) over the contemporaneous period is greater than zero TPY.

Based on emission estimates, the proposed project is a major modification under PSD not considering its GHG emissions, and the net increase in GHG emissions is estimated to be equal

to or greater than 75,000 TPY on a CO_2e basis and greater than zero TPY on a mass basis. Therefore the project is subject to PSD for GHGs.

4.0 TOP DOWN GHG BEST AVAILABLE CONTROL TECHNOLOGY (BACT) ANALYSIS

Under the CAA and applicable regulations, a PSD permit must contain emissions limitations based on application of Best Available Control Technology (BACT) for each regulated NSR pollutant. A determination of BACT for GHGs should be conducted in the same manner as it is done for any other PSD regulated pollutant. The scope of the GHG BACT Analysis is the proposed facility modification described in Sections 1.2 and 1.4.2.

EPA recommends that permitting authorities continue to use the Agency's five-step "topdown" BACT process to determine BACT for GHGs. In brief, the top-down process calls for all available control technologies for a given pollutant to be identified and ranked in descending order of control effectiveness. The permit applicant should first examine the highest-ranked ("top") option. The top-ranked options should be established as BACT unless the permit applicant demonstrates to the satisfaction of the permitting authority that technical considerations, or energy, environmental, or economic impacts justify a conclusion that the top-ranked technology is not "achievable" in that case. If the most effective control strategy is eliminated in this fashion, then the next most effective alternative should be evaluated, and so on, until an option is selected as GHG BACT.

EPA has broken down this analytical process into the following five steps:

- Step 1: Identify all available control options.
- Step 2: Eliminate technically infeasible control options.
- Step 3: Rank remaining control technologies.
- Step 4: Eliminate control options based on collateral impacts.
- Step 5: Select BACT.

The CAA specifies that BACT cannot be less stringent than any applicable standard of performance under the New Source Performance Standards (NSPS). EPA has not promulgated any NSPS that contain emissions limits for GHGs. However, EPA has promulgated several standards that specify emission control practices which are effective for GHGs. These include:

- NSPS for Stationary Spark Ignition Internal Combustion Engines which specifies good combustion practices for natural gas fired engines.
- NSPS for Crude Oil and Natural Gas Production, Transmission and Distribution facilities (40 CFR 60 Subpart OOOO) which specifies practices for limiting fugitive emissions that also limit fugitive GHG emissions.

An initial consideration that is not directly covered in the five steps of the top-down BACT process is the scope of the entity or equipment to which a top-down BACT analysis is applied. EPA has generally recommended that permit applicants conduct a separate BACT analysis for each emissions unit at a facility and has also encouraged applicants and permitting authorities to

consider logical groupings of emissions units as appropriate on a case-by-case basis. For purposes of this analysis, proposed emission units of the Ramsey Gas Plant expansion will be grouped for analysis as shown in Table 3 below:

TABLE 3
EMISSION UNITS AND POLLUTANTS THAT REQUIRE GHG BACT ANALYSIS

Unit Group	EPN(s)	Pollutants
Gas Fired Internal Combustion Compressor Engines	C-15 through C-29	• carbon dioxide (CO_2) • nitrous oxide (N_2O) • methane (CH_4)
Hot Oil Heaters, Regeneration Heaters	H-8, H-9, H-10, H-11, H-12	
Amine Still Vents	A-4 and A-5	
RTOs	RTO-4 and RTO-5	
Fugitives	FUG4, FUG5 and FUG6	

No significant amounts hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), or sulfur hexafluoride (SF_6) are in use at the facility and emissions of these compounds are not considered as part of the analysis.
No other equipment or GHG sources are included in the proposed modification.

4.1 Step 1 Identify Available Control Technologies

Step 1 - Step 1 of the top-down approach requires that all available control options that are potentially applicable to the proposed source are identified. Available control options were identified by consulting the EPA's RACT/BACT/LAER clearinghouse, along with other reliable sources. Viable control options are those technologies that have a practical potential for application to the emissions unit and the regulated pollutant under evaluation. The full range of emissions minimization techniques was considered including:

• "End-of-stack" controls,
• Fuel and materials choices,
• Production process design and work practices, and
• Energy usage and conservation techniques

In Step 1 of a criteria pollutant BACT analysis, the following resources are typically consulted to identify potential technologies:

- The EPA Reasonably Available Control technology (RACT)/ Best Available Control technology (BACT)/Lowest Achievable Emission Rate (LAER) Clearinghouse (RBLC) database;
- Determinations of BACT by regulatory agencies for similar sources, and air permits and permit files from federal or state agencies;
- Engineering experience with similar projects or emission sources;

- Information provided by air pollution control equipment vendors who have produced or implemented controls at a significant number of sources;
- Literature from technical or trade organizations.

One set of draft determinations related to GHG BACT, at a facility similar to the Ramsey Plant but located in Louisiana, was found in the RBLC database. These draft determinations were taken into consideration in determining BACT for the Ramsey Plant.

This analysis also relies on publicly available air permits and permit applications covering similar facilities to establish BACT.

EPA GHG BACT guidance recommends that carbon capture and sequestration (CCS) be evaluated as an available control for projects such as steel mills, refineries, and cement plants where CO_2e emissions levels are in the order of 1,000,000 tpy CO_2e, or for industrial facilities that produce or use high-purity CO_2 streams. However, EPA explained that "[t]his does not mean CCS should be selected as BACT for such sources." The amine still vents are the only CO_2-containing stream produced at the facility, and CCS will be assessed as a potential control technology for that source group. Since the facility processes sulfur-containing field gas, this stream is expected to contain significant amounts of hydrogen sulfide and so require additional processing before entering a CO_2 pipeline for transportation. The proposed Ramsey Plant modification GHG emissions total approximately 595,000 tpy CO_2e (including emissions from Maintenance Startup and Shutdown (MSS) activities). In accordance with EPA guidance, and based on the anticipated relatively low level of CO_2e emissions, CSS will not be considered as an available control option for other sources at the Ramsey Plant.

This BACT analysis focuses on the main sources of CO_2e emission at the Plant. GHG emissions from small sources such as malfunction, start-up and shut down events are included in facility emission estimates, but separate controls for these emissions are not considered in the BACT analysis.

Available control technologies for each unit group include the following:

4.1.1 Gas Fired Internal Combustion Compressor Engines

Natural Gas as Fuel – Selecting inherently lower emitting processes is one recommended form of BACT. For GHG BACT analyses, low carbon density fuel selection is the primary control option that could be considered a lower emitting process. Nuevo proposes to use very low carbon intensity plant residue gas, equivalent to pipeline quality natural gas, as fuel in all on-site combustion equipment. According to 40 CFR 98 Table C-1, only biogas and coke oven gas have lower carbon emissions per unit heat input than natural gas.

Good Combustion, Operations, and Maintenance Practices – Maximizing combustion efficiency can minimize the amount of fuel needed to maintain facility production and so minimize GHG emissions. Good combustion, operations, and maintenance practices for natural gas spark ignition engines are specified in the applicable requirements of NSPS 40 CFR 60 Subpart JJJJ.

Air/Fuel Ratio Controllers – Air/fuel ratio controllers minimize methane emissions from reciprocating engines. Combustion units operated with too much excess air may lead to inefficient combustion, and additional energy will be needed to heat the excess air. Oxygen monitors and intake air flow monitors can be used to optimize the fuel/air mixture and reduce the amount of energy required to heat the stream and, therefore, reduce the carbon emissions. The engine management systems provided by the manufacturer with the engines proposed for the Ramsey Plant expansion integrate speed control, air/fuel ratio control, and ignition/detonation controls so as to maximize combustion efficiency and minimize GHG emissions.

Efficient Engine Design – Large natural gas fired engines utilize either rich burn or lean burn technology to attain required low criteria pollutant emission levels. Rich burn technology controls combustion temperature by maintaining excess fuel in the combustion zone, and is an inherently inefficient combustion process. Lean burn technology, on the other hand, utilizes excess air in the combustion zone. The excess air absorbs heat during combustion reducing the combustion temperature and pressure and greatly reducing levels of criteria pollutants. Lean burn technology provides longer component life and excellent fuel efficiency. The engines selected for the Ramsey Plant expansion incorporate energy efficient, low carbon emission lean burn technology.

Electric Powered Compression – It is technically possible to install large electric motors to power compressors. Electric motors do not produce any significant GHG emissions at the site where they are installed, but the electricity they use is generally associated with GHG emissions from associated power generation facilities. Large compressors like those necessary at the Ramsey Plant require a high-voltage, high amperage electric supply that is not available at the Plant site. Also, net regional GHG emissions from electric powered compression may be higher than that of natural gas powered compressor engines if coal or another high carbon density fuel is used to generate the electric power.

4.1.2 Hot Oil Heaters, Regeneration Heaters

Natural Gas as Fuel – Nuevo proposes to use very low carbon density plant residue gas, equivalent to pipeline quality natural gas, as fuel in all on-site combustion equipment.

Good Combustion, Operations, and Maintenance Practices – Maximizing combustion efficiency can minimize the amount of fuel needed to maintain facility production and so minimize GHG emissions. Good combustion, operations, and maintenance practices for natural gas heaters are described in Table 9.

Combustion Air Controls – Combustion units operated with too much excess air may lead to inefficient combustion, and additional energy will be needed to heat the excess air. Both of these factors tend to increase GHG emissions. Oxygen monitors and intake air flow monitors can be used to optimize the fuel/air mixture.

Fuel Gas Pre-heater / Air Pre-heater – Preheating the fuel gas and air reduces heating load and increases thermal efficiency of the combustion unit. An air pre-heater recovers heat in the heater exhaust gas to preheat combustion air. Preheating the combustion air in this way reduces heater

heating load, increases its thermal efficiency, and reduces GHG emissions. Pre-heaters typically increase NOx emissions and so are contraindicated for heaters that are required to meet BACT for NOx. Also, air preheaters require operation of induced draft fans and so increase overall energy consumption. According to the EPA document Available and Emerging Technologies for Reducing Greenhouse Gas Emissions from the Petroleum Refining Industry, (EPA, Office of Air and Radiation, October 2010) preheating is not feasible for heaters with a heat input of less than 50 MMBtu/hour.

Efficient Heater Design – Efficient design improves mixing of fuel and creates more efficient heat transfer. Since Nuevo is proposing to install new equipment, the proposed heaters will be designed to optimize combustion efficiency.

4.1.1 Amine Still Vents

Natural Gas as Fuel – Nuevo proposes to use very low carbon density plant residue gas, equivalent to pipeline quality natural gas, as fuel in all on-site combustion equipment.

Good Combustion, Operations, and Maintenance Practices – The amine unit will be new or updated equipment installed on site. New or updated equipment has better energy efficiency, and therefore minimizes GHGs emitted during combustion. The amine unit will be designed to operate at a minimum circulation rate with consistent amine concentrations. By minimizing the circulation rate, the equipment avoids pulling out additional VOCs and GHGs in the amine streams, which would increase VOC and GHG emissions into the atmosphere. Other good combustion, operations, and maintenance practices for amine still vents are described in Table 9.

Carbon Capture and Sequestration – Capture and transfer of CO_2 from the amine still vents is technically feasible. Since capture and transfer of CO_2 off-site is technically feasible for the proposed project, this option will be evaluated for energy, environmental, and economic impacts. The evaluation and proposed partial implementation of this option is discussed in Section 4.4.1.

Flare – The use of a flare can reduce the CH_4 emissions contained in the stripped amine acid gases. Flares or other VOC controls are required on amine still vents that must meet criteria pollutant BACT. The flare is an example of a control device in which the control of certain pollutants causes the formation of collateral GHG emissions. Controlling the amine still vent streams with a flare would require significant supplemental fuel to maintain a pilot flame and to increase the heating value of the waste gases to the point that it can be effectively combusted in a flare and so increase CO_2 and CH_4 emissions. Also flares combust at high temperature and so contribute additional N_2O emissions. Flares have a destruction efficiency rate (DRE) of 98% for VOCs and 99% for compounds containing no more than 3 carbons and that contain no elements other than carbon and hydrogen, including CH_4. The combustion of the supplemental fuel and pilot fuel result in an overall increase in the net CO_2e emissions from this source.

Regenerative Thermal Oxidizer (RTO) – Another option to reduce the CH_4 and VOC emitted from the Ramsey Plant is to send stripped amine acid gases to an RTO. The RTO is also an example of a control device in which the control of certain pollutants causes the formation of collateral GHG emissions, the control of CH_4 and VOC in the process gas at the RTO results in

the creation of additional CO_2 emissions. An RTO recovers heat from the exhaust stream, reducing the overall heat input of the plant. RTOs typically have destruction and removal efficiencies greater than of 99% for all VOC and HAP compounds, which is more efficient than a typical flare. In contrast with a flare, which requires the use of supplemental fuel to increase the waste gas heating value as well as a constant pilot, a RTO only uses a minimal amount of natural gas at start up until optimum temperature for combustion is reached and does not require a continuous pilot. This results in lower use of supplemental fuel and lower GHG emissions than expected from an equivalent flare.

Flash Tank Gas Recovery – The amine units will be equipped with flash tanks. The flash tanks will be used to recycle off-gases formed as the pressure of the rich amine streams drops to remove lighter compounds in the stream. These off-gases are recycled back into the plant for reprocessing, instead of venting to the atmosphere or combustion device. The use of flash tanks increases the effectiveness of other downstream control devices.

Condenser – Condensers are supplemental emissions control that reduces the temperature of the still column vent vapors on amine units to condense water and VOCs, including CH_4. The condensed liquids are then collected for further treatment or disposal. The reduction efficiency of the condensers is variable and depends on the type of condenser and the composition of the waste gas, ranging from 50-98% of CH_4 emissions.

4.1.2 RTOs

Natural Gas as Fuel – Nuevo proposes to use very low carbon density plant residue gas, equivalent to pipeline quality natural gas, as fuel in all on-site combustion equipment.

Good Combustion, Operations, and Maintenance Practices – Good combustion and operating practices are a potential control option by improving the fuel efficiency of the RTO. Good combustion, operations, and maintenance practices for RTOs are described in Table 9.

Proper Design – Good RTO design can be employed to destroy any HAPs, VOCs and CH_4 entrained in the waste gas. Nuevo proposes to install new RTOs designed by a well-qualified and experienced manufacturer.

4.1.3 Fugitives

Install sealed or leakless components – Leakless technology valves are available and currently in use, primarily where highly toxic or otherwise hazardous materials are used. These technologies are generally considered cost prohibitive except for specialized service. Some leakless technologies, such as bellows valves, cannot be repaired without a unit shutdown if they fail. Additional emissions generated during the shutdown and restart offset some or all of the emission reductions sought by installing these components.

Implement NSPS OOOO Leak Detection and Repair (LDAR) programs as required – Method 21 monitoring is effective for identifying leaking CH_4, and although it cannot detect CO_2, it can detect mixed streams that contain CO_2 such as inlet gas or plant residual gas. Method 21

monitoring of the fuel and feed systems for CH_4 is an effective method for control of GHG emissions. NSPS OOOO requires a regular LDAR program that is believed to reduce fugitive VOC emissions by 75-93%, and this program should control fugitive GHG emissions by a similar percent. Nuevo proposes to comply with applicable requirements of NSPS OOOO.

Implement an alternate monitoring program using remote sensing – Alternate monitoring programs, such as remote sensing technologies, have been proven effective in leak detection and repair programs under some circumstances and are also used to detect large releases of hazardous or highly flammable gases. According to the EPA publication Oil and Natural Gas Sector: Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution (EPA-435/R-11-002, July 2011), remote sensing has a cost effectiveness of $1,795 per ton of methane reduced from natural gas plants. This cost makes remote sensing economically infeasible.

Implement an audio/visual/olfactory (AVO) monitoring program for odorous compounds – Leaking fugitive components can be identified through AVO methods. The fuel gases and process fluids in the piping components are expected to have discernible odor, making them detectable by olfactory means. A large leak can be detected by sound (audio) and sight. The visual detection can be a direct viewing of leaking gases, or a secondary indicator such as condensation around a leaking source due to cooling of the expanding gas as it leaves the leak interface. AVO programs are common and in place in industry.

Proper facility design and construction – A key element in the control of fugitive emissions is the use of high quality equipment that is designed for the specific service in which it is employed. For example, a valve that has been manufactured under high quality conditions can be expected to have lower runout on the valve stem, and the valve stem is typically polished to a smoother surface. Both of these factors greatly reduce the likelihood of leaking. A second element affecting fugitive emissions is optimization of the number and type of components in the facility.

Replace rod packing on reciprocating compressors as required by NSPS OOOO – NSPS OOOO requires the replacement of rod packing on reciprocating compressors in order to reduce VOC emissions. This measure should also reduce GHG fugitive emissions from affected compressors.

Table 4 summarizes the control technologies selected as potential GHG BACT candidates.

TABLE 4
POTENTIAL CONTROL TECHNOLOGIES

Emission Unit Group	Potential Technology
Compressor Engines	Natural Gas as Fuel
	Good Combustion, Operations, and Maintenance Practices in accordance with 40 CFR 60 Subpart JJJJ
	Air/Fuel Ratio Controllers
	Efficient Engine Design
	Electric Powered Compression
Hot Oil Heaters, Regeneration Heaters	Natural Gas as Fuel
	Good Combustion, Operations, and Maintenance Practices
	Combustion Air Controls
	Fuel Gas Pre-heater / Air Pre-heater
	Efficient Heater Design
Amine Still Vents	Natural Gas as Fuel
	Good Combustion, Operations, and Maintenance Practices
	Carbon Capture and Sequestration
	Thermal Oxidizer
	Flare
	Flash Tank Gas Recovery
	Condenser
Regenerative Thermal Oxidizers (RTOs)	Natural Gas as Fuel
	Good Combustion, Operations, and Maintenance Practices
	Proper Design
Fugitives	Install sealed or leakless components
	Install Pneumatic controllers that comply with NSPS OOOO
	Implement NSPS OOOO LDAR programs as required
	Implement an alternate monitoring program using remote sensing
	Implement an audio/visual/olfactory (AVO) monitoring program for odorous compounds
	Proper facility design and construction
	Replace rod packing on reciprocating compressors as required by NSPS OOOO

4.2 Step 2 Eliminate Technically Infeasible Control Options

Step 2 of the top-down approach allows for the elimination of control options that are technically infeasible. In addition, each technology is either identified as "demonstrated" (that is it has been previously installed and operated successfully on a similar facility); or if undemonstrated, then a determination was made as to whether the technology is both "available" and "applicable."

Technologies identified in Step 1 that are neither demonstrated nor found to be both available and applicable are eliminated under Step 2.

The results of Step 2 are summarized in Table 5 Below

TABLE 5
POTENTIAL CONTROL TECHNOLOGIES

Unit Group	Potential Technology	Feasible (Yes/No)	Demon-strated (Yes/No)	Available & Applicable (Yes/No)	Eliminated (Yes/No)
Compressor Engines	Natural Gas as Fuel	Yes	Yes	Yes	No
	Good Combustion, Operations, and Maintenance Practices	Yes	Yes	Yes	No
	Air/Fuel Ratio Controllers	Yes	Yes	Yes	No
	Efficient Engine Design	Yes	Yes	Yes	No
	Electric Powered Compression	No. Grid electric supply not adequate	Yes	No	Yes
Hot Oil Heaters, Regeneration Heaters	Natural Gas as Fuel	Yes	Yes	Yes	No
	Good Combustion, Operations, and Maintenance Practices	Yes	Yes	Yes	No
	Combustion Air Controls	Yes	Yes	Yes	No
	Fuel Gas Pre-heater / Air Pre-heater	Partial. Not feasible <50 MMBtu/hr[1]	Yes	Yes	No
	Efficient Heater Design	Yes	Yes	Yes	No
Amine Still Vents	Natural Gas as Fuel	Yes	Yes	Yes	No
	Good Combustion, Operations, and Maintenance Practices	Yes	Yes	Yes	No
	Carbon Capture and Sequestration	Yes	Yes	Yes, up to 7 MMSCF/D	No
	Thermal Oxidizer	Yes	Yes	Yes	No
	Flare	Yes	Yes	Yes	No
	Flash Tank Gas Recovery	Yes	Yes	Yes	No
	Condenser	Yes	Yes	Yes	No
RTO	Natural Gas as Fuel	Yes	Yes	Yes	No
	Good Combustion, Operations, and Maintenance Practices	Yes	Yes	Yes	No
	Proper Design	Yes	Yes	Yes	No
Fugitives	Install sealed or leakless components	No, Leakless components have variable useful life and cannot be	Yes	Yes	Yes

Unit Group	Potential Technology	Feasible (Yes/No)	Demon-strated (Yes/No)	Available & Applicable (Yes/No)	Eliminated (Yes/No)
		repaired without unit shutdown[2].			
	Install Pneumatic controllers that comply with NSPS OOOO	Yes	Yes	Yes	No
	Implement NSPS OOOO LDAR programs as required	Yes	Yes	Yes	No
	Implement an alternate monitoring program using remote sensing	Yes	Yes	Yes	No
	Implement an audio/visual/olfactory (AVO) monitoring program	Yes	Yes	Yes	No
	Proper facility design and construction	Yes	Yes	Yes	No
	Replace rod packing on reciprocating compressors as required by NSPS OOOO	Yes	Yes	Yes	No

1 - Available and Emerging Technologies for Reducing Greenhouse Gas Emissions from the Petroleum Refining Industry (EPA, Office of Air and Radiation, October 2010), Section 3.0 Summary of GHG Reduction Measures and Table 1 Summary of GHG Reduction Measures for the Petroleum Refinery Industry. (Appendix A)
2 - Calpine Corp Statement of Basis for Greenhouse Gas Prevention of Significant Deterioration Preconstruction Permit for Channel Energy Center (CEC), LLC. EPA Region 6. August 2012. (Appendix A)

4.3 Step 3 Rank Remaining Control Technologies

Step 3 of the top-down approach involves ranking the remaining control technologies based on control effectiveness including:

- Control effectiveness for each regulated NSR pollutant (% pollutant removed)
- Expected emission rate for each regulated NSR pollutant (tons per year)
- Expected emission reduction for each regulated NSR pollutant (tons per year)
- Output based emissions limits (e.g. grams per horsepower hour (g/hp-hr)).

The results of the technology ranking are provided in Table 6 below:

TABLE 6
RANKING CONTROL TECHNOLOGIES

Unit Group	Potential Technology	Typical Control Efficiency-Pollutant Removal (%)	Estimated Uncontrolled CO_2e Emission Rate (TPY)	Expected CO_2e Emission Reduction (TPY)	Emission Limit	Ranking
Compressor Engines	Natural Gas as Fuel	10%	335,004	33,500	18,914 TPY of CO_2e per engine	1
	Good Combustion, Operations, and Maintenance Practices	1-10%		16,750		2
	Air/Fuel Ratio Controllers					
	Efficient Engine Design					
Hot Oil Heaters, Regeneration Heaters	Fuel Gas Pre-heater / Air Pre-heater	10-15%	177,035	21,244	Good Combustion and Maintenance Practices[1]	1
	Natural Gas as Fuel	10%		17,704		2
	Good Combustion, Operations, and Maintenance Practices	1-10%		8,852		3
	Efficient Heater Design	1-10%		8,852		4
	Combustion Air Controls	1-3%		3,541		5
Amine Still Vents	Carbon Capture and Sequestration	42% of emissions after other controls, 35% of uncontrolled emissions	393,265	137,091	Up to 7 MMSCF/D of Acid Gas will transferred to the proposed Kinder Morgan facility each day that both facilities are in operation	1
	Natural Gas as Fuel	10%		39,326	120 Lbs CO_2e per thousand standard cubic feet of acid gas vented through an RTO.	2
	Good Combustion, Operations, and Maintenance Practices	1-10%		19,663		3
	Condenser	<1%		1,966		4
	Flash Tank Gas Recovery	<1%		1,966		5
	Thermal Oxidizer	Emissions have lower GWP		NA		6

Unit Group	Potential Technology	Typical Control Efficiency-Pollutant Removal (%)	Estimated Uncontrolled CO_2e Emission Rate (TPY)	Expected CO_2e Emission Reduction (TPY)	Emission Limit	Ranking
	Flare	Emissions have lower GWP		NA		7
RTO	Natural Gas as Fuel	10%	27	3	Good Combustion and Maintenance Practices	1
	Proper Design	1-10%		1		2
	Good Combustion, Operations, and Maintenance Practices	1-3%		1		3
Fugitives	Pneumatic controllers comply with NSPS OOOO	97%	2,030	15	Compliance with NSPS Subpart OOOO	1
	Implement an alternate monitoring program using remote sensing	97%		1,970		2
	Implement NSPS OOOO LDAR programs as required	75-93%		1,523		3
	Implement an audio/visual/olfactory (AVO) monitoring program	70-90%				4
	Replace rod packing on reciprocating compressors as required by NSPS OOOO	80%		25		5
	Proper facility design and construction	ND		ND		6

1 – Draft BACT Determination LA-0271 (draft)

4.4 Step 4 Evaluate Most Effective Controls and Eliminate Control Options Based on Collateral Impacts

Step 4 of the top-down approach eliminates control options based on collateral impacts. In descending order of the control rankings identified in Step 3, the collateral impacts of each control option were evaluated and compared. In particular the following items were considered:

- Energy impacts (efficiency, BTU, kWh)
- Solid or hazardous waste
- Water discharge from control device
- Emissions of air toxics and other non-NSR regulated pollutants
- Other environmental impacts
- Economic impacts (e.g., total cost effectiveness, incremental cost effectiveness)

Table 7 summarizes the results of Step 4:

TABLE 7
COLLATERAL IMPACTS OF CONTROL TECHNOLOGIES

Unit Group	Potential Technology	Energy Impacts	Environmental Impacts	Economic Cost ($/Ton)	Eliminate (Yes/No)
Compressor Engines	Natural Gas as Fuel	No	No	Not determined, all technologies adopted	No
	Good Combustion, Operations, and Maintenance Practices	No	No		No
	Air/Fuel Ratio Controllers	No	No		No
	Efficient Engine Design	No	No		No
Hot Oil Heaters, Regeneration Heaters	Fuel Gas Pre-heater / Air Pre-heater	Yes. Fans required	Yes. Typically increases NOx emissions	Not determined	Yes
	Natural Gas as Fuel	No	No	Not determined, technologies adopted	No
	Good Combustion, Operations, and Maintenance Practices	No	No		No
	Efficient Heater Design	No	No		No
	Combustion Air Controls	No	No		No
Amine Still Vents	Carbon Capture and Sequestration	Yes	Yes	Feasible up to 7 MMSCF/D. Additional volumes economically infeasible	Partial. A maximum of 7 MMSCF/D of CO_2 controlled
	Natural Gas as Fuel	No	No	Not determined, all technologies adopted	No
	Good Combustion, Operations, and Maintenance Practices	No	No		No
	Condenser	Yes	No		No

Unit Group	Potential Technology	Energy Impacts	Environmental Impacts	Economic Cost ($/Ton)	Eliminate (Yes/No)
	Flash Tank Gas Recovery	No	No		No
	Thermal Oxidizer	No	No		No
	Flare	Yes	Yes	Not determined	Yes
RTO	Natural Gas as Fuel	No	No	Not determined, all technologies adopted	No
	Proper Design	No	No		No
	Good Combustion, Operations, and Maintenance Practices	No	No		No
Fugitives	Pneumatic controllers comply with NSPS OOOO	No	No	Not determined	No
	Implement an alternate monitoring program using remote sensing	No	No	$ 1,795[1]	Yes
	Implement NSPS OOOO LDAR programs as required	No	No	Not determined, technologies adopted	No
	Implement an audio/visual/olfactory (AVO) monitoring program	No	No		No
	Replace rod packing on reciprocating compressors every 26,000 hours as required by NSPS OOOO	No	No		No
	Proper facility design and construction	No	No		No

1 – Cost effectiveness for methane, Oil and Natural Gas Sector: Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution (EPA-435/R-11-002, July 2011). Table 8-18

4.4.1 Discussion of Limited Technologies - CCS for Amine Still Vents

CO_2 Capture and Sequestration has energy, environmental and economic impacts that limit its use as a control option for the Ramsey Gas Plant. These impacts are described briefly below.

The first issue to address is the destination of the capture CO_2. There are three options that have been deemed potentially feasible:

- Sequestration in a geological formation
- Use in Enhanced Oil Recovery (EOR)
- Transportation to an existing CO_2 pipeline

A study of the risks associated with long-term geologic storage of CO_2 places those risks on par with the underground storage of natural gas or acid-gas. However the specific liabilities associated with underground CO_2 storage are less well characterized and understood. A recent publication from MIT states that "The characteristics (of long term CO_2 storage) pose a challenge to a purely private solution to liability" (de Figueiredo, M., 2007. The Liability of Carbon Dioxide Storage, PhD. Thesis, MIT Engineering). The liability associated with sequestration in geologic formations and long-term environmental impact uncertainty remove this CCS option from further consideration.

The Ramsey Plant is located within a few hundred feet of an existing 4-inch diameter Kinder Morgan CO_2 pipeline lateral that was originally installed to deliver CO_2 for an enhanced oil recovery (EOR) project. The line is currently inactive. This particular lateral is connected to Kinder Morgan's main pipeline network which transports CO_2 for various uses, including EOR. Therefore the evaluation of transporting produced CO_2 to the Kinder Morgan pipeline network addresses both the options of transportation to an existing pipeline and use of the gas for EOR. Transporting CO_2 gas to the Kinder Morgan pipeline has been reported to be technically feasible in theory for similar facilities located in the region of the Ramsey Plant, but no such transfer arrangement has been made public.

Nuevo has entered discussions with Kinder Morgan regarding treatment and transportation of CO_2 from the amine vent stream at the Ramsey Plant. By the time Ramsey IV Plant is scheduled to start operations, the Kinder Morgan system is planned to have capacity to potentially accept up to 7 MMSCF/D of CO_2 from the Ramsey Plant. This represents the majority of the acid gas anticipated to be generated by Amine Still Vent A-4 and approximately 42% of the designed maximum amine vent gas production rate from the proposed expansion. Kinder Morgan has proposed to build a facility located adjacent to the Ramsey Plant to treat 7 MMSCF/D of amine still vent acid gas generated at the Ramsey Plant and transport it to their pipeline system. Nuevo does not have access to operating cost data for the proposed Kinder Morgan facility and so is unable to estimate the cost of control for CCS.

Demand for CO_2 and the capacity of the Kinder Morgan pipeline system may change due to factors beyond Nuevo's control. Such changes may either reduce the amount of CO_2 that can be transferred to Kinder Morgan or increase pipeline system capacity so that additional acid gas generated by planned Amine Still Vent A-5 can also be transferred in the future. Any amine unit vent gas that cannot be taken or treated by Kinder Morgan will be controlled by the Ramsey Plant RTO units. For purposes of emission estimation, this application assumes that 42% of the CO_2 produced by the amine units at the Ramsey Plant will be transferred to Kinder Morgan. However, the actual amount of acid gas transferred on any given day may vary based on circumstances beyond Nuevo's control.

Some of the CO_2e emission reductions reported in this application may be offset by CO_2e emissions from the Kinder Morgan processing plant. Nuevo does not have access to the data necessary to estimate CO_2e emissions from the proposed Kinder Morgan facility.

Based on this analysis, Nuevo concludes that CCS is an economically feasible control technology option for up to 7 MMSCF/D of CO_2 from the Ramsey Plant. According to analyses presented by proponents of a nearby facility (See Application for Prevention of Significant Deterioration for Greenhouse Gas Emissions Delaware Basin]V Gathering LLC, Avalon Mega CCF, Loving County, Texas, January 22, 2013, Appendix A) it is not economically feasible to treat and transport produced CO_2 a distance of 12 miles. The next nearest CO_2 pipeline system is located approximately 30 miles from the Ramsey Plant site, more than twice the distance determined to be infeasible. No other potential recipients for produced CO_2 have been identified. Based on the information available, CCS of amounts of CO_2 exceeding 7 MMSCF/D is not economically feasible.

4.4.2 Discussion of Eliminated Technologies - Flare for Amine Still Vents

The use of a flare as a control device for the amine still vents was eliminated in favor of an RTO because a flare would cause higher GHG emissions than the alternative thermal oxidizer. A flare would use additional fuel, including pilot fuel, than the proposed thermal oxidizer; and would provide slightly less efficient control of methane emissions. A flare would also yield additional environmental impacts because of slightly lower estimated control efficiency for VOC and HAPs than a thermal oxidizer.

4.4.3 Discussion of Eliminated Technologies - Fuel Gas Pre-heater / Air Pre-heater for Proposed Hot Oil Heaters

Combustion air and fuel gas preheating was eliminated because of adverse environmental impacts and increased energy consumption that would cause additional GHG emissions. The flue gases of a process heater can be used to preheat the combustion air of fuel gas. Every 35 °F drop in exit flue gas temperature increases the thermal efficiency of the heater by 1 percent. The resulting fuel savings can range from 8-18 percent, and yield GHG reductions conservatively estimated at 5-15 percent. Air preheating would require a natural draft system to be converted to a forced draft system requiring installation of fans, which would increase electricity consumption. Increased energy consumption would at least partially offset GHG reductions obtained by preheating.

Fuel or air preheating typically raises combustion temperature, counteracting NO_X controls and typically increasing NO_X emissions. Increased NO_X emissions due to preheating systems threaten to prevent the source on which they are installed from meeting required BACT emission limits. Air preheaters are contraindicated at facilities like the Ramsey Plant that are required to meet BACT emission limits for criteria pollutants.

4.4.4 Discussion of Eliminated Technologies - Implement an alternate monitoring program using remote sensing

An alternate monitoring program using remote sensing was eliminated because of excessively high costs, especially given the relatively small amount of GHG that could be controlled by this technology. Total fugitive GHG emissions from the Ramsey Plant are estimated to be less than 500 tons of CO_2e. According to the EPA publication Oil and Natural Gas Sector: Standards of Performance for Crude Oil and Natural Gas Production, Transmission, and Distribution (EPA-

435/R-11-002, July 2011), control costs for alternate monitoring programs using remote sensing are expected to be $ 1,795 per ton for methane, the main GHG in fugitive emission and so alternate monitoring is not cost effective for GHG control.

4.5 Step 5 Select GHG BACT

Step 5 involves selecting the most effective control alternative not eliminated in Step 4 for each parameter under consideration which then establishes the corresponding emission limit. The selected BACT and associated emission limits for each source and affected pollutant are summarized in Table 8 below.

TABLE 8
SELECTED BACT TECHNOLOGIES AND BACT EMISSION RATE

Emission Unit	Control Technology	Proposed BACT Emission Limit	Proposed Compliance Demonstration
Compressor Engines	Natural Gas as Fuel	18,914 TPY of CO_2e per engine	See Table 9
	Good Combustion, Operations, and Maintenance Practices		
	Air/Fuel Ratio Controllers		Comply with NSPS JJJJ and MACT ZZZZ
	Efficient Engine Design		
Hot Oil Heaters, Regeneration Heaters	Natural Gas as Fuel	Good Combustion and Maintenance Practices	See Table 9
	Good Combustion, Operations, and Maintenance Practices		
	Efficient Heater Design		
	Combustion Air Controls		
Amine Still Vents	CCS up to 7 MMSCF/D of CO_2	Up to 7 MMSCF/D of acid gas from Amine Unit Still Vents per day will be transferred to Kinder Morgan.	Record days when acid gas is transferred based on Ramsey Plant operating data
	Natural Gas as Fuel	219 Lbs CO_2e per thousand standard cubic feet of acid gas vented through an RTO.	See Table 9
	Good Combustion, Operations, and Maintenance Practices		
	Condenser		
	Flash Tank Gas Recovery		
	Thermal Oxidizer		
RTO	Natural Gas as Fuel	Good Combustion and Maintenance Practices	See Table 9
	Proper Design		
	Good Combustion, Operations, and Maintenance Practices		
Fugitives	Pneumatic controllers comply with NSPS OOOO	Compliance with NSPS Subpart OOOO	Comply with NSPS OOOO
	Implement NSPS OOOO LDAR programs as required		
	Implement an audio/visual/olfactory (AVO) monitoring program		

Emission Unit	Control Technology	Proposed BACT Emission Limit	Proposed Compliance Demonstration
	Replace rod packing on reciprocating compressors every 26,000 hours as required by NSPS OOOO		
	Proper facility design and construction		

TABLE 9

SUMMARY OF PROPOSED GOOD COMBUSTION PRACTICES

Good Combustion Technique	Practice	Applicable Units	Compliance Demonstration Standard
Operator practices	• Documented operating procedures, updated as required for equipment or practice changes • Procedures include startup, shutdown, malfunction • Operating logs/record keeping.	All Combustion Units	• Maintain operating procedures as specified by equipment manufacturers. • Maintain logs or operating data.
Maintenance Knowledge	• Training on applicable equipment and procedures.	All Combustion Units	• Implement a maintenance training program.
Maintenance Practices	• Documented maintenance procedures, updated as required for equipment or practice changes • Routine evaluation, inspection, overhaul as appropriate for combustion equipment • Maintenance logs/record keeping.	All Combustion Units	• Maintain site specific procedures for best/optimum maintenance practices. • Schedule periodic evaluation, inspection, and overhaul as appropriate. • Maintain logs or operating data.
Firebox residence time, temperature, turbulence	• Residence time by design • Minimum combustion chamber temperature	RTOs	• Maintain design documentation.
Fuel quality analysis and fuel handling	• Monitor fuel quality • Fuel handling practices	Heaters, Amine Still Vents, RTOs	• Fuel analysis where composition could vary or maintain fuel quality documentation. • NSPS OOOO compliance. • Use plant residual gas as fuel except during periods of maintenance or equipment outage.
Combustion air distribution	• Adjustment of air distribution system based on visual observations • Adjustment of air distribution based on continuous or periodic monitoring.	Heaters, Amine Still Vents, RTOs	• Routine periodic adjustments and checks.

4.6 Site-wide GHG Minimization through Energy Efficiency

In addition to the top-down BACT analysis for selection of emission-source-specific control technologies for GHGs, EPA has also indicated that a site-wide evaluation of energy efficiency should take place as another means to minimize GHG emissions. In accordance with this guidance, overall energy efficiency was a basic design criterion in the selection of technologies and processing alternatives included in the proposed Ramsey Plant expansion.

The Ramsey Plant modification will be designed and constructed using new or updated energy efficient equipment. The plant was designed with heat and process integration in mind for increased energy efficiency. Where feasible, the facility will utilize available process streams to transfer heat and thereby reduce combustion heating requirements. Process vessels, piping, and components in hot and cold service to will be designed to conserve energy by preventing heat transfer to or from the atmosphere.

The facility will recycle the flash gas from the amine units through a low pressure compressor to the gas system instead of sending these vents to a control device. The recycling of this material will avoid the formation of additional GHG from combusting this material in a control device.

Process control instrumentation and pneumatic components will be operated using compressed air rather than fuel gas or off-gas; therefore, no GHG emissions will be emitted to the atmosphere from these components. The plant will be built using new, state-of-the-art equipment and process instrumentation and controls. It is Nuevo's operating and maintenance policy to maintain all equipment according to manufacturer specifications in order to maintain design operating efficiently.

5.0 GREEN HOUSE GAS EMISSION CALCULATION METHODS

The GHG emissions associated with the proposed Phase IV, V and VI expansion have been calculated. Summaries of these emissions are included in Section 2 of this application. Calculations can be found in the attachments in Section 4 of this application.

The calculations for the expansion are based on the following:

Compressor engine CO_2 and methane emissions were calculated using vendor supplied/guaranteed emission factors. The factors were provided by Caterpillar. Compressor engine N_2O emissions were calculated using an emission factor from 40 CFR 98, Table C-2 (Tier 1).

Heater and reboiler emissions were calculated using an emission factor from 40 CFR 98, Tables C-1 and C-2 (Tier 1).

The amine units' still vent emissions were calculated using ProMax 3.2. Up to 7 MMSCF/D of acid gas from the amine unit still vents will be transferred to an adjacent facility for processing and CO_2 recovery. The remaining acid gas will be vented through a RTO with 99% efficiency. Therefore 99% of the predicted VOC emissions were converted to CO_2 stoichiometrically by

weight, and the GHG components of the remaining 1% were included in the calculated CO_2e amounts.

RTO emissions from fuel combustion were calculated using an emission factor from 40 CFR 98, Table C-1 (Tier 1).

Fugitive emissions were calculated using factors provided in Table 2-4, Oil and Gas Production Operations Average Emission factors, 1995 Protocol for Equipment Leak Emission Estimates, EPA-4J3/R-95-017

Maintenance/blow down emissions were based on an average of two (2) compressor blow down events/month for each new compressor, assuming a worst case volume release.

6.0 OTHER FEDERAL AGENCY REVIEWS

Since the GHG PSD is being reviewed by the EPA, a federal agency, EPA is required to ensure that the project will not have adverse effects on other federal interest areas. The specific areas that this project may impact are threatened and endangered species and cultural resources.

Threatened and endangered species in Texas is under the jurisdiction of the U.S. Fish and Wildlife Services and the Texas Department of Parks and Wildlife. A review of these entities' websites indicate that the potentially endangered species are: the Least Tern, the Northern Aplomado Falcon, the Black-footed Ferret, the Grey Wolf, Pecos Assiminea Snail, and Phantom Tryonia.

Cultural resources in Texas are under the jurisdiction of the State Historic Preservation Officer (SHPO), which is under the Texas Historical Commission.

Reports are being completed and will be sent to the appropriate agencies for comments and clearance. Both the reports and the comments will be sent to EPA under separate cover.

SECTION 2.0

SECTION 3.0

SECTION 4.0

SECTION 5

SECTION 6

TCEQ Use Only

TCEQ Core Data Form

For detailed instructions regarding completion of this form, please read the Core Data Form Instructions or call 512-239-5175.

SECTION I: General Information

1. Reason for Submission *(If other is checked please describe in space provided)*

☒ New Permit, Registration or Authorization *(Core Data Form should be submitted with the program application)*

☐ Renewal *(Core Data Form should be submitted with the renewal form)* ☐ Other

2. Attachments **Describe Any Attachments:** *(ex. Title V Application, Waste Transporter Application, etc.)*

☒Yes ☐No — PSD Permit Application

3. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	4. Regulated Entity Reference Number *(if issued)*
CN 604322891		RN 100228899

SECTION II: Customer Information

5. Effective Date for Customer Information Updates (mm/dd/yyyy) 1/1/2014

6. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check only one of the following:*

☐Owner ☐ Operator ☒ Owner & Operator
☐Occupational Licensee ☐ Responsible Party ☐ Voluntary Cleanup Applicant ☐Other: _____

7. General Customer Information

☐ New Customer ☒ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐Change in Legal Name (Verifiable with the Texas Secretary of State) ☐ No Change**

If "No Change" and Section I is complete, skip to Section III – Regulated Entity Information.

8. Type of Customer:	☒ Corporation	☐ Individual	☐ Sole Proprietorship- D.B.A
☐ City Government	☐ County Government	☐ Federal Government	☐ State Government
☐ Other Government	☐ General Partnership	☐ Limited Partnership	☐ Other:

9. Customer Legal Name *(If an individual, print last name first: ex: Doe, John)* — *If new Customer, enter previous Customer below* — *End Date:*

Nuevo Midstream, LLC

10. Mailing Address: 1221 Lamar, Suite 1100

City	Houston	State	TX	ZIP	77010	ZIP + 4	

11. Country Mailing Information *(if outside USA)* — **12. E-Mail Address** *(if applicable)*

13. Telephone Number ( ) - — **14. Extension or Code** — **15. Fax Number** *(if applicable)* ( ) -

16. Federal Tax ID *(9 digits)* — **17. TX State Franchise Tax ID** *(11 digits)* — **18. DUNS Number** *(if applicable)* — **19. TX SOS Filing Number** *(if applicable)*

20. Number of Employees

☐ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher

21. Independently Owned and Operated?

☐ Yes ☐ No

SECTION III: Regulated Entity Information

22. General Regulated Entity Information *(If 'New Regulated Entity" is selected below this form should be accompanied by a permit application)*

☐ New Regulated Entity ☐ Update to Regulated Entity Name ☐ Update to Regulated Entity Information ☒ No Change** *(See below)*

****If "NO CHANGE" is checked and Section I is complete, skip to Section IV, Preparer Information.**

23. Regulated Entity Name *(name of the site where the regulated action is taking place)*

24. Street Address of the Regulated Entity: *(No P.O. Boxes)*								
	City		**State**		**ZIP**		**ZIP + 4**	
25. Mailing Address:								
	City		**State**		**ZIP**		**ZIP + 4**	

26. E-Mail Address:		
27. Telephone Number	**28. Extension or Code**	**29. Fax Number** *(if applicable)*
( ) -		( ) -

30. Primary SIC Code (4 digits)	**31. Secondary SIC Code** (4 digits)	**32. Primary NAICS Code** (5 or 6 digits)	**33. Secondary NAICS Code** (5 or 6 digits)

34. What is the Primary Business of this entity? *(Please do not repeat the SIC or NAICS description.)*

Questions 34 – 37 address geographic location. Please refer to the instructions for applicability.

35. Description to Physical Location:			
36. Nearest City	**County**	**State**	**Nearest ZIP Code**

37. Latitude (N) In Decimal:			**38. Longitude (W) In Decimal:**		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form or the updates may not be made. If your Program is not listed, check other and write it in. See the Core Data Form instructions for additional guidance.

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Industrial Hazardous Waste	☐ Municipal Solid Waste
☐ New Source Review – Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS	☐ Sludge
☐ Stormwater	☐ Title V – Air	☐ Tires	☐ Used Oil	☐ Utilities
☐ Voluntary Cleanup	☐ Waste Water	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	Alison Doyle	**41. Title:**	Project Manager

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(713) 973-6085		(713) 973-6087	adoyle@ses-inc.net

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 9 and/or as required for the updates to the ID numbers identified in field 39.

(See the Core Data Form instructions for more information on who should sign this form.)

Company:	Nuevo Midstream, LLC	**Job Title:**	Vice President Operations
Name *(In Print)* :	Dwight D. Serrett	**Phone:**	(713) 337-6510
Signature:	Dwight D. Serrett	**Date:**	1/14/2014

FIGURE 1
Ramsey Gas Plant Site Location Map
Nuevo Midstream LLC

ESTIMATED CO_2e POTENTIAL TO EMIT (PTE) EMISSIONS USING 40 CFR 98 EMISSION FACTORS

Facility: Ramsey Gas Plant

Source Category		Potential CO_2e Lbs /Hour	Potential CO_2e TPY
Engines		87,954	284,753
RTO		45,993	193,274
Heaters and Reboilers		26,677	116,843
Fugitives		107	467
	Totals	**160,730**	**595,337**

ESTIMATED CO2e POTENTIAL TO EMIT (PTE) EMISSIONS USING MANUFACTURER DATA AND 40 CFR 98 EMISSION FACTORS

Facility: Ramsey Gas Plant

		Rating			Heat Input	Emission Factors		
Compressor Engines		**hp**	**Fuel Factor**	**Hours of Operation**	**Maximum (MMBtu /yr)**	**CO_2**	**CH_4**	**N_2O**
EPN			Btu/bhp-hr			g/bhp-hr[1]	g/bhp-hr[1]	kg/MMBtu[3]
C-15	3612 LE	3,550	6,629	8760	206,149	439	5.36	1.00E-04
C-16	3612 LE	3,550	6,629	8760	206,149	439	5.36	1.00E-04
C-17	3612 LE	3,550	6,629	8760	206,149	439	5.36	1.00E-04
C-18	3612 LE	3,550	6,629	8760	206,149	439	5.36	1.00E-04
C-19	3612 LE	3,550	6,629	8760	206,149	439	5.36	1.00E-04
C-20	3612 LE	3,550	6,629	8760	206,149	439	5.36	1.00E-04
C-21	3612 LE	3,550	6,629	8760	206,149	439	5.36	1.00E-04
C-22	3612 LE	3,550	6,629	8760	206,149	439	5.36	1.00E-04
C-23	3612 LE	3,550	6,629	8760	206,149	439	5.36	1.00E-04
C-24	3612 LE	3,550	6,629	8760	206,149	439	5.36	1.00E-04
C-25	3612 LE	3,550	6,629	8760	206,149	439	5.36	1.00E-04
C-26	3612 LE	3,550	6,629	8760	206,149	439	5.36	1.00E-04
C-27	3612 LE	3,550	6,629	8760	206,149	439	5.36	1.00E-04
C-28	3612 LE	3,550	6,629	8760	206,149	439	5.36	1.00E-04
C-29	3612 LE	3,550	6,629	8760	206,149	439	5.36	1.00E-04

EMISSIONS

	CO_2	CH_4	N_2O	CO_2e	CO_2	CH_4	N_2O	CO_2e	
	lbs/hr	lbs/hr	lbs/hr	lbs/hr	TPY	TPY	TPY	TPY	
C-15	3,436	41.95	0.005	**4,318**	15048.5	183.74	0.023	**18,914**	
C-16	3,436	41.95	0.005	**4,318**	15048.5	183.74	0.023	**18,914**	
C-17	3,436	41.95	0.005	**4,318**	15048.5	183.74	0.023	**18,914**	
C-18	3,436	41.95	0.005	**4,318**	15048.5	183.74	0.023	**18,914**	
C-19	3,436	41.95	0.005	**4,318**	15048.5	183.74	0.023	**18,914**	
C-20	3,436	41.95	0.005	**4,318**	15048.5	183.74	0.023	**18,914**	
C-21	3,436	41.95	0.005	**4,318**	15048.5	183.74	0.023	**18,914**	
C-22	3,436	41.95	0.005	**4,318**	15048.5	183.74	0.023	**18,914**	
C-23	3,436	41.95	0.005	**4,318**	15048.5	183.74	0.023	**18,914**	
C-24	3,436	41.95	0.005	**4,318**	15048.5	183.74	0.023	**18,914**	
C-25	3,436	41.95	0.005	**4,318**	15048.5	183.74	0.023	**18,914**	
C-26	3,436	41.95	0.005	**4,318**	15048.5	183.74	0.023	**18,914**	
C-27	3,436	41.95	0.005	**4,318**	15048.5	183.74	0.023	**18,914**	
C-28	3,436	41.95	0.005	**4,318**	15048.5	183.74	0.023	**18,914**	
C-29	3,436	41.95	0.005	**4,318**	15048.5	183.74	0.023	**18,914**	
			SUBTOTAL	**64,774**			**SUBTOTAL**	**283,710**	**TPY**
Maintenance Startup and Shutdown (MSS) Emissions									
	6.55	1,103.47	0.000	**23,179**	0.29	49.66	0.000	**1,043**	
			TOTAL	**87,954**			**TOTAL**	**284,753**	**TPY**

1 Vendor Data

2 40 CFR 98 Table C-2 Emission Factor

3 40 CFR 98 Table C-2 Emission Factor

ESTIMATED CO_2e POTENTIAL TO EMIT (PTE) EMISSIONS USING 40 CFR 98 EMISSION FACTORS AND PROCESS DATA

Facility: Ramsey Gas Plant

Unit Description

	Heat Input			Emission Factors		
Fuel Emissions	**Heat Input Rating**	**Hours of Operation**	**Maximum (MMBtu /yr)**	**CO_2**	**CH_4**	**N_2O**
	MMBtu/hr			kg/MMBtu[1]	kg/MMBtu[2]	kg/MMBtu[2]
RTO-4	8	24	192	53.02	1.00E-03	1.00E-04
RTO-5	8	24	192	53.02	1.00E-03	1.00E-04

POTENTIAL EMISSIONS

	CO_2	**CH_4**	**N_2O**	**CO_2e**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
	lbs/hr	lbs/hr	lbs/hr	lbs/hr	TPY	TPY	TPY	TPY
RTO-4	935.1	0.02	0.002	**936**	11.2	0.0002	0.00002	**11**
RTO-5	935.1	0.02	0.002	**936**	11.2	0.0002	0.00002	**11**
			SUBTOTAL	**1,872** lbs/hr			**SUBTOTAL**	**22 TPY**

Acid Gas Combustion Emissions

Acid Gas Flow Rate[3]

A-4	8.41	MMSCF/D	
A-5	8.41	MMSCF/D	
Total	16.82	MMSCF/D	

Acid Gas Transferred to Kinder Morgan[4] 7.00 MMSCF/D

42% of total

Potential Uncontrolled Acid Gas Emissions, lbs/hr[3]

	CO_2	CH_4	C_2H_6	C_3H_8	C_4H_{10}	C_5H_{12}	C_6H_{14}
A-4	37,594	31.63	19.93	9.82	4.73	0.76	0.82
A-5	37,594	31.63	19.93	9.82	4.73	0.76	0.82
Totals	75,189	63.25	39.86	19.65	9.45	1.53	1.64
Transferred to Kinder Morgan	31,299	26.33	16.59	8.18	3.93	0.64	0.68
Net Emissions	43,890	36.92	23.27	11.47	5.52	0.89	0.96
Mole Weight	44.01	16.04	30.07	44.10	58.12	72.15	86.18
Mole Ratio	1	1	2	3	4	5	6
	Net CO_2 Emissions After Combustion, lbs.hr				Combustion Efficiency =		99.0%
	43,890	100.27	67.44	34.00	16.54	2.69	2.90

Facility: Ramsey Gas Plant

Unit Description

	Heat Input			Emission Factors			CO_2e
	Heat Input Rating	**Hours of Operation**	**Maximum (MMBtu /yr)**	**CO_2**	**CH_4**	**N_2O**	
	MMBtu /hr			kg/MMBtu[1]	kg/MMBtu[2]	kg/MMBtu[2]	Calculated emission factor, lbs/MMBtu
H-8	36	8,760	315,360	53.02	1.00E-03	1.00E-04	
H-9	60	8,760	525,600	53.02	1.00E-03	1.00E-04	**117.00**
H-10	36	8,760	315,360	53.02	1.00E-03	1.00E-04	
H-11	60	8,760	525,600	53.02	1.00E-03	1.00E-04	
H-12	36	8760	315,360	53.02	1.00E-03	1.00E-04	

EMISSIONS

	CO_2	**CH_4**	**N_2O**	**CO_2e**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
	lbs/hr	lbs/hr	lbs/hr	lbs/hr	TPY	TPY	TPY	TPY
H-8	4,208	0.08	0.008	**4,212**	18,431	0.35	0.035	**18,449**
H-9	7,013	0.13	0.013	**7,020**	30,718	0.58	0.058	**30,748**
H-10	4,208	0.08	0.008	**4,212**	18,431	0.35	0.035	**18,449**
H-11	7,013	0.13	0.013	**7,020**	30,718	0.58	0.058	**30,748**
H-12	4,208	0.08	0.008	**4,212**	18,431	0.35	0.035	**18,449**
			TOTAL	**26,677**	**lbs/hr**		**TOTAL**	**116,843**	**TPY**

1 40 CFR 98 Table C-1 Emission Factor

2 40 CFR 98 Table C-2 Emission Factor

ESTIMATED CO_2e POTENTIAL TO EMIT (PTE) EMISSIONS USING 40 CFR 98 EMISSION FACTORS

Facility: Ramsey Gas Plant

	EMISSIONS			
Fugitives	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
	TPY	TPY	TPY	TPY
VALVES	2.29	18.31	0.000	**387**
PUMPS	0.09	0.7	0.000	**14**
FLANGES	0.39	3.1	0.000	**66**
OPEN LINES	0.00	0.00	0.000	**0**
RELIEF VALVES	0.23	1.85	0.000	**39**
COMPRESSORS	0.12	0.92	0.000	**20**
SAMPLE CONNECTIONS	0.17	1.39	0.000	**29**
			TOTAL	**467**

	CO_2	**CH_4**	**N_2O**	**CO_2e**	
Per Plant	1.10	8.76	0.00	155.78	tpy
	0.25	2.00	0.00	35.57	lbs/hr

Texas Commission on Environmental Quality
Form PI-1 General Application for
Air Preconstruction Permit and Amendment

Important Note: The agency requires that a Core Data Form be submitted on all incoming applications unless a Regulated Entity and Customer Reference Number have been issued and no core data information has changed. For more information regarding the Core Data Form, call (512) 239-5175 or go to www.tceq.texas.gov/permitting/central_registry/guidance.html.

I. Applicant Information		
A. Company or Other Legal Name: Nuevo Midstream LLC		
Texas Secretary of State Charter/Registration Number (if applicable):		
B. Company Official Contact Name: Dwight Serrett		
Title: Vice President Operations		
Mailing Address: 1331 Lamar, Suite 1450		
City: Houston	State: TX	ZIP Code: 77010
Telephone No.: 713-756-1621	Fax No.: 713-759-0805	E-mail Address:ds@nuevomidstream.com
C. Technical Contact Name: Clint Cone		
Title: System Superintendent		
Company Name: Nuevo Midstream LLC		
Mailing Address: P.O. Box 9		
City: Malaga	State: NM	ZIP Code: 88263
Telephone No.:432-273-0010	Fax No.: 432-273-0027	E-mail Address: cc@nuevomidstream.com
D. Site Name: Ramsey Gas Plant		
E. Area Name/Type of Facility:		☒ Permanent ☐ Portable
F. Principal Company Product or Business: Gas Treating and Compression		
Principal Standard Industrial Classification Code (SIC): 1321		
Principal North American Industry Classification System (NAICS): 211112		
G. Projected Start of Construction Date: August 1, 2014		
Projected Start of Operation Date: December 1, 2014		
H. Facility and Site Location Information (If no street address, provide clear driving directions to the site in writing.):		
Street Address:231 CR 452		
City/Town: Orla	County: Reeves	ZIP Code: 79770
Latitude (nearest second):32:55:34.72	Longitude (nearest second): -104:01:19.61	

Texas Commission on Environmental Quality
Form PI-1 General Application for
Air Preconstruction Permit and Amendment

I.	**Applicant Information (continued)**	
I.	Account Identification Number (leave blank if new site or facility): RF-0006-T	
J.	Core Data Form.	
Is the Core Data Form (Form 10400) attached? If No, provide customer reference number and regulated entity number (complete K and L). *change of customer address*		☒ YES ☐ NO
K.	Customer Reference Number (CN): CN604322891	
L.	Regulated Entity Number (RN): RN100228899	
II.	**General Information**	
A.	Is confidential information submitted with this application? If Yes, mark each confidential page confidential in large red letters at the bottom of each page.	☐ YES ☒ NO
B.	Is this application in response to an investigation, notice of violation, or enforcement action? If Yes, attach a copy of any correspondence from the agency and provide the RN in section I.L. above.	☐ YES ☒ NO
C.	Number of New Jobs: 15-20	
D.	Provide the name of the State Senator and State Representative and district numbers for this facility site:	
State Senator: Carlos I Uresti		District No.:19
State Representative: Pancho Nevarez		District No.:74
III.	**Type of Permit Action Requested**	
A.	Mark the appropriate box indicating what type of action is requested.	
☒ Initial ☐ Amendment ☐ Revision (30 TAC 116.116(e) ☐ Change of Location ☐ Relocation		
B.	Permit Number (if existing): O3546	
C.	Permit Type: Mark the appropriate box indicating what type of permit is requested. *(check all that apply, skip for change of location)*	
☒ Construction ☐ Flexible ☐ Multiple Plant ☐ Nonattainment ☐ Plant-Wide Applicability Limit		
☒ Prevention of Significant Deterioration ☐ Hazardous Air Pollutant Major Source		
☐ Other:		
D.	Is a permit renewal application being submitted in conjunction with this amendment in accordance with 30 TAC 116.315(c).	☐ YES ☒ NO

Texas Commission on Environmental Quality
Form PI-1 General Application for
Air Preconstruction Permit and Amendment

III. Type of Permit Action Requested *(continued)*			
E. Is this application for a change of location of previously permitted facilities? If Yes, complete III.E.1 - III.E.4.0			☐ YES ☒ NO
1. Current Location of Facility (If no street address, provide clear driving directions to the site in writing.):			
Street Address:			
City:	County:	ZIP Code:	
2. Proposed Location of Facility (If no street address, provide clear driving directions to the site in writing.):			
Street Address:			
City:	County:	ZIP Code:	
3. Will the proposed facility, site, and plot plan meet all current technical requirements of the permit special conditions? If "NO", attach detailed information.			☐ YES ☐ NO
4. Is the site where the facility is moving considered a major source of criteria pollutants or HAPs?			☐ YES ☐ NO
F. Consolidation into this Permit: List any standard permits, exemptions or permits by rule to be consolidated into this permit including those for planned maintenance, startup, and shutdown.			
List: Standard Permit Registration Permit # 101511			
Title V Permit #: O3546			
G. Are you permitting planned maintenance, startup, and shutdown emissions? If Yes, attach information on any changes to emissions under this application as specified in VII and VIII.			☒ YES ☐ NO
H. Federal Operating Permit Requirements (30 TAC Chapter 122 Applicability) Is this facility located at a site required to obtain a federal operating permit? If Yes, list all associated permit number(s), attach pages as needed).			☐ YES ☒ NO ☐ To be determined
Associated Permit No (s.):			
1. Identify the requirements of 30 TAC Chapter 122 that will be triggered if this application is approved.			
☐ FOP Significant Revision	☐ FOP Minor	☐ Application for an FOP Revision	
☐ Operational Flexibility/Off-Permit Notification		☐ Streamlined Revision for GOP	
☐ To be Determined		☒ None	

III.	**Type of Permit Action Requested *(continued)***	
H.	Federal Operating Permit Requirements (30 TAC Chapter 122 Applicability) *(continued)*	
2.	Identify the type(s) of FOP(s) issued and/or FOP application(s) submitted/pending for the site. ***(check all that apply)***	
☒ GOP Issued	☐ GOP application/revision application submitted or under APD review	
☐ SOP Issued	☐ SOP application/revision application submitted or under APD review	
IV.	**Public Notice Applicability**	
A.	Is this a new permit application or a change of location application?	☒ YES ☐ NO
B.	Is this application for a concrete batch plant? If Yes, complete V.C.1 – V.C.2.	☐ YES ☒ NO
C.	Is this an application for a major modification of a PSD, nonattainment, FCAA 112(g) permit, or exceedance of a PAL permit?	☒ YES ☐ NO
D.	Is this application for a PSD or major modification of a PSD located within 100 kilometers or less of an affected state or Class I Area?	☒ YES ☐ NO
If Yes, list the affected state(s) and/or Class I Area(s).		
List: New Mexico		
E.	Is this a state permit amendment application? If Yes, complete IV.E.1. – IV.E.3.	
1.	Is there any change in character of emissions in this application?	☐ YES ☐ NO
2.	Is there a new air contaminant in this application?	☐ YES ☐ NO
3.	Do the facilities handle, load, unload, dry, manufacture, or process grain, seed, legumes, or vegetables fibers (agricultural facilities)?	☐ YES ☐ NO
F.	List the total annual emission increases associated with the application ***(List all that apply and attach additional sheets as needed):***	
Volatile Organic Compounds (VOC): 116.01 tpy		
Sulfur Dioxide (SO2): 190.62 tpy		
Carbon Monoxide (CO):276.63 tpy		
Nitrogen Oxides (NOx): 510.96 tpy		
Particulate Matter (PM): 25.95 tpy		
PM 10 microns or less (PM10): 12.54 tpy		
PM 2.5 microns or less (PM2.5): 12.54 tpy		
Lead (Pb): N/A		
Hazardous Air Pollutants (HAPs): 20.30		
Other speciated air contaminants not listed above: HCHO: 18.62 tpy		

Texas Commission on Environmental Quality
Form PI-1 General Application for
Air Preconstruction Permit and Amendment

V. Public Notice Information *(complete if applicable)*		
A. Public Notice Contact Name: Alison Doyle		
Title: Sound Environmental Solutions, Inc. (SES), Project Manager		
Mailing Address: 11111 Katy Freeway, Suite 1004		
City: Houston	State: TX	ZIP Code: 77079
B. Name of the Public Place: Reeves County Library		
Physical Address *(No P.O. Boxes)*: 505 S. Park St.		
City: Pecos	County: Reeves	ZIP Code: 79772
The public place has granted authorization to place the application for public viewing and copying.		☒ YES ☐ NO
The public place has internet access available for the public.		☒ YES ☐ NO
C. Concrete Batch Plants, PSD, and Nonattainment Permits		
1. County Judge Information (For Concrete Batch Plants and PSD and/or Nonattainment Permits) for this facility site.		
The Honorable:		
Mailing Address:		
City:	State:	ZIP Code:
2. Is the facility located in a municipality or an extraterritorial jurisdiction of a municipality? ***(For Concrete Batch Plants)***		☐ YES ☐ NO
Presiding Officers Name(s):		
Title:		
Mailing Address:		
City:	State:	ZIP Code:
3. Provide the name, mailing address of the chief executive and Indian Governing Body; and identify the Federal Land Manager(s) for the location where the facility is or will be located. Add a second page		
Chief Executive:		
Mailing Address:		
City:	State:	ZIP Code:
Name of the Indian Governing Body:		
Mailing Address:		
City:	State:	ZIP Code:

Texas Commission on Environmental Quality
Form PI-1 General Application for
Air Preconstruction Permit and Amendment

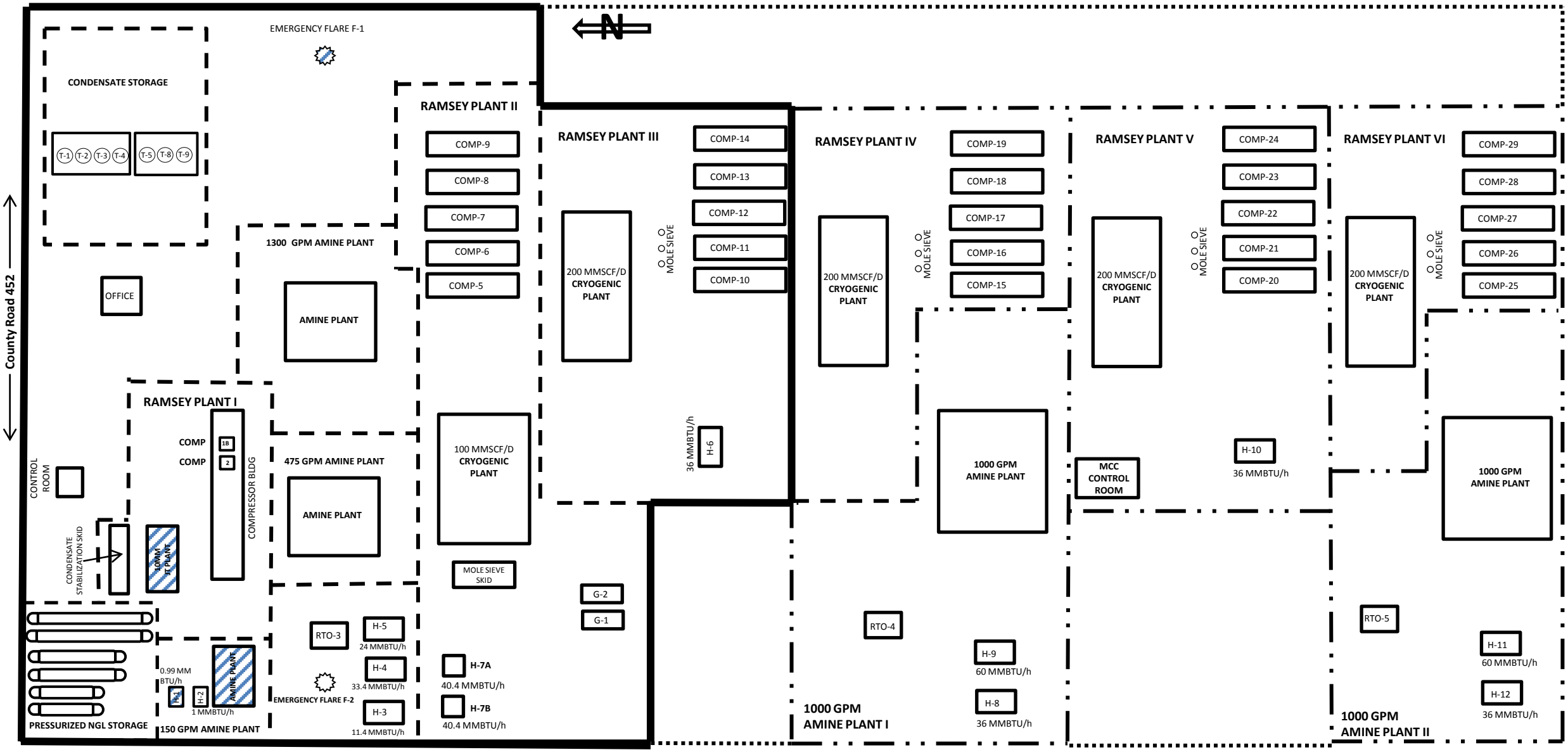
V.	**Public Notice Information *(complete if applicable) (continued)***	
C.	Concrete Batch Plants, PSD, and Nonattainment Permits	
3.	Provide the name, mailing address of the chief executive and Indian Governing Body; and identify the Federal Land Manager(s) for the location where the facility is or will be located. *(continued)*	
Name of the Federal Land Manager(s):		
D.	Bilingual Notice	
Is a bilingual program required by the Texas Education Code in the School District?		☒ YES ☐ NO
Are the children who attend either the elementary school or the middle school closest to your facility eligible to be enrolled in a bilingual program provided by the district?		☒ YES ☐ NO
If Yes, list which languages are required by the bilingual program?	Spanish	
VI.	**Small Business Classification *(Required)***	
A.	Does this company (including parent companies and subsidiary companies) have fewer than 100 employees or less than $6 million in annual gross receipts?	☒ YES ☐ NO
B.	Is the site a major stationary source for federal air quality permitting?	☒ YES ☐ NO
C.	Are the site emissions of any regulated air pollutant greater than or equal to 50 tpy?	☒ YES ☐ NO
D.	Are the site emissions of all regulated air pollutants combined less than 75 tpy?	☐ YES ☒ NO
VII.	**Technical Information**	
A.	The following information must be submitted with your Form PI-1 ***(this is just a checklist to make sure you have included everything)***	
1.	☒ Current Area Map – Figure 1	
2.	☒ Plot Plan	
3.	☐ Existing Authorizations	
4.	☒ Process Flow Diagram – **Figure 3**	
5.	☒ Process Description –**2.0 in Section 1, Introduction**	
6.	☐ Maximum Emissions Data and Calculations	
7.	☒ Air Permit Application Tables	
a.	☒ Table 1(a) (Form 10153) entitled, Emission Point Summary	
b.	☐ Table 2 (Form 10155) entitled, Material Balance – N/A	
c.	☐ Other equipment, process or control device tables	
B.	Are any schools located within 3,000 feet of this facility?	☐ YES ☒ NO

VII.	**Technical Information**			
C.	Maximum Operating Schedule:			
Hour(s):24	Day(s): 7	Week(s):52	Year(s): 8760	
Seasonal Operation? If Yes, please describe in the space provide below.				☐ YES ☒ NO
D.	Have the planned MSS emissions been previously submitted as part of an emissions inventory?			☒ YES ☐ NO
Provide a list of each planned MSS facility or related activity and indicate which years the MSS activities have been included in the emissions inventories. Attach pages as needed.				
Planned MSS: Engine blowdowns				
Year(s) MSS included in emission inventory: 2012				
E.	Does this application involve any air contaminants for which a disaster review is required?			☐ YES ☒ NO
F.	Does this application include a pollutant of concern on the Air Pollutant Watch List (APWL)?			☐ YES ☒ NO
VIII.	**State Regulatory Requirements** **Applicants must demonstrate compliance with all applicable state regulations to obtain a permit or amendment.** *The application must contain detailed attachments addressing applicability or non applicability; identify state regulations; show how requirements are met; and include compliance demonstrations.*			
A.	Will the emissions from the proposed facility protect public health and welfare, and comply with all rules and regulations of the TCEQ?			☒ YES ☐ NO
B.	Will emissions of significant air contaminants from the facility be measured?			☒ YES ☐ NO
C.	Is the Best Available Control Technology (BACT) demonstration attached?			☒ YES ☐ NO
D.	Will the proposed facilities achieve the performance represented in the permit application as demonstrated through recordkeeping, monitoring, stack testing, or other applicable methods?			☒ YES ☐ NO
IX.	**Federal Regulatory Requirements** **Applicants must demonstrate compliance with all applicable federal regulations to obtain a permit or amendment.** *The application must contain detailed attachments addressing applicability or non applicability; identify federal regulation subparts; show how requirements are met; and include compliance demonstrations.*			
A.	Does Title 40 Code of Federal Regulations Part 60, (40 CFR Part 60) New Source Performance Standard (NSPS) apply to a facility in this application?			☒ YES ☐ NO
B.	Does 40 CFR Part 61, National Emissions Standard for Hazardous Air Pollutants (NESHAP) apply to a facility in this application?			☒ YES ☐ NO

IX.	**Federal Regulatory Requirements** **Applicants must demonstrate compliance with all applicable federal regulations to obtain a permit or amendment.** *The application must contain detailed attachments addressing applicability or non applicability; identify federal regulation subparts; show how requirements are met; and include compliance demonstrations.*	
C.	Does 40 CFR Part 63, Maximum Achievable Control Technology (MACT) standard apply to a facility in this application?	☒ YES ☐ NO
D.	Do nonattainment permitting requirements apply to this application?	☐ YES ☒ NO
E.	Do prevention of significant deterioration permitting requirements apply to this application?	☒ YES ☐ NO
F.	Do Hazardous Air Pollutant Major Source [FCAA 112(g)] requirements apply to this application?	☒ YES ☐ NO
G.	Is a Plant-wide Applicability Limit permit being requested?	☐ YES ☒ NO
X.	**Professional Engineer (P.E.) Seal**	
Is the estimated capital cost of the project greater than $2 million dollars?		☒ YES ☐ NO
If Yes, submit the application under the seal of a Texas licensed P.E. **Following this form**		
XI.	**Permit Fee Information**	
Check, Money Order, Transaction Number ,ePay Voucher Number:	Fee Amount: $75,000.00	
Paid online?		☒ YES ☐ NO
Company name on check:		
Is a copy of the check or money order attached to the original submittal of this application?		☒ YES ☐ NO ☐ N/A
Is a Table 30 (Form 10196) entitled, Estimated Capital Cost and Fee Verification, attached? **Have paid maximum permit fee of $75,000.00**		☐ YES ☒ NO ☐ N/A

Texas Commission on Environmental Quality
Form PI-1 General Application for
Air Preconstruction Permit and Amendment

XII. Delinquent Fees and Penalties
This form will not be processed until all delinquent fees and/or penalties owed to the TCEQ or the Office of the Attorney General on behalf of the TCEQ is paid in accordance with the Delinquent Fee and Penalty Protocol. For more information regarding Delinquent Fees and Penalties, go to the TCEQ Web site at: www.tceq.texas.gov/agency/delin/index.html.
XIII. Signature
The signature below confirms that I have knowledge of the facts included in this application and that these facts are true and correct to the best of my knowledge and belief. I further state that to the best of my knowledge and belief, the project for which application is made will not in any way violate any provision of the Texas Water Code (TWC), Chapter 7, Texas Clean Air Act (TCAA), as amended, or any of the air quality rules and regulations of the Texas Commission on Environmental Quality or any local governmental ordinance or resolution enacted pursuant to the TCAA I further state that I understand my signature indicates that this application meets all applicable nonattainment, prevention of significant deterioration, or major source of hazardous air pollutant permitting requirements. The signature further signifies awareness that intentionally or knowingly making or causing to be made false material statements or representations in the application is a criminal offense subject to criminal penalties.
Name: Dwight D. Serrett
Signature: _____ *Original Signature Required*
Date: ~~July 31, 2013~~ January 14, 2014 ABD for DDS



LEGEND

- CURRENTLY PERMITTED FACILITIES
- CURRENTLY PERMITTED UNITS
- RAMSEY FACILITY EXPANSION
- PLANT BOUNDARIES
- OUT OF SERVICE UNITS

FIGURE 2

RAMSEY FACILITY PLOT PLAN
Nuevo Midstream LLC

Reeves County, Texas

Not To Scale

AIR CONTAMINANT DATA					
1. Emission Point			2. Component or Air Contaminant Name	3. Air Contaminant Emission Rate	
(A) EPN	(B) FIN	(C) Name		(A) Pound Per Hour	(B) TPY
COMP-15	COMP-15	Cat G3612 LE or equivalent	CO_2	3,435.736	15,048.525
			CH_4	41.949	183.736
			N_2O	0.005	0.023
			CO_2e	4,318.271	18,914.010
COMP-16	COMP-16	Cat G3612 LE or equivalent	CO_2	3,435.736	15,048.525
			CH_4	41.949	183.736
			N_2O	0.005	0.023
			CO_2e	4,318.271	18,914.010
COMP-17	COMP-17	Cat G3612 LE or equivalent	CO_2	3,435.736	15,048.525
			CH_4	41.949	183.736
			N_2O	0.005	0.023
			CO_2e	4,318.271	18,914.010
COMP-18	COMP-18	Cat G3612 LE or equivalent	CO_2	3,435.736	15,048.525
			CH_4	41.949	183.736
			N_2O	0.005	0.023
			CO_2e	4,318.271	18,914.010
COMP-19	COMP-19	Cat G3612 LE or equivalent	CO_2	3,435.736	15,048.525
			CH_4	41.949	183.736
			N_2O	0.005	0.023
			CO_2e	4,318.271	18,914.010
COMP-20	COMP-20	Cat G3612 LE or equivalent	CO_2	3,435.736	15,048.525
			CH_4	41.949	183.736
			N_2O	0.005	0.023
			CO_2e	4,318.271	18,914.010
COMP-21	COMP-21	Cat G3612 LE or equivalent	CO_2	3,435.736	15,048.525
			CH_4	41.949	183.736
			N_2O	0.005	0.023
			CO_2e	4,318.271	18,914.010
COMP-22	COMP-22	Cat G3612 LE or equivalent	CO_2	3,435.736	15,048.525
			CH_4	41.949	183.736
			N_2O	0.005	0.023
			CO_2e	4,318.271	18,914.010
COMP-23	COMP-23	Cat G3612 LE or equivalent	CO_2	3,435.736	15,048.525
			CH_4	41.949	183.736
			N_2O	0.005	0.023
			CO_2e	4,318.271	18,914.010
			CO_2	3,435.736	15,048.525

COMP-24	COMP-24	Cat G3612 LE or equivalent	CH_4	41.949	183.736
			N_2O	0.005	0.023
			CO_2e	4,318.271	18,914.010
COMP-25	COMP-25	Cat G3612 LE or equivalent	CO_2	3,435.736	15,048.525
			CH_4	41.949	183.736
			N_2O	0.005	0.023
			CO_2e	4,318.271	18,914.010
COMP-26	COMP-26	Cat G3612 LE or equivalent	CO_2	3,435.736	15,048.525
			CH_4	41.949	183.736
			N_2O	0.005	0.023
			CO_2e	4,318.271	18,914.010
COMP-27	COMP-27	Cat G3612 LE or equivalent	CO_2	3,435.736	15,048.525
			CH_4	41.949	183.736
			N_2O	0.005	0.023
			CO_2e	4,318.271	18,914.010
COMP-28	COMP-28	Cat G3612 LE or equivalent	CO_2	3,435.736	15,048.525
			CH_4	41.949	183.736
			N_2O	0.005	0.023
			CO_2e	4,318.271	18,914.010
COMP-29	COMP-29	Cat G3612 LE or equivalent	CO_2	3,435.736	15,048.525
			CH_4	41.949	183.736
			N_2O	0.005	0.023
			CO_2e	4,318.271	18,914.010
BD3	BD3	Engine blowdowns for Ramsey IV	CO_2	2.183	0.098
			CH_4	367.824	16.552
			N_2O	0.000	0.000
			CO_2e	7,726.484	347.692
BD4	BD4	Engine blowdowns for Ramsey V	CO_2	2.183	0.098
			CH_4	367.824	16.552
			N_2O	0.000	0.000
			CO_2e	7,726.484	347.692
BD5	BD5	Engine blowdowns for Ramsey VI Plants	CO_2	2.183	0.098
			CH_4	367.824	16.552
			N_2O	0.000	0.000
			CO_2e	7,726.484	347.692
H-8	H-8	36 MMBtu/hr or equivalent Regen Gas Heater	CO_2	4,207.964	18,430.883
			CH_4	0.079	0.347
			N_2O	0.008	0.035
			CO_2e	4,212.091	18,448.921
H-9	H-9	60 MMBtu/hr or equivalent Hot Oil Heater	CO_2	7,013.274	30,718.138
			CH_4	0.132	0.578
			N_2O	0.013	0.058
			CO_2e	7,020.152	30,748.202
			CO_2	4,207.964	18,430.883

H-10	H-10	36 MMBtu/hr or equivalent Regen Gas Heater	CH_4	0.079	0.347
			N_2O	0.008	0.035
			CO_2e	4,212.091	18,448.921
H-11	H-11	60 MMBtu/hr or equivalent Hot Oil Heater	CO_2	7,013.274	30,718.138
			CH_4	0.132	0.578
			N_2O	0.013	0.058
			CO_2e	7,020.152	30,748.202
H-12	H-12	36 MMBtu/hr or equivalent Regen Gas Heater	CO_2	4,207.964	18,430.883
			CH_4	0.079	0.347
			N_2O	0.008	0.035
			CO_2e	4,212.091	18,448.921
RTO-4	RTO-4	Regenerative Thermal Oxidizer	CO_2	22,991.867	96,619.845
			CH_4	0.202	0.809
			N_2O	0.002	0.000
			CO_2e	22,996.660	96,636.836
RTO-5	RTO-5	Regenerative Thermal Oxidizer	CO_2	22,991.867	96,619.845
			CH_4	0.202	0.809
			N_2O	0.002	0.000
			CO_2e	22,996.660	96,636.836
FUG4	FUG4	Fugitive Emissions	CO_2	0.251	1.098
			CH_4	2.000	8.760
			N_2O	0.000	0.000
			CO_2e	35.566	155.781
FUG5	FUG5	Fugitive Emissions	CO_2	0.251	1.098
			CH_4	2.000	8.760
			N_2O	0.000	0.000
			CO_2e	35.566	155.781
FUG6	FUG6	Fugitive Emissions	CO_2	0.251	1.098
			CH_4	2.000	8.760
			N_2O	0.000	0.000
			CO_2e	35.566	155.781

Totals

	Lbs/hr	TPY
CO_2	124,177.519	535,700.080
CH_4	1,739.612	2,835.792
N_2O	0.132	0.560
CO_2e	160,730.108	595,337.414

FORM PI-1 SECTION X
PROFESSIONAL ENGINEER (P.E.) SEAL

I, Rachel Pappworth, have reviewed the following sections of the attached application for a Prevention of Significant Deterioration (PSD) permit submitted by Sound Environmental Solutions, Inc:

Emissions Data

Best Available Control Technology

The capital cost of the project is estimated to be greater than $25,000.00

The application for a PSD permit, as referenced above, was reviewed on the 21st day of January 2014

Signed: S S R Pappworth

Date 1/21/2014

Professional Engineer Registration Number: 76885

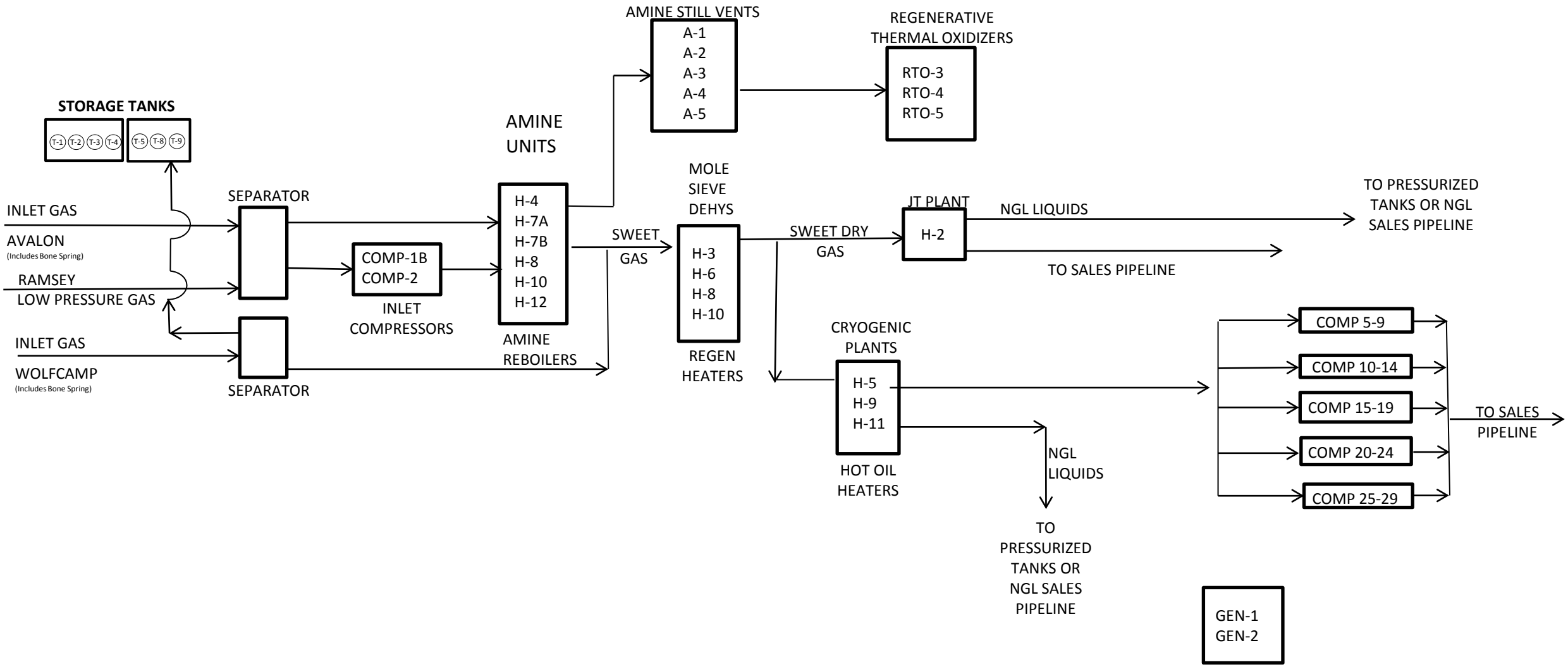


FIGURE 3

PROCESS FLOW DIAGRAM
Nuevo Midstream LLC

Reeves County, Texas

B Texas Commission on Environmental Quality
Form OP-ACPS
Application Compliance Plan and Schedule

Date:01/14/2014	**Regulated Entity No.:100228899**	**Permit No.:O3546**
Company Name: Nuevo Midstream, LLC		**Area Name: Ramsey Gas Plant**

- Part 1 of this form must be submitted with all initial FOP applications and renewal applications.
- The Responsible Official must use Form OP-CRO1 (Certification by Responsible Official) to certify information contained in this form in accordance with 30 TAC § 122.132(e)(9).

Part 1

A. Compliance Plan — Future Activity Committal Statement
The *Responsible Official* commits, utilizing reasonable effort, to the following: As the responsible official it is my intent that all emission units shall continue to be in compliance with all applicable requirements they are currently in compliance with, and all emission units shall be in compliance by the compliance dates with any applicable requirements that become effective during the permit term.

B.	**Compliance Certification — Statement for Units in Compliance* (Indicate response by entering an "X" in the appropriate column)**	
1.	With the exception of those emission units listed in the Compliance Schedule section of this form (Part 2, below), and based, at minimum, on the compliance method specified in the associated applicable requirements, are all emission units addressed in this application in compliance with all their respective applicable requirements as identified in this application?	☒ YES ☐ NO
2.	Are there any non-compliance situations addressed in the Compliance Schedule Section of this form (Part 2)?	☒ YES ☐ NO
3.	If the response to Item B.2, above, is "Yes," indicate the total number of Part 2 attachments included in this submittal. *(For reference only)*	5
*	*For Site Operating Permits (SOPs), the complete application should be consulted for applicable requirements and their corresponding emission units when assessing compliance status.* *For General Operating Permits (GOPs), the application documentation, particularly Form OP-REQ1 should be consulted as well as the requirements contained in the appropriate General Permits portion of 30 TAC Chapter 122.* *Compliance should be assessed based, at a minimum, on the required monitoring, testing, record keeping, and/or reporting requirements, as appropriate, associated with the applicable requirement in question.*	

Texas Commission on Environmental Quality
Form OP-ACPS
Application Compliance Plan and Schedule

Date:01/14/2014	Regulated Entity No.:100228899	Permit No.: O3546
Company Name: Nuevo Midstream, LLC		Area Name: Ramsey Gas Plant

Part 2

A. Compliance Schedule

If there are non-compliance situations ongoing at time of application, then complete a separate OP-ACPS Part 2 for each separate non-compliance situation. *(See form instructions for details.)* If there are no non-compliance situations ongoing at time of application, then this section is not required to be completed.

1. Specific Non-Compliance Situation

Unit/Group/Process ID. No(s).	SOP Index No.	Pollutant	Applicable Requirement	
			Citation	Text Description
Area-wide			§122.145(2)	Deviations from permit conditions must be reported. A report shall be submitted every 6 months no later than 30 days after the end of the reporting period.

2. Compliance Status Assessment Method and Records Location

Compliance Status Assessment Method

Citation	Text Description	Location of Records/Documentation
§122.145(2)	Submit semi-annual Deviation Report	Records at the Plant.

3. Non-compliance Situation Description

Failure to submit semi-annual Deviation Report

Texas Commission on Environmental Quality
Form OP-ACPS
Application Compliance Plan and Schedule

Date:01/14/2014	**Regulated Entity No.: 100228899**	**Permit No.: O3546**
Company Name: Nuevo Midstream, LLC		**Area Name: Ramsey Gas Plant**

Part 2 (*continued)*

4. Corrective Action Plan Description	
Submit report by end of January 2014. Develop regulatory compliance schedule to prevent re-occurrence.	
5. List of Activities/Milestones to Implement the Corrective Action Plan	
1	Submit report January 31, 2014
2	Develop regulatory compliance schedule January 31, 2014
3	
4	
5	

6. Previously Submitted Compliance Plan(s)	**Type of Action**	**Date Submitted**
	Non-compliance submitted via Texas Audit Act	January 6,2014
7. Progress Report Submission Schedule	January 31, 2014	

Texas Commission on Environmental Quality
Form OP-ACPS
Application Compliance Plan and Schedule

Date:01/14/2014	Regulated Entity No.:100228899	Permit No.: O3546
Company Name: Nuevo Midstream, LLC		Area Name: Ramsey Gas Plant

Part 2

A. Compliance Schedule

If there are non-compliance situations ongoing at time of application, then complete a separate OP-ACPS Part 2 for each separate non-compliance situation. *(See form instructions for details.)* If there are no non-compliance situations ongoing at time of application, then this section is not required to be completed.

1. Specific Non-Compliance Situation

Unit/Group/Process ID. No(s).	SOP Index No.	Pollutant	Applicable Requirement	
			Citation	Text Description
Area-wide			§122.146	Permit holder shall certify compliance with the terms and conditions of the permit at least each 12-month period following permit issuance.

2. Compliance Status Assessment Method and Records Location

Compliance Status Assessment Method

Citation	Text Description	Location of Records/Documentation
§122.146	Submit annual compliance certification.	Records at the Plant.

3. Non-compliance Situation Description

Failure to submit annual compliance certification.

Texas Commission on Environmental Quality
Form OP-ACPS
Application Compliance Plan and Schedule

Date:01/14/2014	**Regulated Entity No.: 100228899**	**Permit No.: O3546**
Company Name: Nuevo Midstream, LLC		**Area Name: Ramsey Gas Plant**

Part 2 (*continued)*

4. Corrective Action Plan Description	
Submit report by end of January 2014. Develop regulatory compliance schedule to prevent re-occurrence.	
5. List of Activities/Milestones to Implement the Corrective Action Plan	
1	Submit report by January 31, 2014
2	Develop regulatory compliance schedule by January31, 2014
3	
4	
5	

6. Previously Submitted Compliance Plan(s)	**Type of Action**	**Date Submitted**
	Non-compliance submitted via Texas Audit Act	January 6,2014
7. Progress Report Submission Schedule	January 31, 2014	

Texas Commission on Environmental Quality
Form OP-ACPS
Application Compliance Plan and Schedule

Date:01/14/2014	Regulated Entity No.:100228899	Permit No.: O3546
Company Name: Nuevo Midstream, LLC		Area Name: Ramsey Gas Plant

Part 2

A. Compliance Schedule

If there are non-compliance situations ongoing at time of application, then complete a separate OP-ACPS Part 2 for each separate non-compliance situation. *(See form instructions for details.)* If there are no non-compliance situations ongoing at time of application, then this section is not required to be completed.

1. Specific Non-Compliance Situation

Unit/Group/Process ID. No(s).	SOP Index No.	Pollutant	Applicable Requirement	
			Citation	Text Description
Area-wide			§101.20	Shall comply with applicable new source performance standards promulgated by EPA pursuant to the Federal Clean Air Act §111, as amended.

2. Compliance Status Assessment Method and Records Location

Compliance Status Assessment Method

Citation	Text Description	Location of Records/Documentation
§101.20	Perform stack testing of engines in a timely manner.	Records at the Plant.

3. Non-compliance Situation Description

Completed stack testing late.

Texas Commission on Environmental Quality
Form OP-ACPS
Application Compliance Plan and Schedule

Date:01/14/2014	**Regulated Entity No.: 100228899**	**Permit No.: O3546**
Company Name: Nuevo Midstream, LLC		**Area Name: Ramsey Gas Plant**

Part 2 (*continued)*

4. Corrective Action Plan Description			
Develop regulatory compliance schedule to prevent re-occurrence.			
5. List of Activities/Milestones to Implement the Corrective Action Plan			
1	Develop regulatory compliance schedule by January 31, 2014.		
2			
3			
4			
5			
6. Previously Submitted Compliance Plan(s)		**Type of Action**	**Date Submitted**
		Non-compliance submitted via Texas Audit Act	January 6,2014
7. Progress Report Submission Schedule		January 31, 2014	

Texas Commission on Environmental Quality
Form OP-ACPS
Application Compliance Plan and Schedule

Date:01/14/2014	Regulated Entity No.:100228899	Permit No.: O3546
Company Name: Nuevo Midstream, LLC		Area Name: Ramsey Gas Plant

Part 2

A. Compliance Schedule

If there are non-compliance situations ongoing at time of application, then complete a separate OP-ACPS Part 2 for each separate non-compliance situation. *(See form instructions for details.)* If there are no non-compliance situations ongoing at time of application, then this section is not required to be completed.

1. Specific Non-Compliance Situation

Unit/Group/Process ID. No(s).	SOP Index No.	Pollutant	Applicable Requirement	
			Citation	Text Description
Area-wide			§101.20	Shall comply with applicable new source performance standards promulgated by EPA pursuant to the Federal Clean Air Act §111, as amended.

2. Compliance Status Assessment Method and Records Location

Compliance Status Assessment Method

Citation	Text Description	Location of Records/Documentation
§101.20	Engine stack reports shall be submitted.	Records at the Plant.

3. Non-compliance Situation Description

Failure to submit the engine stack testing reports.

Texas Commission on Environmental Quality
Form OP-ACPS
Application Compliance Plan and Schedule

Date:01/14/2014	**Regulated Entity No.: 100228899**	**Permit No.: O3546**
Company Name: Nuevo Midstream, LLC		**Area Name: Ramsey Gas Plant**

Part 2 (*continued)*

4. Corrective Action Plan Description			
Submit report by end of January 2014. Develop regulatory compliance schedule to prevent re-occurrence.			
5. List of Activities/Milestones to Implement the Corrective Action Plan			
1	The reports will be submitted by January 31, 2014.		
2	Develop regulatory compliance schedule by end of January 2014.		
3			
4			
5			
6. Previously Submitted Compliance Plan(s)		**Type of Action**	**Date Submitted**
		Non-compliance submitted via Texas Audit Act	January 6,2014
7. Progress Report Submission Schedule		January 31, 2014	

Texas Commission on Environmental Quality
Form OP-ACPS
Application Compliance Plan and Schedule

Date:01/14/2014	Regulated Entity No.:100228899	Permit No.: O3546
Company Name: Nuevo Midstream, LLC		Area Name: Ramsey Gas Plant

Part 2

A. Compliance Schedule

If there are non-compliance situations ongoing at time of application, then complete a separate OP-ACPS Part 2 for each separate non-compliance situation. *(See form instructions for details.)* If there are no non-compliance situations ongoing at time of application, then this section is not required to be completed.

1. Specific Non-Compliance Situation

Unit/Group/Process ID. No(s).	SOP Index No.	Pollutant	Applicable Requirement	
			Citation	Text Description
Area-wide			§101.201	Reportable emission events shall be reported.

2. Compliance Status Assessment Method and Records Location

Compliance Status Assessment Method

Citation	Text Description	Location of Records/Documentation
§101.201	Report reportable emission events.	Records at the Plant.

3. Non-compliance Situation Description

Reportable emission event was not reported.

Texas Commission on Environmental Quality
Form OP-ACPS
Application Compliance Plan and Schedule

Date:01/14/2014	**Regulated Entity No.: 100228899**	**Permit No.: O3546**
Company Name: Nuevo Midstream, LLC		**Area Name: Ramsey Gas Plant**

Part 2 (*continued)*

4. Corrective Action Plan Description			
Train employees on the correct upset reporting requirements. Study options for preventing mechanical issues with the inlet and booster compressors			
5. List of Activities/Milestones to Implement the Corrective Action Plan			
1	Train employees on the correct upset reporting requirements. Training will be completed by February 28, 2014		
2	Report upset emissions by February 28, 2014.		
3	Identify options to improve the reliability of the inlet and booster compressors, which cause the excess emissions. Study completed by February 28, 2014.		
4			
5			
6. Previously Submitted Compliance Plan(s)		**Type of Action**	**Date Submitted**
		Non-compliance submitted via Texas Audit Act	January 6,2014
7. Progress Report Submission Schedule		February 28, 2014	

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Table 1(a) Emission Point Summary

Date: 01/15/2014	**Permit No.:**	**Regulated Entity No.:** RN100228899
Area Name: Ramsey Gas Plant		**Customer Reference No.:** CN604322891

Review of applications and issuance of permits will be expedited by supplying all necessary information requested on this Table.

AIR CONTAMINANT DATA					
1. Emission Point			**2. Component or Air Contaminant Name**	**3. Air Contaminant Emission Rate**	
(A) EPN	**(B) FIN**	**(C) Name**		**(A) Pound Per Hour**	**(B) TPY**
COMP-15	COMP-15	Cat G3612 LE or equivalent	CO2	3,435.736	15,048.525
			CH4	41.949	183.736
			N2O	0.005	0.023
			CO2e	4,318.271	18,914.010
COMP-16	COMP-16	Cat G3612 LE or equivalent	CO2	3,435.736	15,048.525
			CH4	41.949	183.736
			N2O	0.005	0.023
			CO2e	4,318.271	18,914.010
COMP-17	COMP-17	Cat G3612 LE or equivalent	CO2	3,435.736	15,048.525
			CH4	41.949	183.736

AIR CONTAMINANT DATA					
1. Emission Point			2. Component or Air Contaminant Name	3. Air Contaminant Emission Rate	
(A) EPN	(B) FIN	(C) Name		(A) Pound Per Hour	(B) TPY
			N2O	0.005	0.023
			CO2e	4,318.271	18,914.010
COMP-18	COMP-18	Cat G3612 LE or equivalent	CO2	3,435.736	15,048.525
			CH4	41.949	183.736
			N2O	0.005	0.023
			CO2e	4,318.271	18,914.010
COMP-19	COMP-19	Cat G3612 LE or equivalent	CO2	3,435.736	15,048.525
			CH4	41.949	183.736
			N2O	0.005	0.023
			CO2e	4,318.271	18,914.010
COMP-20	COMP-20	Cat G3612 LE or equivalent	CO2	3,435.736	15,048.525
			CH4	41.949	183.736
			N2O	0.005	0.023
			CO2e	4,318.271	18,914.010
COMP-21	COMP-21	Cat G3612 LE or equivalent	CO2	3,435.736	15,048.525

AIR CONTAMINANT DATA					
1. Emission Point			2. Component or Air Contaminant Name	3. Air Contaminant Emission Rate	
(A) EPN	(B) FIN	(C) Name		(A) Pound Per Hour	(B) TPY
			CH4	41.949	183.736
			N2O	0.005	0.023
			CO2e	4,318.271	18,914.010
COMP-22	COMP-22	Cat G3612 LE or equivalent	CO2	3,435.736	15,048.525
			CH4	41.949	183.736
			N2O	0.005	0.023
			CO2e	4,318.271	18,914.010
COMP-23	COMP-23	Cat G3612 LE or equivalent	CO2	3,435.736	15,048.525
			CH4	41.949	183.736
			N2O	0.005	0.023
			CO2e	4,318.271	18,914.010
COMP-24	COMP-24	Cat G3612 LE or equivalent	CO2	3,435.736	15,048.525
			CH4	41.949	183.736
			N2O	0.005	0.023
			CO2e	4,318.271	18,914.010

AIR CONTAMINANT DATA					
1. Emission Point			2. Component or Air Contaminant Name	3. Air Contaminant Emission Rate	
(A) EPN	(B) FIN	(C) Name		(A) Pound Per Hour	(B) TPY
COMP-25	COMP-25	Cat G3612 LE or equivalent	CO2	3,435.736	15,048.525
			CH4	41.949	183.736
			N2O	0.005	0.023
			CO2e	4,318.271	18,914.010
COMP-26	COMP-26	Cat G3612 LE or equivalent	CO2	3,435.736	15,048.525
			CH4	41.949	183.736
			N2O	0.005	0.023
			CO2e	4,318.271	18,914.010
COMP-27	COMP-27	Cat G3612 LE or equivalent	CO2	3,435.736	15,048.525
			CH4	41.949	183.736
			N2O	0.005	0.023
			CO2e	4,318.271	18,914.010
COMP-28	COMP-28	Cat G3612 LE or equivalent	CO2	3,435.736	15,048.525
			CH4	41.949	183.736
			N2O	0.005	0.023

AIR CONTAMINANT DATA					
1. Emission Point			2. Component or Air Contaminant Name	3. Air Contaminant Emission Rate	
(A) EPN	(B) FIN	(C) Name		(A) Pound Per Hour	(B) TPY
			CO2e	4,318.271	18,914.010
COMP-29	COMP-29	Cat G3612 LE or equivalent	CO2	3,435.736	15,048.525
			CH4	41.949	183.736
			N2O	0.005	0.023
			CO2e	4,318.271	18,914.010
BD3	BD3	Engine blowdowns for	CO2	2.183	0.098
			CH4	367.824	16.552
			N2O	0.000	0.000
			CO2e	7,726.484	347.692
BD4	BD4	Engine blowdowns for	CO2	2.183	0.098
			CH4	367.824	16.552
			N2O	0.000	0.000
			CO2e	7,726.484	347.692
BD5	BD5	Engine blowdowns for	CO2	2.183	0.098
			CH4	367.824	16.552

AIR CONTAMINANT DATA					
1. Emission Point			2. Component or Air Contaminant Name	3. Air Contaminant Emission Rate	
(A) EPN	(B) FIN	(C) Name		(A) Pound Per Hour	(B) TPY
			N2O	0.000	0.000
			CO2e	7,726.484	347.692
H-8	H-8	36 MMBtu/hr or equivalent Regen	CO2	4,207.964	18,430.883
			CH4	0.079	0.347
			N2O	0.008	0.035
			CO2e	4,212.091	18,448.921
H-9	H-9	60 MMBtu/hr or equivalent Hot Oil	CO2	7,013.274	30,718.138
			CH4	0.132	0.578
			N2O	0.013	0.058
			CO2e	7,020.152	30,748.202
H-10	H-10	36 MMBtu/hr or equivalent Regen	CO2	4,207.964	18,430.883
			CH4	0.079	0.347
			N2O	0.008	0.035
			CO2e	4,212.091	18,448.921
H-11	H-11	60 MMBtu/hr or equivalent Hot Oil	CO2	7,013.274	30,718.138

AIR CONTAMINANT DATA					
1. Emission Point			2. Component or Air Contaminant Name	3. Air Contaminant Emission Rate	
(A) EPN	(B) FIN	(C) Name		(A) Pound Per Hour	(B) TPY
			CH4	0.132	0.578
			N2O	0.013	0.058
			CO2e	7,020.152	30,748.202
H-12	H-12	36 MMBtu/hr or equivalent Regen	CO2	4,207.964	18,430.883
			CH4	0.079	0.347
			N2O	0.008	0.035
			CO2e	4,212.091	18,448.921
RTO-4	RTO-4	Regenerative Thermal Oxidizer	CO2	22,991.867	96,619.845
			CH4	0.202	0.809
			N2O	0.002	0.000
			CO2e	22,996.660	96,636.836
RTO-5	RTO-5	Regenerative Thermal Oxidizer	CO2	22,991.867	96,619.845
			CH4	0.202	0.809
			N2O	0.002	0.000
			CO2e	22,996.660	96,636.836

AIR CONTAMINANT DATA					
1. Emission Point			**2. Component or Air Contaminant Name**	**3. Air Contaminant Emission Rate**	
(A) EPN	**(B) FIN**	**(C) Name**		**(A) Pound Per Hour**	**(B) TPY**
FUG4	FUG4	Fugitive Emissions	CO2	0.251	1.098
			CH4	2.000	8.760
			N2O	0.000	0.000
			CO2e	35.566	155.781
FUG5	FUG5	Fugitive Emissions	CO2	0.251	1.098
			CH4	2.000	8.760
			N2O	0.000	0.000
			CO2e	35.566	155.781
FUG6	FUG6	Fugitive Emissions	CO2	0.251	1.098
			CH4	2.000	8.760
			N2O	0.000	0.000
			CO2e	35.566	155.781

EPN = Emission Point Number
FIN = Facility Identification Number

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Table 1(a) Emission Point Summary

Date: 01/15/2014	**Permit No.:**	**Regulated Entity No.:** RN100228899
Area Name: Ramsey Gas Plant		**Customer Reference No.:** CN604322891

Review of applications and issuance of permits will be expedited by supplying all necessary information requested on this Table.

AIR CONTAMINANT DATA						EMISSION POINT DISCHARGE PARAMETERS								
1. Emission Point			4. UTM Coordinates of Emission Point			Source								
			5.			5. Building Height (Ft.)	6. Height Above Ground (Ft.)	7. Stack Exit Data			8. Fugitives			
(A) EPN	(B) FIN	(C) NAME	Zone	East (Meters)	North (Meters)			(A) Diameter (Ft.)	(B) Velocity (FPS)	(C) Temperature (°F)	(A) Length (Ft.)	(B) Width (Ft.)	(C) Axis Degrees
COMP-15	COMP-15	Cat G3612LE	13R	594,444	3,532,498	None	22.2	1.92	117.37	838			
COMP-16	COMP-16	Cat G3612LE	13R	594,444	3,532,498	None	22.2	1.92	117.37	838			
COMP-17	COMP-17	Cat G3612LE	13R	594,444	3,532,498	None	22.2	1.92	117.37	838			
COMP-18	COMP-18	Cat G3612LE	13R	594,444	3,532,498	None	22.2	1.92	117.37	838			
COMP-19	COMP-19	Cat G3612LE	13R	594,444	3,532,498	None	22.2	1.92	117.37	838			
COMP-20	COMP-20	Cat G3612LE	13R	594,444	3,532,498	None	22.2	1.92	117.37	838			
COMP-21	COMP-21	Cat G3612LE	13R	594,444	3,532,498	None	22.2	1.92	117.37	838			
COMP-22	COMP-22	Cat G3612LE	13R	594,444	3,532,498	None	22.2	1.92	117.37	838			
COMP-23	COMP-23	Cat G3612LE	13R	594,444	3,532,498	None	22.2	1.92	117.37	838			

AIR CONTAMINANT DATA						EMISSION POINT DISCHARGE PARAMETERS								
1. Emission Point			4. UTM Coordinates of Emission Point			Source								
			5.			5. Building Height (Ft.)	6. Height Above Ground (Ft.)	7. Stack Exit Data			8. Fugitives			
(A) EPN	(B) FIN	(C) NAME	Zone	East (Meters)	North (Meters)			(A) Diameter (Ft.)	(B) Velocity (FPS)	(C) Temperature (°F)	(A) Length (Ft.)	(B) Width (Ft.)	(C) Axis Degrees
COMP-24	COMP-24	Cat G3612LE	13R	594,444	3,532,498	None	22.2	1.92	117.37	838			
COMP-25	COMP-25	Cat G3612LE	13R	594,444	3,532,498	None	22.2	1.92	117.37	838			
COMP-26	COMP-26	Cat G3612LE	13R	594,444	3,532,498	None	22.2	1.92	117.37	838			
COMP-27	COMP-27	Cat G3612LE	13R	594,444	3,532,498	None	22.2	1.92	117.37	838			
COMP-28	COMP-28	Cat G3612LE	13R	594,444	3,532,498	None	22.2	1.92	117.37	838			
COMP-29	COMP-29	Cat G3612LE	13R	594,444	3,532,498	None	22.2	1.92	117.37	838			
H-8	H-8	36 MMBtu/hr Heater	13R	594,444	3,532,498	None	25	1.5	9.64	787			
H-9	H-9	60 MMBtu/hr Heater	13R	594,444	3,532,498	None	??	2	10.28	787			
H-10	H-10	36 MMBtu/hr Heater	13R	594,444	3,532,498	None	25	1.5	9.64	787			
H-11	H-11	60 MMBtu/hr Heater	13R	594,444	3,532,498	None	??	2	10.28	787			
H-12	H-12	36 MMBtu/hr Heater	13R	594,444	3,532,498	None	25	1.5	9.64	787			
RTO-4	RTO-4	Regenerative Thermal Oxidizer	13R	594,444	3,532,498	None	40	4.5	4.76	150			

AIR CONTAMINANT DATA						EMISSION POINT DISCHARGE PARAMETERS							
1. Emission Point			4. UTM Coordinates of Emission Point			Source							
			5.			5. Building Height (Ft.)	6. Height Above Ground (Ft.)	7. Stack Exit Data			8. Fugitives		
(A) EPN	(B) FIN	(C) NAME	Zone	East (Meters)	North (Meters)			(A) Diameter (Ft.)	(B) Velocity (FPS)	(C) Temperature (°F)	(A) Length (Ft.)	(B) Width (Ft.)	(C) Axis Degrees
RTO-5	RTO-5	Regenerative Thermal Oxidizer	13R	594,444	3,532,498	None	40	4.5	4.76	150			
FUG4	FUG4	Fugitive Emissions	13R	594,444	3,532,498						800	767	
FUG5	FUG5	Fugitive Emissions	13R	594,444	3,532,498						800	767	
FUG6	FUG6	Fugitive Emissions	13R	594,444	3,532,498						800	767	

EPN = Emission Point Number
FIN = Facility Identification Number

RESIDUE (FUEL) GAS ANALYSIS

1/14/2014

RAMSEY IV GAS PLANT

Analysis Provided by Nuevo Midstream

FUEL HEAT CONTENT, BTU/SCF 1,077

COMPOUND	INLET GAS MOL%	MOL. WT.	CALC. MOL. WT.	WT %
BENZENE	0.000	78.110	0.0000	0.000
BUTANE+	0.000	58.120	0.0000	0.000
CO2	0.188	44.010	0.0827	0.462
DECANE+	0.000	142.290	0.0000	0.000
ETHANE	10.637	30.070	3.1985	17.874
ETHYLBENZENE	0.000	106.160	0.0000	0.000
HEPTANES+	0.000	100.210	0.0000	0.000
HEXANES+	0.000	86.178	0.0000	0.000
METHANE	86.911	16.040	13.9405	77.901
NITROGEN	2.020	28.013	0.5659	3.162
NONANE+	0.000	128.200	0.0000	0.000
OCTANE+	0.000	114.230	0.0000	0.000
PENTANE+	0.000	72.151	0.0000	0.000
PROPANE	0.244	44.100	0.1076	0.601
TOLUENE	0.000	92.130	0.0000	0.000
XYLENES	0.000	106.160	0.0000	0.000
REAL BTU/CU.FT.				
At 14.65 DRY		1071.400		
At 14.65 WET		1052.700		
At 14.696 DRY		1074.800		
At 14.696 WET		1056.400		
At 14.73 DRY		1077.300		
At 14.73 Wet		1058.700		
	100		17.8953	100.000

Molecular Weight	
RESIDUE GAS M. WT.	17.895

ESTIMATED CO2e POTENTIAL TO EMIT (PTE) EMISSIONS USING VENDOR DATA AND 40 CFR 98 EMISSION FACTORS

Facility: Ramsey Gas Plant

Unit Description		Rating		Heat Input	Emission Factors		
Gas-Fired Compressor Engines		**hp**	**Fuel Factor**	**Hours of Operation**	**Maximum (MMBtu /yr)**	**CO_2**	**CH_4**	**N_2O**
			Btu/bhp-hr			g/bhp-hr[1]	g/bhp-hr[1]	kg/MMBtu[2]
C-15	3612 LE	3,550	6,629	8760	206,149	439	5.36	1.00E-04
C-16	3612 LE	3,550	6,629	8760	206,149	439	5.36	1.00E-04
C-17	3612 LE	3,550	6,629	8760	206,149	439	5.36	1.00E-04
C-18	3612 LE	3,550	6,629	8760	206,149	439	5.36	1.00E-04
C-19	3612 LE	3,550	6,629	8760	206,149	439	5.36	1.00E-04

EMISSIONS

	CO_2	**CH_4**	**N_2O**	**CO_2e**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
	lbs/hr	lbs/hr	lbs/hr	lbs/hr	TPY	TPY	TPY	TPY
C-15	3,436	41.95	0.005	**4,318**	15048.5	183.74	0.023	**18,914**
C-16	3,436	41.95	0.005	**4,318**	15048.5	183.74	0.023	**18,914**
C-17	3,436	41.95	0.005	**4,318**	15048.5	183.74	0.023	**18,914**
C-18	3,436	41.95	0.005	**4,318**	15048.5	183.74	0.023	**18,914**
C-19	3,436	41.95	0.005	**4,318**	15048.5	183.74	0.023	**18,914**
			TOTAL	**21,591** lbs/hr			**TOTAL**	**94,570** **TPY**

1 Vendor Data
2 40 CFR 98 Table C-2 Emission Factor

RAMSEY V GAS PLANT
NUEVO MIDSTREAM, LLC
1/14/2014

Engine Input Maximum Operating Parameters (individual emissions)

Description						
Item	EPN	C-20	C-21	C-22	C-23	C-24
	Make	CAT	CAT	CAT	CAT	CAT
	Model	3612 LE	3612 LE	3612 LE	3612 LE	3612 LE
Engine RPM=		1,000	1,000	1,000	1,000	1,000
Fuel Consumption Factor (Btu/bhp-hr)=		6,629	6,629	6,629	6,629	6,629
Engine BHp Rating=		3,550	3,550	3,550	3,550	3,550
Fuel Heating Value (Btu/SCF)=		1,077	1,077	1,077	1,077	1,077
Exhaust Gas Temperature (°F)=		838	838	838	838	838
Exhaust Gas Flow (lb/hr)=		34,250	34,250	34,250	34,250	34,250
Fuel Gas Molecular Weight (lb/lb-mole)=		17.895	17.895	17.895	17.895	17.895
For Exhaust Gas, K=		720.9	720.9	720.9	720.9	720.9
Engine Fuel Consumption (SCF/hr)=		21,844.379	21,844.379	21,844.379	21,844.379	21,844.379
Engine Fuel Consumption (lb/hr)=		1,031.428	1,031.428	1,031.428	1,031.428	1,031.428
Compression Limit (Hp-hr/yr)=		None	None	None	None	None
Engine Exhaust Gas Flow (CF/min)=		24,090	24,090	24,090	24,090	24,090
Engine Exhaust Gas Flow (CF/hr)=		1,445,400	1,445,400	1,445,400	1,445,400	1,445,400
Stack Exit Velocity (feet/second)		88.75	88.75	88.75	88.75	88.75
Engine % Utilization		100%	100%	100%	100%	100%
Stack Diameter (ft)=		1.667	1.667	1.667	1.667	1.667
Stack Height (ft)		22.2	22.2	22.2	22.2	22.2
Emission Limited Per Engine? (yes/no)		no	no	no	no	no
Atmospheric Pressure (psia)		14.7	14.7	14.7	14.7	14.7
Emission Factors: (grams/Hp-hr)						
	VOC	0.091	0.091	0.091	0.091	0.091
	NOx	0.500	0.500	0.500	0.500	0.500
	CO	0.083	0.083	0.083	0.083	0.083
	Formaldehyde	0.020	0.020	0.020	0.020	0.020
Emission Factors: (lbs/MMBtu)						
	PM primary	0.01	0.01	0.01	0.01	0.01
	PM_{10}	0.0001	0.0001	0.0001	0.0001	0.0001
	$PM_{2.5}$	0.0001	0.0001	0.0001	0.0001	0.0001
	$PM_{Condensable}$	0.01	0.01	0.01	0.01	0.01
	SO_2	0.001	0.001	0.001	0.001	0.001

RAMSEY V GAS PLANT
NUEVO MIDSTREAM, LLC
1/14/2014

Estimated Engine Operating Hours

Month	Hrs Available	C-20 100%	C-21 100%	C-22 100%	C-23 100%	C-24 100%
Jan	744	744	744	744	744	744
Feb	672	672	672	672	672	672
Mar	744	744	744	744	744	744
Apr	720	720	720	720	720	720
May	744	744	744	744	744	744
Jun	720	720	720	720	720	720
Jul	744	744	744	744	744	744
Aug	744	744	744	744	744	744
Sep	720	720	720	720	720	720
Oct	744	744	744	744	744	744
Nov	720	720	720	720	720	720
Dec	744	744	744	744	744	744
Totals	8760	8760	8760	8760	8760	8760

Estimated Engine Fuel Consumption (MMSCF)

EPN	C-20	C-21	C-22	C-23	C-24
Jan	16.252	16.252	16.252	16.252	16.252
Feb	14.679	14.679	14.679	14.679	14.679
Mar	16.252	16.252	16.252	16.252	16.252
Apr	15.728	15.728	15.728	15.728	15.728
May	16.252	16.252	16.252	16.252	16.252
Jun	15.728	15.728	15.728	15.728	15.728
Jul	16.252	16.252	16.252	16.252	16.252
Aug	16.252	16.252	16.252	16.252	16.252
Sep	15.728	15.728	15.728	15.728	15.728
Oct	16.252	16.252	16.252	16.252	16.252
Nov	15.728	15.728	15.728	15.728	15.728
Dec	16.252	16.252	16.252	16.252	16.252
Totals	191.357	191.357	191.357	191.357	191.357

RESIDUE (FUEL) GAS ANALYSIS

1/14/2014

RAMSEY V GAS PLANT

Analysis Provided by Nuevo Midstream

FUEL HEAT CONTENT, BTU/SCF 1,077

COMPOUND	INLET GAS MOL%	MOL. WT.	CALC. MOL. WT.	WT %
BENZENE	0.000	78.110	0.0000	0.000
BUTANE+	0.000	58.120	0.0000	0.000
CO2	0.188	44.010	0.0827	0.462
DECANE+	0.000	142.290	0.0000	0.000
ETHANE	10.637	30.070	3.1985	17.874
ETHYLBENZENE	0.000	106.160	0.0000	0.000
HEPTANES+	0.000	100.210	0.0000	0.000
HEXANES+	0.000	86.178	0.0000	0.000
METHANE	86.911	16.040	13.9405	77.901
NITROGEN	2.020	28.013	0.5659	3.162
NONANE+	0.000	128.200	0.0000	0.000
OCTANE+	0.000	114.230	0.0000	0.000
PENTANE+	0.000	72.151	0.0000	0.000
PROPANE	0.244	44.100	0.1076	0.601
TOLUENE	0.000	92.130	0.0000	0.000
XYLENES	0.000	106.160	0.0000	0.000
REAL BTU/CU.FT.				
At 14.65 DRY		1071.400		
At 14.65 WET		1052.700		
At 14.696 DRY		1074.800		
At 14.696 WET		1056.400		
At 14.73 DRY		1077.300		
At 14.73 Wet		1058.700		
	100		17.8953	100.000

Molecular Weight	
RESIDUE GAS M. WT.	17.895

ESTIMATED CO2e POTENTIAL TO EMIT (PTE) EMISSIONS USING VENDOR DATA AND 40 CFR 98 EMISSION FACTORS

Facility: Ramsey Gas Plant

Unit Description		Rating		Heat Input	Emission Factors		
Gas-Fired Compressor Engines		**hp**	**Fuel Factor**	**Hours of Operation**	**Maximum (MMBtu /yr)**	**CO_2**	**CH_4**	**N_2O**
			Btu/bhp-hr			g/bhp-hr[1]	g/bhp-hr[1]	kg/MMBtu[2]
C-20	3612 LE	3,550	6,629	8760	206,149	439	5.36	1.00E-04
C-21	3612 LE	3,550	6,629	8760	206,149	439	5.36	1.00E-04
C-22	3612 LE	3,550	6,629	8760	206,149	439	5.36	1.00E-04
C-23	3612 LE	3,550	6,629	8760	206,149	439	5.36	1.00E-04
C-24	3612 LE	3,550	6,629	8760	206,149	439	5.36	1.00E-04

EMISSIONS

	CO_2	**CH_4**	**N_2O**	**CO_2e**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
	lbs/hr	lbs/hr	lbs/hr	lbs/hr	TPY	TPY	TPY	TPY
C-20	3,436	41.95	0.005	**4,318**	15048.5	183.74	0.023	**18,914**
C-21	3,436	41.95	0.005	**4,318**	15048.5	183.74	0.023	**18,914**
C-22	3,436	41.95	0.005	**4,318**	15048.5	183.74	0.023	**18,914**
C-23	3,436	41.95	0.005	**4,318**	15048.5	183.74	0.023	**18,914**
C-24	3,436	41.95	0.005	**4,318**	15048.5	183.74	0.023	**18,914**
			TOTAL	**21,591** lbs/hr			**TOTAL**	**94,570** **TPY**

1 Vendor Data
2 40 CFR 98 Table C-2 Emission Factor

Engine Blowdowns
Engine MSS Calculations

Nuevo Midstream LLC

1/14/2014

	EPN	ENG-MSS
Number of engines		15
Average number of events/engine/month		2
Total number of events/year		360
Estimated duration of blowdown, hours		0.25
Flowrate/event, scf		2,000
Annual event hours		90
Gas Stream Heat Value, Btu/scf		1,077
Hourly flowrate[1], scf/hr		30,000
Annual Flowrate[2], MMSCF/yr		0.72

Notes:

[1] The maximum blowdown would occur when there is a total plant shutdown where all the engines blowdown at the same time.

[2] The annual flowrate is the volume per event times the number of events per year.

Uncontrolled Emissions

COMPOUND	VENT GAS MOL%	MOL. WT.	CALC. MOL. WT.	EMISSIONS MOLES/HR	EMISSIONS LBS/HR	EMISSIONS TPY
BENZENE	0.00%	78.110	0.0000	0.000	0.00	0.00
BUTANE	0.00%	58.120	0.0000	0.000	0.00	0.00
CO_2	0.19%	44.010	0.0827	0.149	6.55	0.29
ETHANE	10.64%	30.070	3.1985	8.420	253.18	11.39
ETHYLBENZENE	0.00%	106.160	0.0000	0.000	0.00	0.00
HEXANES+	0.00%	86.178	0.0000	0.000	0.00	0.00
METHANE	86.91%	16.040	13.9405	68.795	1103.47	49.66
N2	2.02%	28.013	0.5659	1.599	44.79	2.02
PENTANE	0.00%	72.151	0.0000	0.000	0.00	0.00
PROPANE	0.24%	44.100	0.1076	0.193	8.52	0.38
TOLUENE	0.00%	92.130	0.0000	0.000	0.00	0.00
XYLENE	0.00%	106.160	0.0000	0.000	0.00	0.00
	100%		17.90	79.16	1416.51	63.74

		Per Plant			Per Plant
VOC (TPY)	0.38	0.128	HAPS (TPY)	0.00	0.000
VOC (LBS/HR)	8.52	2.839	HAPs (LBS/HR)	0.00	0.000
VOC (LBS/HR) annualized	0.09	0.029	HAPs (LBS/HR) annualized	0.00	0.000

GHG Emissions

			Per Plant	
	Lbs/Hr	TPY	Lbs/Hr	TPY
CO_2	6.55	0.29	2.18	0.10
Methane (CH_4)	1,103.47	49.66	367.82	16.55
N_2O	0.00	0.00	0.00	0.00
Total CO2e	23,179.45	1,043.08	7,726.48	347.69

RAMSEY VI GAS PLANT
NUEVO MIDSTREAM, LLC
1/14/2014

Estimated Engine Operating Hours

Month	Hrs Available	C-25 100%	C-26 100%	C-27 100%	C-28 100%	C-29 100%
Jan	744	744	744	744	744	744
Feb	672	672	672	672	672	672
Mar	744	744	744	744	744	744
Apr	720	720	720	720	720	720
May	744	744	744	744	744	744
Jun	720	720	720	720	720	720
Jul	744	744	744	744	744	744
Aug	744	744	744	744	744	744
Sep	720	720	720	720	720	720
Oct	744	744	744	744	744	744
Nov	720	720	720	720	720	720
Dec	744	744	744	744	744	744
Totals	8760	8760	8760	8760	8760	8760

Estimated Engine Fuel Consumption (MMSCF)

EPN	C-25	C-26	C-27	C-28	C-29
Jan	16.252	16.252	16.252	16.252	16.252
Feb	14.679	14.679	14.679	14.679	14.679
Mar	16.252	16.252	16.252	16.252	16.252
Apr	15.728	15.728	15.728	15.728	15.728
May	16.252	16.252	16.252	16.252	16.252
Jun	15.728	15.728	15.728	15.728	15.728
Jul	16.252	16.252	16.252	16.252	16.252
Aug	16.252	16.252	16.252	16.252	16.252
Sep	15.728	15.728	15.728	15.728	15.728
Oct	16.252	16.252	16.252	16.252	16.252
Nov	15.728	15.728	15.728	15.728	15.728
Dec	16.252	16.252	16.252	16.252	16.252
Totals	191.357	191.357	191.357	191.357	191.357

RESIDUE (FUEL) GAS ANALYSIS

1/14/2014

RAMSEY GAS PLANT

Analysis Provided by Nuevo Midstream

FUEL HEAT CONTENT, BTU/SCF 1,077

COMPOUND	INLET GAS MOL%	MOL. WT.	CALC. MOL. WT.	WT %
BENZENE	0.000	78.110	0.0000	0.000
BUTANE+	0.000	58.120	0.0000	0.000
CO2	0.188	44.010	8.2739	0.462
DECANE+	0.000	142.290	0.0000	0.000
ETHANE	10.637	30.070	319.8546	17.874
ETHYLBENZENE	0.000	106.160	0.0000	0.000
HEPTANES+	0.000	100.210	0.0000	0.000
HEXANES+	0.000	86.178	0.0000	0.000
METHANE	86.911	16.040	1394.0524	77.901
NITROGEN	2.020	28.013	56.5863	3.162
NONANE+	0.000	128.200	0.0000	0.000
OCTANE+	0.000	114.230	0.0000	0.000
PENTANE+	0.000	72.151	0.0000	0.000
PROPANE	0.244	44.100	10.7604	0.601
TOLUENE	0.000	92.130	0.0000	0.000
XYLENES	0.000	106.160	0.0000	0.000
REAL BTU/CU.FT.				
At 14.65 DRY		1071.400		
At 14.65 WET		1052.700		
At 14.696 DRY		1074.800		
At 14.696 WET		1056.400		
At 14.73 DRY		1077.300		
At 14.73 Wet		1058.700		
	100		17.8953	100.000

Molecular Weight	
RESIDUE GAS M. WT.	17.895

ESTIMATED CO2e POTENTIAL TO EMIT (PTE) EMISSIONS USING MANUFACTURER DATA AND 40 CFR 98 EMISSION FACTORS

Facility: Ramsey Gas Plant

Unit Description		Rating	Heat Input			Emission Factors		
Gas-Fired Compressor Engines		**hp**	**Fuel Factor**	**Hours of Operation**	**Maximum (MMBtu /yr)**	**CO_2**	**CH_4**	**N_2O**
			Btu/bhp-hr			g/bhp-hr[1]	g/bhp-hr[1]	kg/MMBtu[2]
C-25	3612 LE	3,550	6,629	8760	206,149	439	5.36	1.00E-04
C-26	3612 LE	3,550	6,629	8760	206,149	439	5.36	1.00E-04
C-27	3612 LE	3,550	6,629	8760	206,149	439	5.36	1.00E-04
C-28	3612 LE	3,550	6,629	8760	206,149	439	5.36	1.00E-04
C-29	3612 LE	3,550	6,629	8760	206,149	439	5.36	1.00E-04

EMISSIONS

	CO_2	**CH_4**	**N_2O**	**CO_2e**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
	lbs/hr	lbs/hr	lbs/hr	lbs/hr	TPY	TPY	TPY	TPY
C-25	3,436	41.95	0.005	**4,318**	15048.5	183.74	0.023	**18,914**
C-26	3,436	41.95	0.005	**4,318**	15048.5	183.74	0.023	**18,914**
C-27	3,436	41.95	0.005	**4,318**	15048.5	183.74	0.023	**18,914**
C-28	3,436	41.95	0.005	**4,318**	15048.5	183.74	0.023	**18,914**
C-29	3,436	41.95	0.005	**4,318**	15048.5	183.74	0.023	**18,914**
			TOTAL	**21,591** lbs/hr			**TOTAL**	**94,570** **TPY**

1 Vendor Data
2 40 CFR 98 Table C-2 Emission Factor

ESTIMATED CO2e POTENTIAL TO EMIT (PTE) EMISSIONS
USING
40 CFR 98 EMISSION FACTORS

Facility: Ramsey Gas Plant

Unit Description

	EMISSIONS			
Fugitives	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
	TPY	TPY	TPY	TPY
VALVES	2.29	18.31	0.000	**387**
PUMPS	0.09	0.7	0.000	**14**
FLANGES	0.39	3.1	0.000	**66**
OPEN LINES	0.00	0.00	0.000	**0**
RELIEF VALVES	0.23	1.85	0.000	**39**
COMPRESSORS	0.12	0.92	0.000	**20**
SAMPLE CONNECTIONS	0.17	1.39	0.000	**29**
			TOTAL	**467**

PLANT FUGITIVE EMISSIONS

RAMSEY IV, V and VI GAS PLANT 1/15/2014

		LENGTH	WDTH	HT
EPN:	FUGITIVES			
ENTER SOURCE DIMENSIONS (FT.)		2,300	800	3
EMISSIONS REDUCTION FACTOR FOR FLANGES		Per Plant		
EMISSIONS REDUCTION FACTOR FOR ALL OTHER COMPONENTS		LENGTH	WDTH	HT
		767	800	3

PLANT FUGITIVES EMISSIONS

COMP	FACTOR LB/HR	FACTOR LB/DAY	QUANTITY	SERVICE HRS PER YR
VALVES				
GAS SERVICE	0.00992	0.23808	500	8760
LIGHT LIQUID	0.0055	0.132	500	8760
HEAVY LIQUID	0.00002	0.00048	0	8760
PUMPS				
LIGHT LIQUID	0.02866	0.68784	10	8760
HEAVY LIQUID	0.00113	0.02712	0	8760
FLANGES				
GAS SERVICE	0.00086	0.02064	1200	8760
LIGHT LIQUID	0.00024	0.00576	1200	8760
HEAVY LIQUID	0.00000	0.00002	0	8760
OPEN LINES	0.00441	0.10584	0	8760
RELIEF VALVES	0.01946	0.46704	40	8760
COMPRESSORS				
GAS SERVICE	0.01946	0.46704	20	8760
HEAVY LIQUID	0.00007	0.00168	0	8760
SAMPLE CNNCTNS	0.01946	0.46704	30	8760
CONNECTORS				
GAS SERVICE	0.00046	0.01104	2000	8760
LIGHT LIQUID	0.00046	0.01104	200	8760
HEAVY LIQUID	0.00024	0.00576	0	8760
TOTAL				

RAMSEY GAS PLANT INLET GAS ANALYSIS

GAS COMPONENT	MOLE %	MWT	WT %	MWT
METHANE	75.488	16.04	54.213	12.108
ETHANE	10.503	30.07	14.141	3.158
VOC-u	9.428	55.51	23.431	5.233
CO2	3.448	44.01	6.794	1.517
N2	1.133	28.01	1.421	0.317
H2S	0.0002	34.08	0.000	0.000
TOTAL	100.00			22.335

EMISSION FACTORS
LB/(HR-SOURCE)

COMPONENT	METHANE	ETHANE	VOC	CO2	N2	H2S
CONNECTORS						
GAS SERVICE	0.00025	0.00007	0.00011	0.00003	0.00001	0
LIGHT LIQUID	0.00025	0.00007	0.00011	0.00003	0.00001	0
HEAVY LIQUID	0.00013	0.00003	0.00006	0.00002	0.00000	0
VALVES						
GAS SERVICE	0.00538	0.00140	0.00232	0.00067	0.00014	3.027E-08
LIGHT LIQUID	0.00298	0.00078	0.00129	0.00037	0.00008	1.678E-08
HEAVY LIQUID	0.00001	0.00000	0.00000	0.00000	0.00000	6.103E-11
PUMPS						
LIGHT LIQUID	0.01554	0.00405	0.00672	0.00195	0.00041	8.746E-08
HEAVY LIQUID	0.00061	0.00016	0.00026	0.00008	0.00002	3.448E-09
FLANGES						
GAS SERVICE	0.00047	0.00012	0.00020	0.00006	0.00001	2.624E-09
LIGHT LIQUID	0.00013	0.00003	0.00006	0.00002	0.00000	7.324E-10
HEAVY LIQUID	0.00000	0.00000	0.00000	0.00000	0.00000	2.441E-12
OPEN LINES	0.00239	0.00062	0.00103	0.00030	0.00006	1.346E-08
RELIEF VALVES	0.01055	0.00275	0.00456	0.00132	0.00028	5.939E-08
COMPRESSORS						
GAS SERVICE	0.01055	0.00275	0.00456	0.00132	0.00028	5.939E-08
HEAVY LIQUID	0.00004	0.00001	0.00002	0.00000	0.00000	2.136E-10
SAMPLE CNNCTNS	0.01055	0.00275	0.00456	0.00132	0.00028	5.939E-08

RAMSEY FUGITIVE EMISSIONS FUGITIVES

COMPONENT	VALVES GAS TPY	VALVES LIGHT LQD TPY	VALVES HVY LQD TPY	TOTAL
METHANE	11.778	6.530	0.000	18.307
ETHANE	3.072	1.703	0.000	4.775
VOC	5.090	2.822	0.000	7.913
CO2	1.476	0.818	0.000	2.294
N2	0.309	0.171	0.000	0.480
H2S	0.000	0.000	0.000	0.000
TOTAL	21.725	12.045	0.000	

COMPONENT	PUMPS LIGHT LQD TPY	PUMPS HEAVY LQD TPY	CONNECTORS GAS TPY	CONNECTORS LIGHT LIQUID TPY	CONNECTORS HEAVY LIQUID TPY	TOTAL
METHANE	0.681	0.000	2.185	0.218	0.000	3.084
ETHANE	0.178	0.000	0.570	0.057	0.000	0.804
VOC	0.294	0.000	0.944	0.094	0.000	1.333
CO2	0.085	0.000	0.274	0.027	0.000	0.386
N2	0.018	0.000	0.057	0.006	0.000	0.081
H2S	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	1.255	0.000	4.030	0.403	0.000	

COMPONENT	FLANGES GAS TPY	FLANGES LIGHT LQD TPY	FLANGES HVY LQD TPY	TOTAL
METHANE	2.450	0.684	0.000	3.134
ETHANE	0.639	0.178	0.000	0.818
VOC	1.059	0.296	0.000	1.355
CO2	0.307	0.086	0.000	0.393
N2	0.064	0.018	0.000	0.082
H2S	0.000	0.000	0.000	0.000
TOTAL	4.520	1.261	0.000	

COMPONENT	OPEN LINES TPY	RELIEF VALVES TPY	SAMPLING CONNECT TPY	TOTAL
METHANE	0.000	1.848	1.386	3.235
ETHANE	0.000	0.482	0.362	0.844
VOC	0.000	0.799	0.599	1.398
CO2	0.000	0.232	0.174	0.405
N2	0.000	0.048	0.036	0.085
H2S	0.000	0.000	0.000	0.000
TOTAL	0.000	3.409	2.557	

COMPONENT	COMPRESSORS GAS SERVICE TPY	COMPRESSORS HEAVY SERVICE TPY	TOTAL
METHANE	0.924	0.000	0.924
ETHANE	0.241	0.000	0.241
VOC	0.399	0.000	0.399
CO2	0.116	0.000	0.116
N2	0.024	0.000	0.024
H2S	0.000	0.000	0.000
TOTAL	1.705	0.000	

PLANT FUGITIVE EMISSION
SUMMARY SHEET

COMPONENT	**METHANE**	**ETHANE**	**VOC**	**CO2**	**N2**	**H2S**
VALVES						
GAS SERVICE	11.778	3.072	5.090	1.476	0.309	0.000
LIGHT LIQUID	6.530	1.703	2.822	0.818	0.171	0.000
HEAVY LIQUID	0.000	0.000	0.000	0.000	0.000	0.000
PUMPS						
LIGHT LIQUID	0.681	0.178	0.294	0.085	0.018	0.000
HEAVY LIQUID	0.000	0.000	0.000	0.000	0.000	0.000
FLANGES						
GAS SERVICE	2.450	0.178	1.059	0.307	0.064	0.000
LIGHT LIQUID	0.684	0.178	0.296	0.086	0.018	0.000
HEAVY LIQUID	0.000	0.000	0.000	0.000	0.000	0.000
OPEN LINES	0.000	0.000	0.000	0.000	0.000	0.000
RELIEF VALVES	1.848	0.482	0.799	0.232	0.048	0.000
COMPRESSORS						
GAS SERVICE	0.924	0.241	0.399	0.116	0.024	0.000
HEAVY LIQUID	0.000	0.000	0.000	0.000	0.000	0.000
SAMPLE CONNECTIONS	1.386	0.362	0.599	0.174	0.036	0.000
TOTAL (TPY)	**26.281**	**6.394**	**11.359**	**3.294**	**0.689**	**0.000**
REDUCTION FCTR						
TOTAL (TPY)	**26.281**	**6.394**	**11.359**	**3.294**	**0.689**	**0.000**

TOTAL TOC EMISSIONS (TPY) 47.328
TOTAL VOC EMISSIONS (TPY) 11.359

Per Plant	Lbs/Hour	tpy
FUG-4	0.864	3.786
FUG-5	0.864	3.786
FUG-6	0.864	3.786

SPECIATED SUMMARY

RAMSEY GAS PLANT INLET PIPELINE QUALITY GAS ANALYSIS

COMPOUND	NATURAL GAS MOL%	MOL. WT.	CALC. MOL. WT.	CALC. WT. %	VOC (NMNE) EMISSIONS 0.864 LBS/HR	3.786 TPY
BENZENE	0.000%	78.110				
BUTANE	2.411%	58.120				
CO		28.000	0.0000	0.0000	0.000	0.000
CO2	3.448%	44.010	1.5175	7.5218	0.065	0.285
ETHANE	10.503%	30.070	3.1583	15.6549	0.135	0.593
ETHTLBENZ	0.000%	106.160	0.0000	0.0000	0.000	0.000
H2S	0.0002%	34.076	0.0001	0.0003	0.000	0.000
HEXANES	0.921%	86.178	0.7937	3.9342	0.034	0.149
METHANE	75.488%	16.040	12.1083	60.0185	0.519	2.273
N2	1.133%	28.013	0.3174	1.5732	0.014	0.060
NOX		46.010	0.0000	0.0000	0.000	0.000
PENTANE	0.928%	72.151				
PM10		0.000	0.0000	0.0000	0.000	0.000
PROPANE	5.168%	44.100	2.2791	11.2970	0.098	0.428
SO2		64.060	0.0000	0.0000	0.000	0.000
TOLUENE	0.000%	92.130	0.0000	0.0000	0.000	0.000
TSP		0.000	0.0000	0.0000	0.000	0.000
XYLENE	0.000%	106.160	0.0000	0.0000	0.000	0.000
VOC-U		97.500	0.0000	0.0000	0.000	0.000
	100.00%		20.1742	100.0000	0.864	3.786

VOC-NMNE EMISSIONS (LBS/HR) 0.132

HEATER/REBOILER EMISSIONS

RAMSEY GAS PLANT EXPANSION
Nuevo Midstream, LLC
1/15/2014

HEATERS/REBOILERS

DESIGN RATING

ITEMS / EPN	H-8 Regen Gas Heater	H-9 Hot Oil Heater	H-10 Regen Gas Heater	H-11 Hot Oil Heater	H-12 Regen Gas Heater
UTILIZATION PERCENTAGE	100%	100%	100%	100%	100%
HEAT INPUT RATING (MMBTU/HR)	36	60	36	60	36
THERMAL EFFICIENCY	86%	81%	86%	81%	86%
HEAT INPUT RATING ADJUSTED FOR EFFICIENCY?	YES	YES	YES	YES	YES
FUEL HEAT CONTENT (BTU/SCF)	1077	1077	1077	1077	1077
FUEL CONSUMPTION (MMSCF/YR)	292.8	488.0	292.8	488.0	292.8
HEAT INPUT (MMBTU/YR)	270,264	423,634	270,264	423,634	270,264
EXHAUST TEMPERATURE, T (F)=	787	787	787	787	787
PRESSURE, P (PSIA) =	14.7	14.7	14.7	14.7	14.7
THE RATIO OF O2 / CO2 =	1.925	1.925	1.925	1.925	1.925
THE RATIO OF H2O / CO2 =	1.85	1.85	1.85	1.85	1.85
STACK DIAMETER, (FT) =	1.5	2	1.5	2	1.5

AP-42 EMISSION FACTORS (UNCONTROLLED) EXCEPT FOR NO_X (LOW NO_X BURNER) -Tables 1.4-1 & 1.4-2:

	LBS/MMSCF
CO	84
NO_X	50
TOC	11
SO_2	0.6
PM (Total)	7.6
VOC	5.5
Lead	0.0005

HOURS OF OPERATION EPN:

MONTH	AVAILABLE HRS/MONTH	H-8 (HRS)	H-9 (HRS)	H-10 (HRS)	H-11 (HRS)	H-12 (HRS)
JAN	744	744	744	744	744	744
FEB	672	672	672	672	672	672
MAR	744	744	744	744	744	744
APRL	720	720	720	720	720	720
MAY	744	744	744	744	744	744
JUNE	720	720	720	720	720	720
JULY	744	744	744	744	744	744
AUG	744	744	744	744	744	744
SEPT	720	720	720	720	720	720
OCT	744	744	744	744	744	744
NOV	720	720	720	720	720	720
DEC	744	744	744	744	744	744
TOTAL	8,760.00	8,760.00	8,760.00	8,760.00	8,760.00	8,760.00

AP-42 EMISSIONS -- LBS/HR

EPN: COMPOUND	H-8	H-9	H-10	H-11	H-12
CO	2.808	4.680	2.808	4.680	2.808
NO_X	1.671	2.786	1.671	2.786	1.671
TOC	0.368	0.613	0.368	0.613	0.368

VOC	0.184	0.306	0.184	0.306	0.184
SO_2	0.020	0.033	0.020	0.033	0.020
PM (Total)	0.254	0.423	0.254	0.423	0.254

AP-42 EMISSIONS -- TONS/YR

COMPOUND	H-8	H-9	H-10	H-11	H-12
CO	12.298	20.497	12.298	20.497	12.298
NO_X	7.320	12.201	7.320	12.201	7.320
TOC	1.610	2.684	1.610	2.684	1.610
VOC	0.805	1.342	0.805	1.342	0.805
SO_2	0.088	0.146	0.088	0.146	0.088
PM (Total)	1.113	1.854	1.113	1.854	1.113

CALCULATE EXHAUST STACK VELOCITY

	H-9	H-10
VOLUME (ACF/HR) =	418,973.1	251,470.4
VOLUME (ACF/S) =	116.4	69.9
STACK DIAMETER (FT) =	2	1.5
STACK CROSS-SECTIONAL AREA=	12.57	7.07
EXHAUST VELOCITY (f/s) =	9.26	9.88

AS AN EXAMPLE:
TO CALCULATE ESTIMATED CO2 EMISSIONS AND % VOLUMES.
THE FOLLOWING CONDITIONS APPLY FOR CALCULATION OF EXHAUST GAS VOLUMES:
V(FT3/HR) = mRT/MP

EXHAUST TEMPERATURE, T (F) =		787
PRESSURE, P (PSIA) =		14.7
MASS FLOW RATE, m (LBS/HR) =		12,490
MOL. WT. , m (LBS/LB-MOL) =		27.13
GAS CONSTANT, R =		10.73

THE STOCHIOMETRIC EQN. DEPICTS THE PRIMARY COMBUSTION REACTION:
40 CH 3.7 + 77 O2 = 40 CO2 + 74 H2O

THE RATIO OF O2 / CO2 =	77/40 =	1.925
THE RATIO OF H2O / CO2 =	74/40 =	1.85

EPN: **H-9**

COMPOUND	FUEL GAS %MOLE	MOL. WT.	FUEL GAS INPUT MOL/YR	CO2 MOL/YR	EMISSIONS MOL/YR	EMISSIONS LBS/HR	FLOW RATE FT3/HR	ESTIM. VOL. %	FLWRATE TPY
BENZENE	0	78.1	0.00	0.00	0.0000	0.00	0.00	0.00	0.00
BUTANE	0	58.12	0.00	0.00	0.0000	0.00	0.00	0.00	0.00
CO	0	28			1464.0669	4.68	152.13	0.04	20.50
CO2	0.188	44.01	2,420.80	2,420.80	1,404,899	7,058.17	145,978.81	34.84	30,914.80
CYCLOHEXANE	0	84.16	0.00	0.00	0.0000	0.00	0.00	0.00	0.00
ETHANE	10.637	30.07	136,968.15	273,936.31	136.9682	0.47	14.23	0.00	2.06
ETHYLBENZENE	0	106.16	0.00	0.00	0.0000	0.00	0.00	0.00	0.00
FORMALDEHYDE	0	30	0.00	0.00		0.00	0.13	0.00	0.02
H2S		34.076			0.0000	0.03	0.89	0.00	0.15
HEXANES	0	86.17	0.00	0.00	0.0000	0.00	0.00	0.00	0.00

METHANE	86.911	16.04	1,119,116.22	1,119,116.22	72.2412	0.13	7.51	0.00	0.58
METHANOL		32.04	0.00	0.00	0.0000	0.00	0.00	0.00	0.00
N2	2.020	28.013	26,010.69		26,011	83.18	2,702.69	0.65	364.32
NOX		46.01	0.00			2.79	55.11	0.01	12.20
PENTANE	0	72.15	0.00	0.00	0.0000	0.00	0.00	0.00	0.00
PM10			0.00	0.00	0.0000	0.42		0.00	1.85
PROPANE	0.244	44.09	3,141.88	9,425.65	3.1419	0.02	0.33	0.00	0.07
SO2		64.06	0.00		0.2090	0.03	0.47	0.00	0.15
TEG		150.18	0.00	0.00	0.0000	0.00	0.00	0.00	0.00
TOLUENE	0	92.13	0.00	0.00	0.0000	0.00	0.00	0.00	0.00
TSP			0.00			0.00		0.00	0.00
VOC-U	0	97.5	0.00			0.00	0.00	0.00	0.00
WATER VAPOR		18	0.00		2,599,063	5,340.54	270,060.81	64.46	23,391.57
XYLENE	0	106.16	0.00	0.00	0.0000	0.00	0.00	0.00	0.00
	100.00		1,287,658	1,404,899	4,031,649	12,490.47	418,973.11	100.00	54,708.26

EPN: **H-10**

COMPOUND	FUEL GAS %MOLE	MOL. WT.	FUEL GAS INPUT MOL/YR	CO2 MOL/YR	EMISSIONS MOL/YR	EMISSIONS LBS/HR	FLOW RATE FT3/HR	ESTIM. VOL. %	FLWRATE TPY
BENZENE	0	78.1	0.0000	0.00	0.0000	0.00	0.0014	0.0000	0.0000
BUTANE	0	58.12	0.0000	0.00	0.0000	0.00	0.0000	0.0000	0.0000
CO	0	28			1464.0669	4.68	152.1268	0.0605	0.0000
CO2	0.188	44.01	1452.4779	1,452.48	842,939	4,234.90	87587.2885	34.8301	0.0000
CYCLOHEXANE	0	84.16	0.0000	0.00	0.0000	0.00	0.0000	0.0000	0.0000
ETHANE	10.637	30.07	82,181	164,361.78	82.1809	0.28	8.5392	0.0034	0.0000
ETHYLBENZENE	0	106.16	0.0000	0.00	0.0000	0.00	0.0000	0.0000	0.0000
FORMALDEHYDE	0	30	0.0000	0.00		0.00	0.1268	0.0001	0.0000
H2S		34.076			0.0000	0.03	0.8929	0.0004	0.0000
HEXANES	0	86.17	0.0000	0.00	0.0000	0.00	0.0000	0.0000	0.0000
METHANE	86.911	16.04	671,470	671,469.73	0.5761	0.13	7.5064	0.0030	0.0000
METHANOL		32.04	0.0000	0.00	0.0000	0.00	0.0000	0.0000	0.0000
N2	2.020	28.013	15,606		15,606	49.91	1621.6152	0.6449	0.0000
NOX		46.01	0.0000			2.79	55.1064	0.0219	0.0000
PENTANE	0	72.15	0.0000	0.00	0.0000	0.00	0.0000	0.0000	0.0000
PM10			0.0000	0.00	0.0000	0.42		0.0000	0.0000
PROPANE	0.244	44.09	1885.1309	5,655.39	1.8851	0.01	0.1959	0.0001	0.0000
SO2		64.06	0.0000		0.0000	0.03	0.4750	0.0002	0.0000
TEG		150.18	0.0000	0.00	0.0000	0.00	0.0000	0.0000	0.0000
TOLUENE	0	92.13	0.0000	0.00	0.0000	0.00	0.0000	0.0000	0.0000
TSP			0.0000			0.00		0.0000	0.0000
VOC-U	0	97.5	0.0000			0.00	0.0000	0.0000	0.0000
WATER VAPOR		18	0.0000		1,559,438	3,204.32	162036.4837	64.4356	0.0000
XYLENE	0	106.16	0.0000	0.00	0.0000	0.00	0.0000	0.0000	0.0000
	100.00		772,595	842,939	2,419,532	7,497.52	251,470	100	0

AP-42 Natural Gas Combustion HAPs

	Total =	1.89E+00 lbs/MMSCF
91-57-6	2-Methylnaphthaleneb, c	2.40E-05
56-49-5	3-Methylchloranthreneb, c	1.80E-06
	7,12-Dimethylbenz(a)anthra	1.60E-05
83-32-9	Acenaphtheneb,c	1.80E-06
203-96-8	Acenaphthyleneb,c	1.80E-06
120-12-7	Anthraceneb,c	2.40E-06

7440-38-2	Arsenicb	2.00E-04
56-55-3	Benz(a)anthraceneb,c	1.80E-06
71-43-2	Benzeneb	2.10E-03
50-32-8	enzo(a)pyreneb,c	1.20E-06
205-99-2	Benzo(b)fluoranthenеb,c	1.80E-06
191-24-2	Benzo(g,h,i)peryleneb,c	1.20E-06
205-82-3	Benzo(k)fluoranthenеb,c	1.80E-06
7440-41-7	Berylliumb	1.20E-05
7440-43-9	Cadmiumb	1.10E-03
7440-47-3	Chromiumb	1.40E-03
218-01-9	Chryseneb,c	1.80E-06
7440-48-4	Cobaltb	8.40E-05
53-70-3	Dibenzo(a,h)anthraceneb,c	1.20E-06
25321-22-6	Dichlorobenzeneb	1.20E-03
206-44-0	Fluoranthenеb,c	3.00E-06
86-73-7	Fluoreneb,c	2.80E-06
50-00-0	Formaldehydeb	7.50E-02
110-54-3	Hexaneb	1.80E+00
193-39-5	Indeno(1,2,3-cd)pyreneb,c	1.80E-06
7439-96-5	Manganeseb	3.80E-04
7439-97-6	Mercuryb	2.60E-04
91-20-3	Naphthaleneb	6.10E-04
7440-02-0	Nickelb	2.10E-03
85-01-8	Phenanathreneb,c	1.70E-05
129-00-0	Pyreneb, c	5.00E-06
7782-49-2	Seleniumb	2.40E-05
108-88-3	Tolueneb	3.40E-03

ESTIMATED CO_2e POTENTIAL TO EMIT (PTE) EMISSIONS USING 40 CFR 98 EMISSION FACTORS

Facility: Ramsey Gas Plant

Unit Description

	Heat Input			Emission Factors		
	Heat Input Rating	Hours of Operation	Maximum (MMBtu /yr)	CO_2	CH_4	N_2O
	MMBtu /hr			kg/MMBtu[1]	kg/MMBtu[2]	kg/MMBtu[2]
H-8	36	8,760	315,360	53.02	1.00E-03	1.00E-04
H-9	60	8,760	525,600	53.02	1.00E-03	1.00E-04
H-10	36	8,760	315,360	53.02	1.00E-03	1.00E-04
H-11	60	8,760	525,600	53.02	1.00E-03	1.00E-04
H-12	36	8,760	315,360	53.02	1.00E-03	1.00E-04

EMISSIONS

	CO_2	CH_4	N_2O	CO_2e	CO_2	CH_4	N_2O	CO_2e
	lbs/hr	lbs/hr	lbs/hr	lbs/hr	TPY	TPY	TPY	TPY
H-8	4,208	0.08	0.008	**4,212**	18,431	0.35	0.035	**18,449**
H-9	7,013	0.13	0.013	**7,020**	30,718	0.58	0.058	**30,748**
H-10	4,208	0.08	0.008	**4,212**	18,431	0.35	0.035	**18,449**
H-11	7,013	0.13	0.013	**7,020**	30,718	0.58	0.058	**30,748**
H-12	4,208	0.08	0.008	**4,212**	18,431	0.35	0.035	**18,449**
			TOTAL	**26,677**	**lbs/hr**		**TOTAL**	**116,843**	**TPY**

1 40 CFR 98 Table C-1 Emission Factor
2 40 CFR 98 Table C-2 Emission Factor