DRAFT Statement of Basis - Narrative
PSD Permit

Type of Permit Action: PSD- Minor Modification
Facility: Zia II Gas Plant
Company: DCP Midstream, L.P.
Permit No(s).: PSD-5217-M2
Tempo/IDEA ID No.: 32800 - PRN20170001
Permit Writer: Kirby Olson

Fee Tracking (not required for Title V)

Tracking	**NSR tracking entries completed:** [X] Yes [] No
	NSR tracking page attached to front cover of permit folder: [X] Yes [] No
	Paid Invoice Attached: [] Yes [X] No
	Balance Due Invoice Attached: [X] Yes [] No
	Invoice Comments:

Permit Review	**Date to Enforcement:** TBD	**Inspector Reviewing:** TBD
	Date Enf. Review Completed: TBD	**Date of Reply:** (if necessary)
	Date to Applicant: TBD	**Date of Reply:** TBD
	Date of Comments from EPA: TBD	**Date to EPA:** TBD
	Date Final Permit to Supervisor: TBD	

1.0 Plant Process Description:

The Zia II Gas Plant is a cryogenic gas processing plant with a nominal rating of 200 MMscf/day. It is permitted up to maximum of 230 MMscf/d capacity because, with good engineering design and practices, the actual inlet capacity could reach that amount. The gas plant is designed to treat and process produced natural gas for DCP gathering systems located throughout southeast New Mexico.

Field natural gas entering the Zia II Gas Plant is sent through an inlet separation designed to remove entrained solids and dissolved liquids from the field-gas stream. The water produced from the separation is sent to tanks. Condensate from the inlet is separated, stabilized, and stored prior to loadout via truck. Working and breathing losses from the tanks and loading emissions are routed to the vapor combustion device. The flash gas vapors are sent back to the inlet stream of the plant.

Once the field gas passes through the inlet separation, the gas stream is sent to an amine treater which will consist of an amine contactor, flash tank, amine tanks, amine pumping system and an amine still. Emissions from the amine unit flash tank are recovered and sent to the inlet stream of the plant.

Emissions from the amine still overheads are routed to an Acid Gas Injection (AGI) system. The AGI system can process up to 16 MMscf/d based on use of two 8 MMscf/d compressors. One

AGI well has already been constructed; a second well may be added in the future. Each AGI well can process 16 MMscf/d (email from Jennifer Hanna at DCP, 12/17/15). If not routed to an AGI well, amine unit off gases are routed the acid gas flare (Unit FL2) for combustion when the well is out of service. The plant flare (Unit FL1) combusts blow-down emissions from other sources at the facility. The Lusk flare (unit FL3) will be used only as an emergency flare.

After the amine treating, the field gas is sent to a TEG dehydration system which consists of a TEG contactor, flash tank, and BTEX condenser. Emissions originating from the flash tank are recovered and sent to the low pressure inlet stream of the plant. TEG regenerator emissions are re-routed to the inlet. Non-condensable TEG regenerator emissions are sent to the vapor combustion device. The TEG dehydrator system is a completely closed system.

After TEG dehydration, the gas is sent to mol sieve towers for additional dehydration. The wet gas from mole sieve regeneration is routed to the stream entering the amine treating system. Natural Gas Liquid (NGL) recovery is done through a cryogenic process using a propane refrigerant and a turbo expander. NGL Y grade is sent to market via pipeline and dry residue gas is recompressed into a sales pipeline.

2.0 **Description of this PSD Permit Revision:**

This application is not a result of a modification or change in the method operation. It revises existing PSD permit No. PSD5217M1 to change the BACT limit for VOC emissions from the vapor combustion device, unit VCD1. The original VOC BACT limit of 0.21 lb/MMBtu was not the correct value and did not account for variability in gas composition. Also, AQB has determined that the appropriate type of BACT for VOC emissions from combustion of gas whose composition and flow rate varies is a destruction rate efficiency (DRE), rather than a lb/MMBtu limit. The AQB has determined that a 98% DRE is appropriate BACT for unit VCD1, which is an enclosed flare. The BACT analysis is attached to this Statement of Basis. This revision also revises the greenhouse gas tpy BACT limits for compressor engines C1-E through C8-E from 16,029 tpy CO_2e to 16,038.5 tpy CO_2e, based on a more accurate CO_2 emission factor for natural gas in Table C-1 in 40 CFR 98 which changed in 2013 t. Finally, the PM10 and PM2.5 mass emission limits for the emergency generator, unit GEN-1, have increased by a very small amount. The PM emission rates were erroneously calculated using the lower Tier 4 emission standards, rather than the Tier 3 emissions standards. GEN-1 is subject to Tier 3, not Tier 4 standards.

3.0 **Source Determination:**

1. The emission sources evaluated include all sources at the Zia II Gas Plant (see Tables 2-A and 2-B of the application).

2. Single Source Analysis:

   A. SIC Code: Do the facilities belong to the same industrial grouping (i.e., same two-digit SIC code grouping, or support activity)? **Yes**

   B. Common Ownership or Control: Are the facilities under common ownership or control? **Yes**

   C. Contiguous or Adjacent: Are the facilities located on one or more contiguous or adjacent properties? **Yes**

3. Is the source, as described in the application, the entire source for 20.2.70, 20.2.72, 20.2.73, or 20.2.74 NMAC applicability purposes? **Yes**

4.0 **PSD Applicability:**

A. The source, as determined in 3.0 above, is an existing PSD Major Source.

B. PM emissions from GEN-1 and CO_2e BACT limits for C-1 to C-8 are increasing, but not due to a modification or a change in the method of operation that would be subject to PSD review.

C. The AQB is changing the existing VOC BACT limit for the vapor combustion device (VCD1). Because this is not a PSD Major Modification per 20.2.74.7.AE NMAC the only part of the PSD regulation that applies to this significant permit revision is 20.2.74.302 NMAC which is the portion of the regulation that requires a BACT analysis and implementation of BACT.

D. PM mass emission limits are increasing for emergency generator, GEN-1, because the requested allowable emission limits were erroneously based on Tier 4, rather than Tier 3 emission standards. Unit GEN-1 was manufactured to meet the Tier 3 emission standards, which are also its BACT limits, not the Tier 4 emission standards. The AQB corrected the other emission limits based on the Tier 3 standards when this unit was added in permit number PSD5217-M1, but missed the correction to the PM emission limits. This unit falls under NSPS Subpart IIII Table 1 (Emission Standards) and must meet 40 CFR Part 89 Non-road compression ignition engine emission standards. NSPS IIII emission standard for PM-10 and PM-2.5 is 0.3g/bhp-hr.

E. GHG tpy BACT limits for engines C-1 to C-8 also increase, but this is to update the calculations using a new, more accurate, value for the CO_2 emission factor for natural gas in Table C-1 in 40 CFR 98 that changed in 2013.

F. A new VOC BACT determination is required for unit VCD1. The VOC mass emission limits are not changing and there are no CO_2e mass emission limits. The AQB verified that the original 0.2 lb/MMBtu VOC BACT in PSD5217 was not correct and determined that not meeting this current BACT limit is not due to the design of the unit nor due to poor operation. The AQB completed a new BACT analysis for the un-combusted VOC emissions and determined that a destruction rate efficiency (DRE) of 98.0%, rather than a lb/MMBtu limit is more appropriate for combustion of gas with a variable composition and flow rate. The pph and tpy VOC emission limits from this unit include a 100% safety factor to account for the variability of the gas, but adding a large safety factor to a lb/MMBtu BACT limit is not appropriate for BACT limits. The 98.0% DRE is also the rate guaranteed by the manufacturer. An appropriate BACT limit is the most stringent that can be met consistently under normal and good operating conditions. AQB's BACT determination is at the end of this statement of basis.

5.0 **History (In descending chronological order, showing NSR and TV):** *The asterisk denotes the current active NSR permit that has not been superseded.

Permit Number	Issue Date	Action Type	Description of Action (Changes)
PSD5217 M2		Significant Revision	change the basis of the BACT for VOC emissions from unit VCD1. The original BACT erroneously specified 0.21 lb/MMBtu as BACT. AQB has determined that the appropriate BACT for this type of unit is a destruction rate efficiency (98% DRE). This revision also updated the calculation of greenhouse gas carbon dioxide equivalents (CO_2e) for compressor engines C-1 to C-8 due to a revised emission factor and corrected the mass emission limits for the emergency generator to reflect the correct BACT limit for particulate matter (PM) for that engine.
PSD applicability: PM emissions from GEN-1 and CO_2e BACT limits for C-1 to C-8 are increasing, but not due to a modification or a change in the method of operation that would be subject to PSD review. The AQB is also changing the existing VOC BACT limit for the vapor combustion device (VCD1). Because this is not a PSD Major Modification per 20.2.74.7.AE NMAC the only part of the PSD regulation that applies to this significant permit revision is 20.2.74.302 NMAC which is the portion of the regulation that requires a BACT analysis and implementation of BACT. PM mass emission limits are increasing for emergency generator, GEN-1, because the requested allowable emission limits were based on Tier 4, rather than Tier 3 emission standards. Unit GEN-1 was manufactured to meet the Tier 3 emission standards, which are also its BACT limits, not the Tier 4 emission standards. The AQB corrected the other emission limits based on the Tier 3 standards when this unit was added in permit number PSD5217-M1, but omitted corrections to the PM emission limits. This unit falls under NSPS Subpart IIII Table 1 (Emission Standards) and must meet 40 CFR Part 89 Non-road compression ignition engine emission standards. NSPS IIII emission standard for PM-10 and PM-2.5 is 0.3g/bhp-hr. E. GHG BACT limits for engines C-1 to C-8 also increase, but this is to update the calculations using a new value for the CO_2 emission factor for natural gas in Table C-1 in 40 CFR 98 that changed in 2013. A new VOC BACT determination is required for unit VCD1. The VOC mass emission limits are not changing and there are no CO_2e mass emission limits. The AQB verified that the original 0.2 lb/MMBtu VOC BACT in PSD5217 was not correct and determined that not meeting this current BACT limit is not due to the design of the unit nor due to poor operation. The AQB completed a new BACT analysis for the un-combusted VOC emissions and determined that a destruction rate efficiency (DRE) of 98.0%, rather than a lb/MMBtu limit is more appropriate for combustion of gas with a variable composition and flow rate. The pph and tpy VOC emission limits from this unit include a 100% safety factor to account for the variability of the gas, but adding a large safety factor to a lb/MMBtu BACT limit is not appropriate for BACT limits. The 98.0% DRE is also the rate guaranteed by the manufacturer. An appropriate BACT limit is the most stringent that can be met consistently under normal and good operating conditions.			

Permit Number	Issue Date	Action Type	Description of Action (Changes)
PSD5217 M1R1	2/16/16	Administrative revision	correct typographical errors in permit no. PSD5217M1: in Condition A113.A recordkeeping, changed report submittal language to recordkeeping language and in A113.A reporting add a reference from which the 15-day report submittal deadline is due; in Condition A204.B, add this most recent permit number and issuance date; in Condition A201.A, remove the erroneous requirement to add condensable particulate matter (CPM) results to the filterable particulate matter results to demonstrate compliance with Total Suspended Particulate (TSP) emission limits; add footnote 6 to Table 106.A that defines TSP. By definition, TSP consists of only filterable particulate matter. The portions of conditions A201.D(4), A204.A(5), A206.A(2-4), and A210.A (2-3) referring to the submittal of documentation for Good Combustion Practices were changed to allow for extension of the 3 month deadline. The numbering in condition A206.A "requirements" section was corrected.

Permit Number	Issue Date	Action Type	Description of Action (Changes)
PSD-5217M1*	TBD	PSD-new	This application revises existing PSD permit No. PSD5217 for a "new" facility as defined at 20.2.74.7.U NMAC. In summary, the revisions include changes to some stack parameters; increases and decreases to the capacity of some units, allowable mass emission limits, and BACT limits; adding new equipment; and removing equipment that is no longer needed. Changes to the facility include: • Clarify that 230 MMscf/d is the maximum, not nominal, capacity of the facility and add a permit limit on capacity • For Flare FL1, increase inlet gas flare processing from 200 MMscf/d to 230 MMscf/d; increase pilot and purge gas flow rate; increase allowable pph/BACT emission limits for all pollutants; increase tpy emission limits for all pollutants • For Flare FL2, decrease acid gas flare pph/BACT limits and increase tpy emission limits for all pollutants • Add VOC and CO_2e venting emissions (units SSM (CB) and SSM (PV)) during routine or predictable startup, shutdown, and/or maintenance of the facility • Add FL3 pilot and purge gas emission limits for existing Lusk Flare to be used for emergencies only at Zia II • Add capacity limit on the total amine overhead flow rate of 16 MMscf/d to the permit; and remove requirement to use two Acid Gas Injection (AGI) wells to control amine unit emissions due to the decrease in acid gas processing • Add a new standby emergency generator (GEN-1) and BACT requirements and limit engine to 500 operating hrs/yr • Add a new Wet Surface Air Cooler (CT-1) and BACT requirements • Increase capacity of Regeneration Gas Heater Unit H3 from 8 to 10 MMBtu/hr; increase allowable mass emission limits; no change to BACT limits or requirements • Increase capacity of TEG regenerator Heater H6 from 3 to 3.5 MMBtu/hr; increase tpy emission limits; no change to BACT limits • Decrease Hot Oil Heater Capacities, Units H4 and H5, from 114 MMBtu/hr to 99 MMBtu/hr; decrease allowable mass emission limits; no change to BACT limits • Change BACT control requirement for NOx for Heaters H4 and H5 from Ultra Low NOx burners and GCP to Low NOx burners and GCP • Remove never constructed Stabilizer Heater Unit 2 and Compressor Engines C11-E, C12-E, and C13-E • Increase allowable tpy VOC emission limits for Fugitives to 31.5 tpy • Decrease emission limits from haul roads and add paving requirement to permit • Add make, model, serial numbers, and construction dates for some units

Permit Number	Issue Date	Action Type	Description of Action (Changes)
PSD-5217	4/25/14	NSR-PSD-new facility	Completely new facility. Zia II will be a natural gas processing plant using a cryogenic process and will gather field natural gas from various locations in central and southern New Mexico. The following pollutants were subject to PSD and BACT analysis: NOx, CO, O3 (as VOC and NOx), SO_2, PM-10, PM-2.5, and GHG. Permitted equipment/emissions includes: 13 RICE engines with 13 reciprocating compressors, 6 heaters, 1 facility flare, 1 acid gas flare, 1 vapor combustion device, 1 dehydrator with BTEX condenser, 2 condensate tanks, 3 produced water tanks, truck loadout of condensate, 1 amine unit, 2 acid gas injection wells, a short haul road, and fugitive emissions. Cryogenic equipment and a molecular sieve do not have emissions other than fugitive. Other equipment without emissions includes miscellaneous oil tanks (e.g., lube oil), triethylene glycol tank, methyl alcohol tank, natural gas liquid (NGL) surge tanks.

6.0 **Public Response/Concerns:** As of the current date the permit writer is not aware of any public comment.

7.0 **Compliance Testing History:**

Unit No.	Test Description	Test Date
C-1E	Tested in accordance with EPA test methods for NOx and CO as required by NSR Permit PSD-5217M1R1.	11-9-2015, 2-10-2016, 5-16-2016, 3-14-2017
C-2E	Tested in accordance with EPA test methods for NOx and CO as required by NSR Permit PSD-5217M1R1.	11-9-2015, 2-10-2016, 5-16-2016, 1-19-2017
C-3E	Tested in accordance with EPA test methods for NOx and CO as required by NSR Permit PSD-5217M1R1.	11-9-2015, 2-10-2016, 5-16-2016, 12-30-2016 2-2-2017
C-4E	Tested in accordance with EPA test methods for NOx and CO as required by NSR Permit PSD-5217M1R1.	11-9-2015, 2-10-2016, 5-16-2016, 2-2-2017
C-5E	Tested in accordance with EPA test methods for NOx and CO as required by NSR Permit PSD-5217M1R1.	11-9-2015, 2-10-2016, 5-16-2016, 11-10-2016, 2-2-2017
C-6E	Tested in accordance with EPA test methods for NOx and CO as required by NSR Permit PSD-5217M1R1.	11-9-2015, 2-10-2016, 5-16-2016, 12-20-2016, 2-1-2017
C-7E	Tested in accordance with EPA test methods for NOx and CO as required by NSR Permit PSD-5217M1R1.	11-9-2015, 2-10-2016 6-30-2016

C-8E	Tested in accordance with EPA test methods for NOx and CO as required by NSR Permit PSD-5217M1R1.	11-9-2015, 2-10-2016, 5-16-2016 1-19-2017
C-9E	Tested in accordance with EPA test methods for NOx and CO as required by NSR Permit PSD-5217M1R1.	11-9-2015, 2-10-2016, 5-16-2016, 12-16-2016, 2-1-2017
C-10E	Tested in accordance with EPA test methods for NOx and CO as required by NSR Permit PSD-5217M1R1.	12-1-2015, 2-10-2016, 5-16-2016, 12-16-2016, 2-1-2017
H4 and H5	Tested in accordance with EPA test methods for NOx and CO as required by NSR Permit PSD-5217.	11-9-2015

8.0 Startup and Shutdown:

A. If applicable, did the applicant indicate that a startup, shutdown, and emergency operational plan was developed in accordance with 20.2.70.300.D(5)(g) NMAC? **No, no Title V permit at present.**

B. If applicable, did the applicant indicate that a malfunction, startup, or shutdown operational plan was developed in accordance with 20.2.72.203.A.5 NMAC? **Yes**

C. Did the applicant indicate that a startup, shutdown, and scheduled maintenance plan was developed and implemented in accordance with 20.2.7.14.A and B NMAC? **Yes**

D. Were emissions from routine and predictable startup, shutdown, and scheduled maintenance operations calculated and included in the emission tables? **Yes. All SSM emissions are included in the application and will be permitted as secondary BACT limits.**

9.0 **Compliance and Enforcement Status:** There is currently an open area of concern under review for this facility (email from Mike Space, 8/4/17).

10.0 **Modeling:** Modeling is not required for this action because the requested revisions affect BACT and do not change mass emissions. The only change to mass emission limits is for PM from unit Gen-1, to correct the mass emissions to use the same EPA Tier 3 emission standards used as the basis for the BACT. That calculation change only increases the PM/PM2.5, and PM10 emission limits from 0.004 pph and 0.0009 tpy to 0.05 pph and 0.01 tpy. The total PM10 and PM2.5 emissions from this unit are lower than the very small emission rates in lb/hr in Table 1 of the 8/8/2017 New Mexico Air Quality Bureau Air Dispersion Modeling Guidelines.

11.0 **State Regulatory Analysis(NMAC/AQCR):**

20 NMAC	Title	Applies (Y/N)	Unit(s) or Facility	Comments
2.1	GENERAL PROVISIONS	Yes	Entire Facility	The facility is subject to Title 20 Environmental Protection Chapter 2 Air Quality of the New Mexico Administrative Code (NMAC) so is subject to Part 1 General Provisions. See Section 116 of regulation for significant figures and rounding. Applicable with no permitting requirements.
2.3	Ambient Air Quality Standards	Yes	Entire Facility	20.2.3 NMAC is a SIP approved regulation that limits the maximum allowable concentration of Total Suspended Particulates, Sulfur Compounds, Carbon Monoxide and Nitrogen Dioxide.
2.7	Excess Emissions	Yes	Entire Facility	Applies to all of the facilities' sources.
2.33	Gas Burning Equipment - Nitrogen Dioxide	No		This facility has new gas burning equipment (external combustion emission sources, such as gas and oil fired boilers and heaters), but the largest capacity heaters are far less than the applicability threshold of heat input of greater than 1,000,000 million British Thermal Units (BTU) per year per unit. The largest heaters will only be 99 million BTU (99 MMBtu) per unit.
2.34	Oil Burning Equipment - Nitrogen Dioxide	No		This facility does not have oil burning equipment (external combustion emission sources, such as gas and oil fired boilers and heaters) having a heat input of greater than 1,000,000 million British Thermal Units per year per unit.
2.35	Natural Gas Processing Plant – Sulfur	No		The facility meets the definition of a “new natural gas processing plant” under 20.2.35.7.B NMAC. Guidance issued by AQB (Robert Samaniego, 3/4/16) states that 20.2.35 NMAC does not apply to natural gas processing plants utilizing Acid Gas Injection (AGI). The guidance states that the regulation also does not apply to SSM & M (flaring) at facilities that under normal operations would be utilizing AGI.
2.38	Hydrocarbon Storage Facilities	No		No sections of this regulation apply because the facility is not a tank battery nor a petroleum production facility as defined in 20.2.38.7 (D) and (E) NMAC.
2.39	Sulfur Recovery Plant – Sulfur	No		This regulation establishes sulfur emission standards for sulfur recovery plants which are not part of petroleum or natural gas processing facilities. This facility does not have a sulfur recovery unit.
2.61	Smoke and Visible Emissions	Yes	C1-E to C10-E, H1, H2 to H6, Fl1 to Fl3, VCD1, Dehy, and GEN-1	This regulation establishes controls on smoke and visible emissions from all combustion sources.

20 NMAC	Title	Applies (Y/N)	Unit(s) or Facility	Comments
2.70	Operating Permits	Yes	Entire Facility	The facility is a TV major source for NOx, CO, SOx, and VOCs (PTE is ≥ 100 tpy), formaldehyde, and total HAPs as defined at 20.2.70.7.R and 20.2.70.200 NMAC (≥ 10 tpy for a single HAP and ≥ 25 tpy total HAPs).
2.71	Operating Permit Fees	Yes – in future	Entire Facility	This is a Title V major source
2.72	Construction Permits	Yes	Entire Facility	The facility is a stationary source that has potential emission rates (PER) greater than 10 pounds per hour and 25 tons per year of any regulated air contaminant for which there is a National or New Mexico Ambient Air Quality Standard [20.2.72.200.A(1), A(3), and A(6) NMAC]. This regulation applies.
2.73	NOI & Emissions Inventory Requirements	Yes	Entire Facility	Applicable to all facilities that require a permit. This regulation establishes emission inventory requirements. The facility meets the applicability requirements of 20.2.73.300 NMAC (PER > 10 tpy for several regulated air contaminants).
2.74	Permits-Prevention of Significant Deterioration	Yes	Entire Facility	PTE ≥ 250 tpy for NOx and a major stationary source as defined in 20.2.74.7.AG(2) NMAC (and also major for O3 because is major for NOx). In addition, the PTE for CO, VOC (representing O3), SO_2, PM10, and PM2.5 are greater than the significant emission rates in 20.2.74.502 (Table 2). Finally, the facility is also subject to BACT for greenhouse gas emissions.
2.75	Construction Permit Fees	Yes	Entire Facility	This facility is subject to 20.2.72 NMAC and is also subject to 20.2.75 NMAC.
2.77	New Source Performance	Yes	See equipment subject to 40 CFR 60	Applies to any stationary source constructing or modifying and which is subject to the requirements of 40 CFR Part 60.
2.78	Emissions Standards for HAPs	No		This regulation applies to all sources emitting hazardous air pollutants, which are subject to the requirements of 40 CFR Part 61. At present, there are no applicable rules within 40 CFR Part 61.
2.79	Permits – Nonattainment Areas	No		This facility is not located in a non-attainment area nor does it affect an adjacent non-attainment area. This rule does not apply.
2.82	MACT Standards for Source Categories of HAPs	Yes	See equipment subject to 40 CFR 63	This regulation applies to all sources emitting hazardous air pollutants, which are subject to the requirements of 40 CFR Part 63.

12.0 Federal Regulatory Analysis:

Air Programs Subchapter C (40 CFR 50)	National Primary and Secondary Ambient Air Quality Standards	Applies (Y/N)	Comments
C	Federal Ambient Air Quality Standards	Y	Independent of permit applicability; applies to all sources of emissions for which there is a Federal Ambient Air Quality Standard.

NSPS Subpart (40 CFR 60)	Title	Applies (Y/N)	Comments
A	General Provisions	Y	Applies if any other subpart applies
40 CFR 60.40Da, Subpart Da	Standards of Performance for Electric Utility Steam Generating Units	N	This regulation establishes standards of performance for electric utility steam generating units. This regulation does not apply because the facility does not operate any electric utility steam generating units.
40 CFR 60.40b, Subpart Db	Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units	N	60.40b(a) "The affected facility to which this subpart applies is each steam generating unit that commences construction, modification, or reconstruction after June 19, 1984, and that has a heat input capacity from fuels combusted in the steam generating unit of greater than 29 MW (100 million Btu/hour)." There are no steam generating units >99 MMBTU/hr at the facility
40 CFR 60.40c, Subpart Dc	Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units	Y	Per 60.40c(a). The facility has steam generating units for which construction, modification or reconstruction is commenced after June 9, 1989 and that have a maximum design heat input capacity of 29 MW (100 MMBtu/hr) or less, but greater than or equal to 2.9 MW (10 MMBtu/hr). **This regulation applies to Units H1, H3, H4, and H5.** These units will only burn natural gas and **therefore will not subject performance tests, reporting requirements, or emission limits under this regulation.** The facility will follow all record keeping requirements for these units. Unit H6 is less than 10 MMBtu/hr and is therefore not subject to this regulation. 60.42c(a)-(e) no SO_2 standards applies since no heaters combust coal or oil. 60.43c(a)-(c) & (e) no PM standards applies since no heaters combust coal or oil.

NSPS Subpart (40 CFR 60)	Title	Applies (Y/N)	Comments
40 CFR 60 Subpart Ka	Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and **Prior** to July 23, 1984	N	Each petroleum liquid storage vessel at the facility has a capacity of less than 1,589,873 liters (420,000 gallons) used for petroleum or condensate stored, processed, or treated prior to custody transfer is not an affected facility and, therefore, is exempt from the requirements of this subpart (60.110a(b)).
40 CFR 60 Subpart Kb	Standards of Performance for **Volatile Organic Liquid Storage Vessels** (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced **After** July 23, 1984	N	Each petroleum liquid storage vessel at the facility has a capacity of less than 1,589.874 m^3 (420,002 gallons) used for petroleum or condensate stored, processed, or treated prior to custody transfer (60.110b(d)(4)). The tanks at the facility are therefore exempt from the requirements of this subpart.
40 CFR 60 Subpart KKK	Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants	N	Affected Facility with Leaks of VOC from Onshore Gas Plants. Any affected facility that commenced construction, reconstruction, or modification after January 20, 1984, and on or before August 23, 2011, is subject to the requirements of this subpart. The facility will be constructed after August 23, 2011 and is therefore not subject to this regulation.
40 CFR Part 60 Subpart LLL	Standards of Performance for Onshore Natural Gas Processing: SO_2 Emissions	N	This regulation establishes standards of performance for SO_2 emissions from onshore natural gas processing with sweetening units or sweetening units with sulfur recovery units constructed, reconstructed, or modified after January 20, 1984, and on or before August 23, 2011. The rule does not apply to sweetening facilities producing acid gas that is completely reinjected into oil-or-gas-bearing geologic strata or that is otherwise not released to the atmosphere (60.640(e)). The Zia II facility will be constructed after August 23, 2011, and is therefore not subject to this regulation. Zia II is also using acid gas injection wells.
40 CFR Part 60 Subpart IIII (Quad-I)	Standards of Performance for Stationary Compression Ignition Internal Combustion Engines	Y	The 70 hp diesel standby generator (unit GEN-1) is subject to 60.4205(b) because the unit was constructed after July 1, 2005 and manufactured after April 1, 2006. This subsection of the regulation requires the engine to meet 60.4202. Subsection 60.4202 requires that the engine meet the corresponding emission standards under 40 CFR Part 89.

NSPS Subpart (40 CFR 60)	Title	Applies (Y/N)	Comments
§60.4209 What are the monitoring requirements if I am an owner or operator of a stationary CI internal combustion engine? If you are an owner or operator, you must meet the monitoring requirements of this section. In addition, you must also meet the monitoring requirements specified in §60.4211.(a) **If you are an owner or operator of an emergency stationary CI internal combustion engine that does not meet the standards applicable to non-emergency engines, you must install a non-resettable hour meter prior to startup of the engine.** **§60.4211 What are my compliance requirements if I am an owner or operator of a stationary CI internal combustion engine? (a)** If you are an owner or operator and must comply with the emission standards specified in this subpart, you must do all of the following, **except as permitted under paragraph (g) of this section:**(1) Operate and maintain the stationary CI internal combustion engine and control device according to the manufacturer's emission-related written instructions;(2) Change only those emission-related settings that are permitted by the manufacturer; **and(3) Meet the requirements of 40 CFR parts 89**, 94 and/or 1068, as they apply to you. **(f) If you own or operate an emergency stationary ICE**, you **must operate the emergency stationary ICE according to the requirements in paragraphs (f)(1) through (3)** of this section. In order for the engine to be considered an emergency stationary ICE under this subpart, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (f)(1) through (3) of this section, is prohibited. **If you do not operate the engine according to the requirements in paragraphs (f)(1) through (3) of this section, the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines**. **(g) If you do not install, configure, operate,** and maintain your engine and control device according to the manufacturer's emission-related written instructions, or you change emission-related settings in a way that is not permitted by the manufacturer, you must demonstrate compliance as follows: **(1)** If you are an owner or operator of a stationary CI internal combustion engine with maximum engine power less than 100 HP, you must keep a maintenance plan and records of conducted maintenance to demonstrate compliance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, if you do not install and configure the engine and control device according to the manufacturer's emission-related written instructions, or you change the emission-related settings in a way that is not permitted by the manufacturer, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of such action.			
40 CFR Part 60 Subpart JJJJ (Quad-J)	Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	Y	The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary spark ignition (SI) internal combustion engines (ICE) as specified in paragraphs (a)(1) through (5) of section 60.4230. Engines C1-E to C10-E at the facility will be new 4-stroke lean burn engines with horsepower greater than 500 located at a major source of HAPs. **All engines are subject to NO_x and VOC standards per Table 1 of NSPS JJJJ.** Engines will meet NSPS JJJJ CO standards by meeting MACT ZZZZ CO standards per Table 1 of NSPS JJJJ.

NSPS Subpart (40 CFR 60)	Title	Applies (Y/N)	Comments
40 CFR Part 60 Subpart OOOO (Quad-O)	Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution	Y	"Affected" facilities that are constructed, modified, or reconstructed after Aug 23, 2011 (40 CFR 60.5365): gas wells, including fractured and hydraulically refractured wells, centrifugal compressors, reciprocating compressors, pneumatic controllers, certain equipment at natural gas processing plants, sweetening units at natural gas processing plants, and storage vessels. There are standards for: gas wells (60.5375); centrifugal compressors (60.5380); reciprocating compressors (60.5385): controllers (60.5390); storage vessels (60.5395); equipment leaks (60.5400); sweetening units (60.5405).
NSPS OOOO: The facility was constructed after August 23, 2011, so all reciprocating compressors and all equipment addressed under equipment leak standards are subject to this regulation. **Applicable to units-equipment: C1-C to C10-C, C14-C, C15-C, FUG, and the inlet flare (FL1), which controls some fugitive emissions and so is subject to 40 CFR 60.18.** **Units not subject to NSPS OOOO: Tanks (TK-2100, TK-22000, TK-6100, and TK-6150) are not subject since there are federally enforceable emission limits in the permit that controls VOC emissions to below 6 tpy (see 60.5365(e)). Tank emissions are controlled by the VCD1 unit.** The vapor combustion device is an enclosed combustion device. Although the VCD1 is not subject to NSPS OOOO, the unit will meet the enclosed combustion device standards for closed vent systems and control devices in Subpart VVa (60.482-10a (c)). **The AQB believes that the amine unit is not subject to sulfur standards because it is controlled by the acid gas injection well system.** Since emissions are also routed to the flares to control emissions resulting in SO_2 emissions, the AQB was not able to determine if the exemption for AGI controlled units applies since the amine unit emissions are not "completely controlled" as stated in 40 CFR 60.5365(g)(4)**.** The acid gas from the amine unit (sweetening unit) at the facility is injected into oil or gas-bearing geological strata (AGI well) and is not subject to 60.5405 through 60.5407, 60.5410(g), and 60.5423 of this subpart [60.5365(g)(4)]. When the acid gas flare (FL2) is used during planned SSM, the acid gas (or at least some of it) is not going to the AGI well. **The pneumatic devices located at the facility will not be continuous bleed** and therefore will not have applicable requirements under this regulation.			
NSPS 40 CFR Part 60 Subpart OOOOa	Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015	N	Applies to "affected facilities" constructed or modified after September 18, 2015. All regulated units at Zia II were constructed by March 2015

NESHAP Subpart (40 CFR 61)	Title	Applies (Y/N)	Comments
A	General Provisions	N	Applies if any other subpart applies and no other subparts apply.

MACT Subpart (40 CFR 63)	Title	Applies (Y/N)	Comments
A	General Provisions	Y	Applies if any other subpart applies and DDDDD (5-D), HH, IIII, and ZZZZ (Quad-Z) apply.
40 CFR 63.760 Subpart HH	National Emissions Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities	Y, but no emission standards apply	This regulation establishes national emission standards for hazardous air pollutants from oil and natural gas production facilities. The facility is a major source of HAPs and meets the definition of a natural gas processing plant. The **dehydrator** will have a natural gas flow rate equal to or greater than 85 thousand standard cubic feet. The dehydrator vents less than 0.90 megagrams of benzene per year to the atmosphere and is **therefore exempt from the general standards of MACT HH per 63.764(e)(1)(ii).** The facility is not subject to the equipment leak standards under this regulation since the equipment at the facility has a total VHAP concentration less than 10 percent by weight [63.764(e)(2)(i)] and **the facility is subject to equipment leak standards under NSPS OOOO** which exempts them from the equipment leak standards under MACT HH. The tanks at the facility are not storage vessels with the potential for flash emissions. The condensate is sent to a stabilizer before transferred to the condensate tanks. There are no flash emissions associated with the condensate tanks therefore the tanks are not subject to this regulation.
40 CFR 63 Subpart HHH	National Emissions Standards for Hazardous Air Pollutants from Natural Gas Transmission and Storage Facilities	N	This subpart applies to owners and operators of natural gas transmission and storage facilities that transport or store natural gas prior to entering the pipeline to a local distribution company or to a final end user (if there is no local distribution company), and that are major sources of hazardous air pollutants (HAP) emissions as defined in §63.1271. This regulation does not apply because this facility is not a natural gas transmission or storage facility as defined in this regulation [40 CFR Part 63.1270(a)].
40 CFR 63 Subpart ZZZZ (Quad Z)	National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE MACT)	Y	A facility is subject to this subpart if they own or operate stationary RICE at a major or area source of HAP emissions, except if the stationary RICE is being tested at a stationary RICE test cell/stand. **All engines (C1-E to C10-E)** at the facility that are new 4-stroke lean burn engines greater than

MACT Subpart (40 CFR 63)	Title	Applies (Y/N)	Comments
			500 hp located at a major source of HAPs. Units are subject to CO emission standards at 63.6600(b), Tables 2a and 2b. **GEN-1** is a 70 hp diesel emergency generator and will also have requirements (maintenance and tune up) under this subpart. Engines C11-E to C13-E are electric, and not subject to this subpart
40 CFR 63 Subpart DDDDD (5-Ds)	National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters	Y	Permittee is subject to this subpart if it owns or operates an industrial, commercial, or institutional boiler or process heater as defined in §63.7575 that is located at, or is part of, a major source of HAP as defined in 63.7575for oil and natural gas production facilities (40 CFR part 63, subpart HH, National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities), except as specified in §63.7491. The facility is a major source of HAPS. All units will be constructed after the June 4, 2010 applicability date. The boilers **(H1, H4 and H5)** will be combusting natural gas (gas 1 fuel as defined) and will have the following compliance requirement: Emission standard Tables 1 & 2 do not include any numerical emission limits for gas 1 fuel burning units. Per 63.7540 (a)(10) - Tune up every year (except for boilers and process heaters with continuous oxygen trim system which conduct a tune-up every 5 years). **Heater H6** is less than 10 MMBtu/hr and will be combusting natural gas. Requirements for this heater are: Per 63.7500 (e) - Boilers and process heaters in the units designed to burn gas 1 fuels subcategory with a heat input capacity of less than or equal to 5 million Btu per hour must complete a tune-up every 5 years as specified in § 63.7540(a)(12). Boilers and process heaters in the units designed to burn gas 1 fuels subcategory with a heat input capacity greater than 5 million Btu per hour and less than 10 million Btu per hour must complete a tune-up every 2 years as specified in § 63.7540(a)(11). Boilers and process heaters in the units designed to burn gas 1 fuels subcategory are not subject to the emission limits in Tables 1 and 2 or 11

MACT Subpart (40 CFR 63)	Title	Applies (Y/N)	Comments
			through 13 to this subpart, or the operating limits in Table 4 to this subpart. **Heater H3** is now 10 MMBtu/hr, not "less than 10 MMBtu/hr" and must comply with 63.7540(a)(10).
40 CFR 63 Subpart JJJJJJ (6-Js)	National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Source	N	This regulation establishes emission standards for hazardous air pollutants for industrial, commercial, and industrial boilers area sources. This regulation does not apply to the facility, as the facility is a major source of HAPs.

Miscellaneous	Title	Applies (Y/N)	Comments
40 CFR 64	Compliance Assurance Monitoring	Y – in future for the TV permit	This regulation defines compliance assurance monitoring. Emissions from the Amine Unit, dehydrator (Unit Dehy), engines (Units C1-E to C8-E), and loading (Unit L1) at the facility are subject to a CAM plan. The units have potential pre-control emission levels of an applicable major source threshold [40 CFR 64.2(a)(3)]. The control devices for the Amine Unit at the facility the AGI well and the acid gas flare (Unit FL2). The control device for the tanks, dehydrator, and loading is the vapor combustion device (Unit VCD1). The engines are controlled by catalysts.
40 CFR 68	Chemical Accident Prevention	Y	An owner or operator of a stationary source that has more than a threshold quantity of a regulated substance in a process, as determined under §68.115 Threshold determination and 68.130 List of substances. The facility is an affected facility, as it will use flammable process chemicals such as propane at quantities greater than the thresholds (10,000 lb per Table 3 in 68.130). The facility will develop and maintain an RMP Plan for these chemicals.

13.0 **Additional Reported Equipment without emissions that do not require monitoring**:

Additional Equipment at the Zia II Gas Plant Facility (not entered into Tempo database)

Unit Number	Source Description	Manufacturer	Model No.	Max Capacity	List Specific 20.2.72.202 NMAC Exemption (e.g. 20.2.72.202.B.5)	Date of Manufacture /Reconstruction[2]
			Serial No.	Capacity Units	Insignificant Activity citation (e.g. IA List Item #1.a)	Date of Installation /Construction[2]
TK-7015	Engine/Compressor Oil Tank	Willborn Bros	NA	1,036	Not a regulated source of emissions.	8/1/2014
			NA	gal	N/A	2/1/2015
TK-7020	Amine Storage Tank with Blanket Gas	Palmer	NA	400	Not a regulated source of emissions.	11/1/2014
			ST1407196	bbl	N/A	2/1/2015
TK-7025	Used Oil Storage Tank	Willborn Bros	NA	1,036	Not a regulated source of emissions.	8/1/2014
			NA	gal	N/A	2/1/2015
TK-7035	Jacket/Aux Water Storage Tank	Willborn Bros	NA	1,036	Not a regulated source of emissions.	8/1/2014
			NA	gal	N/A	2/1/2015
TK-7045	Engine/Compressor Oil Tank	Willborn Bros	NA	1,036	Not a regulated source of emissions.	8/1/2014
			NA	gal	N/A	2/1/2015
TK-7050	R.O. Water Storage Tank	Palmer	NA	175	Not a regulated source of emissions.	2/1/2014
			OF1408083	bbl	N/A	2/1/2015
TK-7055	Used Oil Storage Tank	Willborn Bros	NA	1,036	Not a regulated source of emissions.	8/1/2014
			NA	bbl	N/A	2/1/2015
TK-7065	Jacket/Aux Water Storage Tank	Willborn Bros	NA	1,036	Not a regulated source of emissions.	8/1/2015
			NA	bbl	N/A	2/1/2015

TK-7070	R.O. Wastewater Tank	Palmer	NA	195	Not a regulated source of emissions.	2/1/2015
			OF1408086	bbl	N/A	2/1/2015
TK-7075	Compressor Crank Case Oil Storage Tank	Willborn Bros	NA	1,036	Not a regulated source of emissions.	8/1/2014
			NA	gal	N/A	2/1/2015
TK-7085	Used Oil Storage Tank	Willborn Bros	NA	1,036	Not a regulated source of emissions.	8/1/2014
			NA	gal	N/A	2/1/2015
TK-7095	Compressor Lubrication Oil Storage Tank	Willborn Bros	NA	1,036	Not a regulated source of emissions.	8/1/2014
			NA	gal	N/A	2/1/2015
TK-7105	Compressor Lubrication Oil Storage Tank	Willborn Bros	NA	1,036	Not a regulated source of emissions.	8/1/2014
			NA	gal	N/A	2/1/2015
TK-7115	Compressor Lubrication Oil Storage Tank	Willborn Bros	NA	1,036	Not a regulated source of emissions.	8/1/2014
			NA	gal	N/A	2/1/2015
TK-7400	Refrigerant Compressor Lube Oil Storage Tank with Blanket Gas	Willborn Bros	NA	500	Not a regulated source of emissions.	8/1/2014
			NA	gal	N/A	2/1/2015
TK-7410	Used Refrigerant Compressor Oil Storage Tank	Willborn Bros	NA	500	Not a regulated source of emissions.	8/1/2014
			NA	gal	N/A	2/15/2015
TK-7500	H.M.O. Make-up Tank	Palmer	TBD	150	Not a regulated source of emissions.	2/1/2015
			ST-1409494	bbl	N/A	3/1/2015
TK-7600	Glycol Storage Tank	Palmer	TBD	150	Not a regulated source of emissions.	11/1/2014
			ST-1406954	bbl	N/A	3/1/2015
TK-7700	Methanol Storage Tank	Highland	NA	1,500	Not a regulated source of emissions.	8/1/2014

			NA	gal	N/A	2/1/2015
TK-7750	Methanol Storage Tank	Highland	NA	1,500	Not a regulated source of emissions.	8/1/2014
			NA	gal	N/A	2/1/2015
TK-7800	Methanol Storage Tank	Highland	NA	1,036	Not a regulated source of emissions.	8/1/2014
			NA	gal	N/A	2/1/2015
TK-WATER	Raw Water Storage Tank	Power Pipe and Tank	NA	1,000	Not a regulated source of emissions.	1/1/2015
			NA	bbl	N/A	2/1/2015
TK-L1	Lusk Slop Tank	TBD	TBD	210	Not a regulated source of emissions.	TBD
			TBD	bbl	N/A	TBD
TK-L2	Lusk Methanol Tank	Palmer	NA	443	Not a regulated source of emissions.	Sep-83
			AT-2784	bbl	N/A	Sep-83
TK-3	Diesel Tank	N/A	NA	1,000	Not a regulated source of emissions.	NA
			NA	gal	N/A	May-15

14.0 **New/Modified/Unique Conditions** (Format: Condition#: Explanation):

A. Cover page updated to current action
B. Condition A104B: removed because requirements already met
C. Condition A104B: removed because requirements already met
D. Table A105: Change control unit equipment number to reference description and change control description for unit VCD for VOCs to GCP
E. Table 106A: Changed PM/PM10/PM2.5 allowable limits for GEN-1 to 0.05 pph and 0.01 tpy
F. Table A106B: changed CO_2e BACT limits for C1-E to C8-E to 16,038.5 tpy. Changed VOC BACT for VCD1 to 98.0% DRE
G. Condition A113A: Changed language to show that Lusk permits were canceled.
H. Condition A113B: removed because requirements already met
I. A201D: Requirement updated because report has been submitted
J. Condition A203A: minor revisions to requirement language
K. Condition A210A: Changed requirement to reflect that the GCP plan was submitted.
L. Condition A204A: Requirement updated because report has been submitted
M. Condition A206A: Changed requirement to reflect that the GCP plan was submitted
N. Condition A210A: Changed requirement to reflect that the GCP plan was submitted

15.0 For Title V action: Not Applicable for this action: .

16.0 **Permit specialist's notes to other NSR or Title V permitting staff concerning changes and updates to permit conditions.**

A. none
B.

17.0 **Best Available Control Technology (BACT) Determination for the Zia II Gas Plant Permit No. PSD 5217-M1**

The following Table A-1 summarizes the Prevention of Significant Deterioration (PSD) BACT Determination completed by the New Mexico Air Quality Bureau (NMED-AQB) in accordance with 20.2.74.7.k and 20.2.74.302 NMAC for the Zia II Gas Plant for units subject to this significant permit revision. This includes greenhouse gases for the C1-E to C8-E engines; the calculation of CO_2e was updated because the emission factor in 40 CFR 98 increased in 2013 (see discussion below). The BACT for Unit VCD1 was revised for VOCs. This section includes the BACT determination and basis for changing the BACT for VOCs for unit VCD1 from 0.21 lb/MMBtu to a 98.0% destruction rate efficiency (DRE).

The AQB considered changing the VCD1 GHG BACT limit to a 98.0% DRE, assuming that the major component of GHGs were methane. However, the permit writer determined that the major GHG component is CO_2 which will not vary with gas composition.

Table A-1: Overall Summary of BACT Limits for units included in this revision.

Emission Unit(s)		Pollutant	BACT Limit	BACT Control Method (implemented BACT)	BACT Floor Source[1]
RICE Compressor Engines	C1-E to C8-E	CO_2e	16,038.5 tpy	GCP[2], pipeline quality natural gas	None
VCD1 (vapor combustion device)		VOC	98.0% DRE by weight is required	98% DRE[3] is required. Operate using GCP including semi-annual operational inspections, operating per manufacturer's specifications including with a continuous burning pilot and not exceeding maximum design flow specifications, and following DCP Midstream Preventative Maintenance and Inspections Guidelines and Practices.	40 CFR 60.6395(d)(1) (NSPS OOOO) NSPS OOOO applies to the tanks and requires a 95% DRE using an open flare, enclosed combustion device like the VCD1, or a carbon canister. We will consider the requirements for the Tank control using the VCD1 as the BACT floor. The standard for internal combustion device control for tank VOCs is a 95.0% DRE by weight per 60.5395(d)(1)

1. Stated as BACT floor even if not subject to a standard per PTE. See NSPS/NESHAP requirements in permit.
2. GCP = Good Combustion Practices.
3. DRE = Destruction rate efficiency.

Following this overall summary of BACT (Table A-1) is a table for the unit for which BACT is changing, unit VCD1. The applicant resubmitted the BACT analysis for the entire facility. The AQB did not review the entire BACT analysis in this application, but only the BACT analysis for the VCD1 and CO2e limits for C-1 to C-8. Refer to AQB's BACT analyses in this and previous applications because the BACT analyses in the applications differ from the final BACT selected for some equipment and pollutants.

In the application for PSD5217M1, the pph and tpy VOC emission limits for unit VCD1 were based on 2% of the VOC mass flow rate and a calculated heating value using the weighted

average of the 3 gas flows from the dehydrator, tanks, and loading sent to the VCD. The BACT limit of 0.21 lb/MMBtu was based on data from the RACT/BACT/LAER Clearinghouse (RBLC) which did not apply to enclosed combustion devices. When the permittee notified AQB that they could not meet the current BACT limit of 0.21 lb/MMbtu, they indicated that the September 2013 pph and tpy emission limit calculations included a 100% safety factor to account for variations in gas heat content. The current BACT limit cannot be met because it does not account for variations in the gas.

Table 1

Table 1. Vapor Combustion Device: Natural Gas Pilot plus VOC Treatment: VOCs

	Control Technologies →→→	
	Pipeline Quality Natural Gas[a]	**Good Combustion, Operating, and Maintenance Practices**
Identified Air Pollution Control Technologies	**Applicant:** Use of natural gas as fuel results in lower VOC, CO and GHG emissions due to the lower carbon intensity of the fuel when compared with other fuel types. **AQB:** AQB found that BACT and control requirements in 40 CFR 60 for VOCs are GCP and a 98% DRE.	**Applicant:** Good combustion and operating practices are a potential control option for improving the combustion efficiency of the vapor combustion device (VCD). Good combustion practices include proper operation, maintenance, and tune-up of the VCD at least annually per the manufacturer's specifications. **AQB:** AQB found that BACT and control requirements in 40 CFR 60 for VOCs are GCP and a 98.0% DRE
Feasibility Evaluations	**Applicant:** Included in RBLC. The VCD is an enclosed flare, or enclosed combustion device,that operates under the same principles as a flare. **AQB:** The applicant stated the RBLC search applied flare results as being similar to a VCD. DCP has corrected and clarified the reference, meaning that the VCD will be an enclosed flame device.	**Applicant:** Included in RBLC. The VCD is an enclosed flame devices that operates under the same principles a flare works. **AQB:** The original application from 2013 and this application stated the RBLC search applied flare results as being similar to a VCD. They did not provide a search for "thermal incinerators" or "incinerators" unless the vapor combustion device will be a boiler (see RBLC results for heaters in the application). Portions of the application indicated that this device could be a boiler (provided AP-42 boiler emission factors), but in other places could be a thermal incinerator such as an oxidizer. DCP clarified the reference, meaning that the VCD will be an enclosed flame device. The 2017 application stated that the "Standards: Closed vent systems and controls devices", "Best Performance Standards "prepared by the San Joaquin Valley Unified Air Pollution Control District indicated a 98% DRE for this device. However, that document did not contain any DREs for enclosed combustion devices. **AQB:** Enclosed combustion devices typically have a DRE of 98% if operated correctly. This was determined by an RBLC database search of flares, enclosed flares, incinerators, and thermal incinerators and a review of the Massachusetts Department of Environmental Protection Top Case BACT Guidelines for VOC emitting sources. Per the Zeeco manufacturer's specifications and Zeeco's letter dated June 29, 2107, the VCD1 can meet a 98% DRE if the unit is operated with a continuous burning pilot and maximum design flow conditions are not exceeded.
Technically feasible?	**Yes**	**Yes**
Other	**Applicant:** Base case.	**AQB:** **BACT Limit VOCs: 98.0% DRE of VOCs** GCP to meet 98.0% DRE: The VCD shall be inspected two times per year to determine if it is operated correctly, shall be tuned and maintained per manufacturer operating requirements and DCP's Preventative Maintenance and Inspections Guidelines and Practices, and shall be operated with a continuous burning pilot and maximum design flow condition for which the unit was designed. The VCD is a control device, with several closed vent systems being routed to it (condensate and produced water tanks, dehydrator, and truck loadout), An appropriate BACT floor comparison comes from NSPS OOOO for enclosed combustion devices for tanks, specifically a 95% DRE in 40 CFR 60.5412(a)(1), (d)(1)(i) to (iii) and (d)(1)(iv)(A) except that a 98.0% DRE is required. See additional details in the below **AQB evaluation of proposed BACT for VOCs for Unit VCD1**
Evaluate Energy, Environment, Indirect economic	N/A is BACT	N/A is BACT
Economic analysis	N/A is BACT	N/A is BACT
BACT Selection	**Yes**	**Yes**

a. Pipeline quality natural gas is defined as gas having sulfur content of 5 gr/100 scf or less.

AQB evaluation of proposed BACT for VOCs for Unit VCD1

The applicant cited two references as sources for the 98% destruction removal efficiency. The references were not attached to the application, but AQB obtained the documents from their respective agency websites. The "Best Performance Standards [for thermal oxidizers] at http://www.valleyair.org/Programs/CCAP/bps/BPS_idx.htm#Thermal%20(Non-Catalytic)%20Oxidizers evaluates GHG destruction by thermal oxidizers and the use of concentrators; the document doesn't specifically reference a DRE for VOCs. The MassDEP "Top Case BACT guidelines for VOC emitting Sources" at http://www.mass.gov/eea/agencies/massdep/air/approvals/best-available-control-technology-bact.html lists BACT destruction efficiencies for several types of VOC sources and controls. The destruction efficiency listed as BACT in the document is 98% for enclosed sources with > 18 tpy VOCs, outdoor painting sources with > 18 tpy VOCs, bulk gasoline storage tanks, and miscellaneous VOC emitting sources with > 18 tpy VOCs. The destruction efficiency listed as BACT in the document is 99% for: VOC coating sources with > 18 tpy VOCs using thermal oxidizers and expandable poly styrene manufacturers using thermal oxidizers. Both source document were added to the file for this permit action.

No entries for the RACT/BACT/LAER clearinghouse were included with the application, so that database was reviewed by AQB in August of 2017. The entries reviewed all used a destruction efficiency as the BACT, supporting the change from the previous BACT of 0.21lb/MMBtu, which was not the appropriate form of BACT for this pollutant and unit. Destruction efficiency of 98% was shown in RBLC entries for VOCs controls for: a multi point ground flare (RBLC ID TX-0815), a thermal oxidizer (RBLC ID IA-0089), two enclosed landfill flares (RBLC ID IN-0254 and RBLC ID IN-0252), thermal scrap ovens with dual afterburners (RBLC ID IN-0236), and an ethanol plant enclosed flare (RBLC ID PA-0257). The destruction efficiency was 99% for another thermal oxidizer (RBLC ID WY-0067), a regenerative thermal oxidizer (RBLC ID TX-0813), a thermal destructor (RBLC ID TX-0671), an incinerator (RBLC ID NV-0047), an amine unit RTO (RBLC ID TX-0755), a vapor combustion unit (RBLC ID TX-0760), and a thermal oxidizer (RBLC ID IA-0092). Two RBLC entries listed high efficiency thermal oxidizers with 99.9% destruction efficiency (RBLC IDs TX-0723 and TX-0706). Results of the AQB search of the RBLC are included in the permit file.

One consideration in selecting a destruction efficiency is the quantity of emissions that will be controlled. Emission from VCD1 at 98% destruction efficiency are calculated to be 7.7 tpy. At a destruction efficiency of 99%, the emissions would be 3.4 tpy. A BACT mandating a 99% destruction efficiency would only decrease facility emissions by 3.3 tpy, which is 2% of the facility total VOC emissions. Design of the unit is also a consideration: flare /enclosed flare units in the RBLC generally had 98% DRE while TO and RTO units constituted more of the units with 99% DRE. The ZEECO manufacturing Company warrants the destruction efficiency of unit VCD1 to be 98%, which was also the destruction efficiency used to calculate the mass emission limits in the current permit. Based on this rationale, the results of the RBLC search, and the applicant's BACT analysis, AQB selected a 98.0% destruction efficiency as BACT for VOCs for unit VCD1.

AQB evaluation of proposed BACT for CO_2e for Engines C1-E to C8-E

The application requested an increase to the CO_2e BACT limit for engines C1-E through C8-E. The difference is due to an increase in CO_2 emissions from each unit from 16,012 tpy to 16,038.5 tpy. A review of the federal register showed that the emission factor for CO_2 from engines changed from 53.02 kg/mmbtu (116.89 lb/mmbtu) to 53.06 kg/mmBTU (116.98 lb/mmBtu) on 11/29/2013, after the Zia II application was submitted. The excerpt is reproduced below:

First promulgated on 10-30-09 Table C-1 shows the CO_2 EF as 53.02 kg/MMBtu
Revision on 11-29-13 Table C-1 shows the CO_2 EF as 53.06 kb/MMBtu

We are revising Table C–1 as proposed to update the HHV and/or emission factors for several fuels. The amendments to Table C–1, as discussed in the memorandum ''Review and Evaluation of 40 CFR Part 98 CO_2 Emission Factors for EPW07072 To 45'' (see Docket Id. No. EPA–HQ–OAR–2012–0934), include: (1) Replacing ''Wood and Wood Residuals'' with ''Wood and Wood Residuals (dry basis),'' with a footnote containing an equation that can be used to adjust the HHV value for any moisture content; (2) replacing ''Biogas (captured methane)'' with two types of biogas: ''Landfill Gas'' and ''Other Biomass Gases;'' (3) revising the HHV and/or emission factors for liquid petroleum gases (LPG) and LPG components including propane, ethane, ethylene, isobutane, isobutylene,

butane, and butylene; (4) correcting the emission factor for coke and revising the name to ''coal coke'' to differentiate it from ''petroleum coke;'' (5) updating emission factors for the four types of coal and the four types of mixed coals; (6) revising the HHV for the biomass fuel ''solid byproducts;'' and, (7) finalizing minor changes to the HHV and/or emission factors for natural gas, used oil, natural gasoline, petrochemical feedstocks, unfinished oils, crude oil, and tires.

This information is from the docket from the 2013 changes to 40 CFR 98: The CO_2 natural gas emission factor changed because the carbon to CO_2 conversion factor changed. The source of the new carbon conversion factor was not provided in the docket, but they did a review of all existing emission factors to look for errors and for factors that had no background information. Since several changes were made during that review, the revised emission factor is more accurate so the CO2e limit should be allowed to increase based on the new emission factor in 40 CFR 98. If the factor had changed during the original application review, the permit would have used the new 53.06 kg/MMBtu factor. The revision of the emission factor is an adequate justification for updating this BACT to the higher CO_2e limits.