Draft Statement of Basis - Narrative
NSR Permit

Type of Air Quality Permit Application: Significant Permit Revision (20.2.72 NMAC)

Facility: Four Peaks Energy LLC
Owner: Four Peaks Energy LLC
Operator: ENERGYneering Solutions, Inc
Permit No(s).: 3275-M2
AI - IDEA number.: 24483 - PRN20180001
Permit Writer: Cember Hardison

Fee Tracking

Tracking	**NSR tracking entries completed:** [] Yes [x] 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 fee due

Permit Review	**Date to Enforcement:** 8-31-18	**Date of Enforcement Reply:**
	Date to Applicant: 8-31-18	**Date of Applicant Reply:**
	Date to EPA: N/A	**Date of EPA Reply:** NA
	Date to Permit Programs Manager: 8-31-18	

1.0 **Plant Process Description:**

The Four Peaks Energy facility generates commercial electric power, with a capacity of up to 3.2 Megawatts (MW), using landfill gas as fuel. The Four Peaks Energy facility is co-located on a leased property within the larger property boundary of the Camino Real Landfill. Per air quality regulations the Landfill and Four Peaks Energy are separate facilities ("sources").

The Four Peaks Energy facility, a landfill gas to energy facility (LFGTE) consists of two generator sets each powered with a 2242 horse power (hp), 3520C Caterpillar spark ignition engine.

The engines can accept up to about 550 cubic feet per minute (cfm) each of landfill gas fuel. The facility will require 1100 to 1200 cfm of landfill gas at about 50% methane (CH_4) to operate both engines at full capacity. Since the quantity of landfill gas will change over time, the facility will be allowed to operate one or both engines at less than capacity or operate only one engine.

The landfill gas is collected by a landfill gas and collection system (GCCS) operated by the Camino Real Landfill and sent to either the landfill's open flare for combustion and/or routed to a blower/treatment skid where the landfill gas is de-watered, compressed, and routed to the engines to use as fuel.

If the Four Peaks Energy Facility were to shut down, valves to the engines will automatically close, the facility gas blower/treatment system will shut down, and the landfill's gas will be routed to the flare for combustion. There are no vents or safety valves at Four Peaks Facility that would allow landfill gas (LFG) to be emitted directly to the atmosphere.

Although this is not required by air quality regulations, nor does it reduce air emissions, it should be noted that engine exhaust is sent to silencer stacks on the outside of the building to dampen engine noise.

Description of this Modification: The existing permit requires a control device, called an oxidation catalyst, that is used to reduce Carbon Monoxide (CO) emissions from the engines. However, oxidation catalysts don't work when landfill gas is used as fuel. Therefore, they are requesting to remove the requirement to reduce CO emissions with a control device which will result in an increase in CO emission limits. The emission limits of the other pollutants are lower based on more accurate information. The facility also has new owners, ENERGYneering Solutions LLC who specialize in this industry.

Due to improvements with the gas collection control system (GCCS) at the landfill, it is expected that at this time, more landfill gas will be routed to Four Peaks Energy for power generation and less to the landfill gas flare.

2.0 Source Determination – Separate Sources:

The AQB has determined that the Four Peaks Energy LLC Facility and Camino Real Landfill (permit 7592) are separate sources/facilities and so should not add up their combined air emissions to determine what kind of air quality permit that is required. For example, if the maximum expected emission rates that come from a combustion stack are 100 tons per year (tpy) or more for a regulated air pollutant, a Title V permit would be required.

To be considered the same source, requiring emissions to be combined, the two facilities would need to meet three criteria and include:
1) having the same standard industrial code (SIC) two-digit grouping; 2) being owned, operated, and/or under control of the same organization or company; and 3) being located on the same property or located on adjacent properties ("contiguous or adjacent").

The facilities are located on the same property and fall under the same two-digit Standard Industrial Classification (SIC) code category, but they are owned and operated by two separate legal entities. Therefore, the landfill and energy plant are not defined as a single source per the air quality regulations.

- The landfill's SIC code is 4953 Sanitary Services
- The energy plant's SIC code is 4911 Electric Services

The landfill is owned and operated by Camino Real Environmental Center, Inc., a wholly-owned subsidiary of Waste Connections, Inc.
Four Peaks Energy facility is owned by Four Peaks LLC and operated by ENERGYneering Solutions Inc.

Four Peaks is located a leased parcel of land (approximately 0.25-acres) located within the landfill's property boundary.

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3.0 History (In descending chronological order, showing NSR and TV): *The asterisk denotes the current active NSR and Title V permits that have not been superseded.

Permit Number	Issue Date	Action Type	Description of Action (Changes)
3275M2		Significant Permit Revision	The existing permit requires a control device, called an oxidation catalyst, that is used to reduce Carbon Monoxide (CO) emissions from the engines. However, oxidation catalysts don't work when landfill gas is used as fuel. Therefore, they are requesting to remove the requirement to reduce CO emissions with a control device which will result in an increase in CO emission limits. The emission limits of the other pollutants are lower based on more accurate information. The facility also has new owners, ENERGYneering Solutions LLC. **Title V Operating Permit (20.2.70 NMAC):** The facility must apply for a Title V Operating air quality permit in addition to this construction air quality permit, since its CO emissions are over 100 tpy. **PSD Air Permit (20.2.74 NMAC):** The facility is not subject to the PSD air permit regulation since its emission rates are less than 250 tpy. **Major Nonattainment (20.2.79 NMAC)**: Not subject. The facility is located in the Doña Ana County ozone nonattainment area https://www.env.nm.gov/air-quality/ozone/ but is not subject to this regulation since its emissions of VOC and NOx air emissions are less than 100 tpy each. **Minor Nonattainment Permit** (20.2.72.216 NMAC). Not subject. Per the Permit Section Manager and Permit Programs Manager, Ted Schooley the facility is not subject to this regulation. See the determination in statement of basis for 3275M2. See the statement of basis for permit number 3275M2 for more details of the PSD and nonattainment analyses.
3275M1R1	12-28-2006	Technical Permit Revision	Install Miratech IQ-34-18-H1 oxidation catalysts on the permitted (but not yet constructed) IC engines.
3275-M1	3-6-2006	New Construction Permit	Construct two generator sets powered by two RICE engines.
3275	Withdrawn		Never issued

4.0 **Public Response/Concerns:**

As of the current date, no citizen inquiries have been received regarding this permit application.

The AQB has published a public notice, in English and Spanish, in the El Paso Times and in Spanish Language paper El Paso y Mas.

The Public notice and the Four Peaks Energy LLC air quality application are also posted to this website: https://www.env.nm.gov/air-quality/permit-applications-with-public-interest-public-meeting-or-public-hearing/

5.0 Air Emissions During Startup and Shutdown of Equipment:

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.**

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**

The permittee states the emission rates during startup or shutdown of the units are no higher than during steady state operation. **Therefore, no SSM limits are required.**

6.0 Compliance and Enforcement Status

Before purchasing this facility, the former owner removed the oxidation catalyst CO emissions control device since it did not work correctly. To remedy this error, the new owners by regulation, must correct their air quality permit with this application to authorize operation without the oxidation catalyst.

7.0 **Modeling:**

The AQB modeler, Eric Peters, determined that air emissions from Four Peaks do not contribute or cause an exceedance of a health based ambient air quality standard. The standards that apply and were reviewed include those for NOx, CO, TSP, PM10, and PM2.5.

8.0 State Regulatory Analysis for Four Peaks Energy LLC (New Mexico Administrative Code (NMAC)):

9.0

Link to NM State Air Quality Regulations

http://164.64.110.134/nmac/T20C002

STATE REGU-LATIONS CITATION 20 NMAC	Title	Applies (Y/N)	Unit(s) or Facility	JUSTIFICATION:
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 so is subject to Part 1 General Provisions, Update to Section 116 of regulation for Significant figures & rounding. Applicable with no permitting requirements.

STATE REGU-LATIONS CITATION 20 NMAC	Title	Applies (Y/N)	Unit(s) or Facility	JUSTIFICATION:
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 **Link to regulation** EXCESS EMISSIONS **Link to excess emissions report website.** https://www.env.nm.gov/air-quality/excess-emissions-reporting/	Yes	Entire Facility	Four Peaks Energy LLC facility is subject to the State exce emissions regulation. 20.2.7.14 REQUIREMENTS REGARDING ROUTINE O PREDICTABLE EMISSIONS DURING STARTU SHUTDOWN, AND MAINTENANCE. **A.** The owner or operator of a source subject to a permit or the notification requirement under section 15 of this pa shall establish and implement a plan to minimize emissio during routine or predictable startup, shutdown, a scheduled maintenance through work practice standards and good air pollution control practices. This requirement shall not apply to any affected facility defined in and subject to an emissions standard and an equivalent plan under 40 CFR Part 60 (NSPS), 40 CFR Part 63 (MACT), or an equivalent plan under 20.2.72 NMAC - Construction Permits, 20.2.70 NMAC - Operating Permits, 20.2.74 NMAC - Permits - Prevention of Significant Deterioration (PSD), or 20.2.79 NMAC - Permits - Nonattainment Areas. **B.** The owner or operator shall maintain the plan at the location authorized by the permit, at the facility, or at the nearest occupied facility, and provide the plan to the department upon written request.
2.61	Smoke and Visible Emissions	Yes	Engines E1 & E2	Four Peaks engines E1 and E2 must meet a 20% opacity limit. This regulation limits opacity to no more than 20% from all combustion emissions stacks per 20.2.61.109 NMAC.
2.70	Operating Permits	Yes	Entire Facility	Four Peaks must obtain a Title V Operating permit since its emission rates for CO exceed 100 tpy.
2.71	Operating Permit Fees	Yes	Entire Facility	This is a Title V facility so annual inspection fees fall under the Title V fee regulation.
2.72	Construction Permits	Yes	Entire Facility	The emission rates from the facility are over 10 pounds per hour and 25 tons per year. In New Mexico, facilities with those emission rates must obtain a permit before beginning construction or modification of a facility.

Commented [CH1]: This is the state excess emissions regulation, 20.2.7 NMAC. The facility should be subject to this regulation.

The plan required at 20.2.7.14.A NMAC does not apply to units subject to an emission standard in an NSPS or MACT. Since the NSPS WWW or Cf doesn't apply once the gas is treated, this plan is required for the facility.

The minor source construction permit regulation and Title V regulation also require plans. However, one plan can be used to meet all three regulations.

STATE REGU-LATIONS CITATION 20 NMAC	Title	Applies (Y/N)	Unit(s) or Facility	JUSTIFICATION:
2.72.216	Nonattainment Area Requirements	No		Four Peaks is not subject to these requirements. Minor Nonattainment Air Quality Permit Requirements 20.2.72.216 NMAC CONSTRUCTION PERMITS Four Peaks Energy LLC is located in the designated ozone nonattainment area located in Doña Ana County https://www.env.nm.gov/air-quality/ozone/ This regulation applies to minor nonattainment sources or minor nonattainment modifications that are located in in areas that either monitor or model nonattainment. The designation of the area does not matter.
To follow is the determination of the Major Source Permit Section Manager and Permit Programs Manager, Ted Schooley: • Regulation citations from 20.2.72.216 NMAC • "that will emit a regulated air contaminant such that the ambient impact of the contaminant would exceed the significant ambient concentration in table 1 … ." • "Regulated air contaminant" means, any air contaminant, the emission or ambient concentration of which is regulated pursuant to the New Mexico Air Quality Control Act or the federal act. [20.2.72.7.AA NMAC] • Ozone does meet the definition of a regulated air contaminant. However, the ambient impact of the contaminant must also exceed the significant ambient concentration in table 1. Ozone is not listed in table 1, nor is there is any provision at 20.2.72.216 NMAC that provides a legal mechanism to tie ozone to any of the pollutants listed in 20.2.72.500 NMAC, Table 1. Based on the analysis above, the minor source non-attainment provisions at 20.2.72.216 NMAC do not apply to ozone nonattainment.				
2.73	NOI & Emissions Inventory Requirements	Yes	Entire Facility	Four Peaks is subject to register under a Notice of Intent (NOI) since its emission rates are higher than 10 tpy for a pollutant. The permittee will also be required to submit annual emissions inventory reports. An application for a construction permit is also the registration for the NOI.
2.74	Air Quality PERMITS - PREVENTION OF SIGNIFICANT DETERIORATION (PSD)	No		The Four Peaks Energy LLC facility is not a Prevention of Significant Deterioration (PSD) major source since the emission rate of any one regulated air quality pollutant that is emitted from the two engine exhaust stacks is less than 250 tons per year (tpy). (20.2.74.7.AF(2) New Mexico Administrative Code (NMAC))
2.75	Construction Permit Fees	Yes	Entire Facility	Four Peaks will not be subject annual construction permit fees, since fees will be assessed through the Title V fee regulation, 20.2.71 NMAC.
2.77	New Source Performance Standards	Yes	See Sources subject to 40 CFR 60	Applies to any stationary source (facility) constructing or modifying and which is subject to the requirements of 40 CFR Part 60.

STATE REGU-LATIONS CITATION 20 NMAC	Title	Applies (Y/N)	Unit(s) or Facility	JUSTIFICATION:
2.78	Emissions Standards for Hazardous Air Pollutants	No		There are no emissions units that are subject to regulations in 40 CFR 61. This regulation applies to certain types of emissions units that emit hazardous air pollutants.
2.79	Permits – Major Nonattainment Permits	No		PERMITS - NONATTAINMENT AREAS Four Peaks Energy LLC is located in the designated ozone nonattainment area located in Doña Ana County https://www.env.nm.gov/air-quality/ozone/ This facility is not a major nonattainment source and so is not subject to the major source nonattainment permit regulation at 20.2.79 NMAC. The amount of certain air pollutants may not exceed "ambient air quality standards" which are health-based standards for certain types of air pollutants. A nonattainment area is an area of the state where the amount of a pollutant is exceeding the ambient air quality standard. In a nonattainment area, a nonattainment permit may be required for a facility. Nonattainment permits can apply regardless if an area of the state is designated as a nonattainment are or an attainment/unclassifiable area, since it is based on either a monitored or computer modeled nonattainment and federal regulation requires nonattainment permits for sources that cause or contribute to nonattainment in designated attainment/unclassifiable areas.
2.82	MACT Standards for Source Categories of HAPs	Yes	See sources 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.
2.84	Acid Rain Permits	No		Four Peaks is not subject to Acid Rain Permit requirements since it's total electric output is less than 25 MW per year.

10.0 Federal Regulatory Analysis for Four Peaks Energy LLC facility:

Federal Regulation	Title	Applies (Y/N)	Unit(s) or Facility	Comments
Air Programs Subchapter C (40 CFR 50)	National Primary and Secondary Ambient Air Quality Standards	Yes	Entire Facility	Applies to all facilities of air pollutants of a certain amount for which there is a Federal Ambient Air Quality Standard.
NSPS Subpart A (40 CFR 60)	General Provisions	No		Subpart A applies if any other subpart applies.
40 CFR Part 60 Subpart JJJJ (Quad -J)	Standards of Performance for Stationary Spark. Ignition Internal Combustion	No		Four Peaks Engines E1 and E2 were constructed, or ordered, before June 12, 2006 (60.4230(a)((d)) therefore, this regulation does not apply.

Federal Regulation	Title	Applies (Y/N)	Unit(s) or Facility	Comments
	Engines			The provisions of this subpart owners and operators of stationary spark ignition (SI) internal combustion engines (ICE) as specified in paragraphs (a)(1) through (5) of section 60.4230. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.
40 CFR 60 Subpart Cf	NSPS—Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills	Yes, once plan approved by EPA	Landfill Gas fuel pre-treatment system	This applies to the Camino Real Landfill, therefore the **Four Peaks landfill gas pre-treatment system will be subject to 40 CFR 60.33f (c)(3) and (4)** since they use the landfill gas for beneficial use. EPA's stay of the requirements in NSPS Cf ended August 29, 2017. The AQB submitted the state plan to EPA as required by NSPS Cf, but EPA is reconsidering this regulation and so has put all plan reviews and approvals on hold. The gas pre-treatment system will continue to meet the requirements of NSPS WWW until the State Plan required by NSPS Cf is approved by EPA.

60.33f (c)(1) and (2) Control system. For approval, a state plan must include provisions for the control of the gas collected from within the landfill through the use of control devices meeting the following requirements, except as provided in §60.24.
(1) A non-enclosed flare ….; or (2) A control system designed and operated to reduce NMOC by 98 weight percent. ….

60.33f(c)(3) Route the collected gas to a treatment system that processes the collected gas for subsequent sale or beneficial use such as fuel for combustion, production of vehicle fuel, production of high-Btu gas for pipeline injection, or use as a raw material in a chemical manufacturing process. Venting of treated landfill gas to the ambient air is not allowed. If the treated landfill gas cannot be routed for subsequent sale or beneficial use, then the treated landfill gas must be controlled according to either paragraph (c) (1) or (2) of this section. **[There is no bypass valve associated with Four Peak's fuel pre-treatment system so there should be no direct venting of the LFG to the atmosphere by Four Peaks. This also applies to Camino Real Landfill if they have bypass valves within the piping the routes gas to Four Peaks. The pre-treatment system layout in the application shows a bypass valve upstream of the analyzer. However, this is not a bypass valve.** Per the permittee, the valve connects the outlet of the treatment skid to the inlet (vacuum) side of the blower. There's no way for it to be used to bypass the treatment skid unless it was on the outlet (pressure) side of the blower. That valve opens during the short period during facility startup when the blower is online but the engines haven't started yet. It allows the blower to circulate gas instead of trying to pressurize the fuel piping. This prevents damage to the blower.**]**

Commented [CH2]: NSPS WWW and Cf includes additional regulatory citations and AQB notes.

Please verify that the listed requirements that apply to Four Peaks is correct.

I do not see any requirements in Cf for SSM emissions or plan.

60.33f(c)(4) All emissions from any atmospheric vent from the gas treatment system are subject to the requirements of paragraph (b) or (c) of this section. For purposes of this subpart, atmospheric vents located on the condensate storage tank are not part of the treatment system and are exempt from the requirements of paragraph (b) or (c) of this section. **[There is no bypass valve associated with Four Peak's fuel pre-treatment system, so there should be no directing venting of the LFG to the atmosphere by Four Peaks. This also applies to Camino Real Landfill if they have bypass valves within the piping that routes gas to Four Peaks.]**

Federal Regulation	Title	Applies (Y/N)	Unit(s) or Facility	Comments

60.41f definitions *Treatment system* means a system that filters, de-waters, and compresses landfill gas for sale or beneficial use.

The site-specific monitoring plan applies to Four Peaks and must be made available to Camino Real Landfill so that they may meet the requirements of NSPS Cf as the owner/operator of the landfill.
60.39f(b)(5)(ii) Site-specific treatment monitoring plan, to include [applies to Four Peaks]:
(A) Monitoring records of parameters that are identified in the treatment system monitoring plan and that ensure the treatment system is operating properly for each intended end use of the treated landfill gas. At a minimum, records should include records of filtration, de-watering, and compression parameters that ensure the treatment system is operating properly for each intended end use of the treated landfill gas.
(B) Monitoring methods, frequencies, and operating ranges for each monitored operating parameter based on manufacturer's recommendations or engineering analysis for each intended end use of the treated landfill gas.
(C) Documentation of the monitoring methods and ranges, along with justification for their use.
(D) Identify who is responsible (by job title) for data collection.
(E) Processes and methods used to collect the necessary data.
(F) Description of the procedures and methods that are used for quality assurance, maintenance, and repair of all continuous monitoring systems.

NSPS Cf has no SSM requirements for pre-treatment systems except if LFG is vented through a bypass valve. Since Four Peaks has no bypass valve, no records or reports should be generator by Four Peaks. However, the Camino Real Landfill is subject to any SSM requirements, including any bypass valve venting.

[The following requirements apply to the owner/operator of Camino Real Landfill. However, the permittee of the Four Peaks Energy LLC facility must ensure that the following records are kept and made available to AQB and to Camino Real Landfill as the owner/operator of the Landfill subject to these requirements.]

Records 60.39f(b)(5) Where an owner or operator **[of a landfill]** subject to the provisions of this subpart seeks to demonstrate compliance with §60.33f(c)(3) through use of a landfill gas treatment system:
(i) Bypass records. Records of the flow of landfill gas to, and bypass of, the treatment system. **[There is no bypass valve with the Four Peaks LFG treatment system. This also applies to Camino Real Landfill if they have bypass valves within the piping that routes gas to Four Peaks.]**

§60.38f Reporting guidelines
(d) *Collection and control system design plan……*:(7) **If the owner or operator [of the landfill] chooses to demonstrate compliance** with the emission control requirements of this subpart **using a treatment system** as defined in this subpart, then the **owner or operator must prepare a site-specific treatment system monitoring plan** as specified in §60.39f(b)(5). **[Four Peaks will prepare and operate the treatment system per a monitoring plan per 60.39f(b)(5)(ii) and must make the information available to Camino Real Landfill so that they can meet reporting required by the 60.38f(d)(7).]**

§60.36f Compliance provisions. 60.36f (e)The provisions of this subpart apply at all times, including periods of startup, shutdown, or malfunction. During periods of startup, shutdown, and malfunction, you must comply with the work practice specified in §60.34f(e) in lieu of the compliance provisions in §60.36f. **[there are no operational standards for pre-treatment systems at 60.34f(e).]**
§60.34f Operational standards for collection and control systems. (e) Operate the system such that all collected gases are vented to a control system designed and operated in compliance with §60.33f(c)…… **[there are no operational standards in this section for LFG treatment systems]**

Federal Regulation	Title	Applies (Y/N)	Unit(s) or Facility	Comments
§60.37f Monitoring of operations. (g) Each **owner or operator [of the landfill]** seeking to demonstrate compliance with the control system requirements in §60.33f(c) using a landfill gas treatment system must maintain and operate all monitoring systems associated with the treatment system in accordance with the site-specific treatment system monitoring plan required in §60.39f(b)(5)(ii) **[Four Peaks will maintain and meet the requirements of this monitoring plan]** and **[the landfill owner/operator]** must calibrate, maintain, and operate according to the manufacturer's specifications a device that records flow to the **[Four Peaks]** treatment system and bypass of the treatment system **[by Camino Real]** (if applicable). The owner or operator **[of the landfill]** must: (1) Install, calibrate, and maintain a gas flow rate measuring device that records the flow to the treatment system at least every 15 minutes; and **(2) [the landfill owner/operator must] Secure the bypass line** valve in the closed position with a car-seal or a lock-and-key type configuration. A visual inspection of the seal or closure mechanism must be performed at least once every month to ensure that the valve is maintained in the closed position and that the gas flow is not diverted through the bypass line. (h) The monitoring requirements of paragraphs (b), (c) (d) and (g) of this section apply at all times the affected source is operating, except for periods of monitoring system malfunctions, repairs associated with monitoring system malfunctions, and required monitoring system quality assurance or quality control activities. A monitoring system malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring system failures that are caused in part by poor maintenance or careless operation are not malfunctions. You are required to complete monitoring system repairs in response to monitoring system malfunctions and to return the monitoring system to operation as expeditiously as practicable. **[This applies to Camino Real monitoring system of gas routed to Four Peaks LFG treatment system.]**				
40 CFR 60 WWW	NSPS- Standards of Performance for Municipal Waste Solid Landfills	Yes	Landfill Gas fuel pre-treatment system	**Four Peaks' LFG pretreatment system is subject to the control device requirements at 60.752(b)(2)(iii)(C).** The LFG is sent to a gas treatment system that uses chilling, filtering, dewatering, and compression to treat the gas. Once the gas is treated in this fashion, no additional requirements apply except that not gas may be vented directly to the atmosphere but must be combusted. The permittee states that this facility has no valves that would allow direct venting of the gas to the atmosphere.
60.752(b)(2)(iii) Route all the collected gas to a control system that complies with the requirements in either paragraph (b)(2)(iii) (A), (B) or **(C)** of this section. (A) An open flare …; or (B) A control system designed and operated to reduce NMOC by 98 weight-percent, or, when an enclosed combustion device is used for control, to either reduce NMOC by 98 weight percent or reduce the outlet NMOC concentration to less than 20 parts per million by volume….. or **(C) Route the collected gas to a treatment system that processes the collected gas for subsequent sale or use. All emissions from any atmospheric vent from the gas treatment system shall be subject to the requirements of paragraph (b)(2)(iii) (A) or (B) of this section. [There is no bypass valve associated with Four Peak's fuel pre-treatment system so there should be no direct venting of the LFG to the atmosphere by Four Peaks. This also applies to Camino Real Landfill if they have bypass valves within the piping the routes gas to Four Peaks. The pre-treatment system layout in the application shows a bypass valve upstream of the analyzer. However, this is not a bypass valve.** Per the permittee, the valve connects the outlet of the treatment skid to the inlet (vacuum) side of the blower. There's no way for it to be used to bypass the treatment skid unless it was on the outlet (pressure) side of the blower. That valve opens during the short period during facility startup when the blower is online but the engines haven't started yet. It allows the blower to circulate gas instead of trying to pressurize the fuel piping. This prevents damage to the blower.**]**				

Federal Regulation	Title	Applies (Y/N)	Unit(s) or Facility	Comments
[There are no records required under 60.752(b)(2) in NSPS WWW for a gas pre-treatment that is used to control landfill gas. However, the Landfill owner has recordkeeping requirements in 60.752.] **Startup, Shutdown, and Excess emissions:** 40 CFR 60, Subpart WWW includes requirements for treatment systems of landfill gas **at 40 CFR 60.755(e) which states that duration of a start-up, shutdown, or malfunction shall not exceed 1 hour for treatment devices**. **[All other SSM requirements apply to the owner/operator of the Camino Real landfill gas collection system and landfill gas flare and are not requirements for this permittee.]** **60.755 Compliance Provisions** (a) gas collection compliance with §60.752(b)(2)(ii). (b) owner or operator of a controlled landfill shall place each well or design component….(c) compliance with the surface methane operational standard (d) surface emission monitoring devices.. **(e)** The **provisions of this subpart [60.755] apply at all times, except during periods of start-up, shutdown, or malfunction, provided that the duration of start-up, shutdown, or malfunction** shall not exceed 5 days for collection systems **shall not exceed 1 hour for treatment** or control **devices**. 60.755 (f) does not apply to Four Peaks since these requirements apply to controls per 60.752(b)(2) and not to fuel pre-treatment systems. …. For enclosed combustion devices and flares, reportable exceedances are defined under §60.758(c) **[the control is a pre-treatment system, not a combustion device or flare. Therefore reportable exceedances at 60.758(c) do not apply].** **[There are no monitoring requirements in NSPS WWW for LFG treatment systems.]** **§60.757 Reporting requirements. [does not apply to LFGTE fuel pre-treatment systems.]** (a) initial design capacity. (b) NMOC emission rate. (c) collection control system design plan. (d) closure report. (e) control equipment removal. 60.757 (f) does not apply to Four Peaks since this applies to controls per 60.752(b)(2). **this applies to landfill owner/operator not to the LFGTE permittee since the fuel pre-treatment system falls under 60.752(b)(3)…..** **§60.758 Recordkeeping requirements.** 60.758 (c) **[Does not apply to Four Peaks since this applies to the owner/operator of the Landfill.]** Some records will need to be obtained from Four Peaks ….each **owner or operator of a controlled landfill subject to the provisions of this subpart** shall keep for 5 years up-to-date….				
40 CFR 60 Subpart XXX	NSPS – Standards of Performance for Municipal Waste Solid Landfills	No		The Camino Real Landfill, from which Four Peaks obtains their landfill gas fuel, is subject to NSPS WWW and, once approve to NSPS Cf. Therefore, the Four Peaks landfill gas pretreatment system is not subject to NSPS XXX.
MACT Subpart A (40 CFR 63)	General Provisions	Yes	See sources subject to a Subpart in 40 CFR 63	Applies if any other subpart applies.
40 CFR 63	National Emissions	Yes	E1 and E2	The Four Peaks engines were constructed before

Federal Regulation	Title	Applies (Y/N)	Unit(s) or Facility	Comments
Subpart ZZZZ (Quad Z)	Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE MACT)			June 2006, are 2242 hp each, are lean burn four stroke engines, at a HAP area facility. Per 63.6590(a)(1)(iii) the engines are existing engines since the engines were constructed, or commenced construction, before June 12, 2006 at an area source (not a major source) of HAPs emissions.

Must meet emissions standards at 63.6603(a)Table 2.d.13 If you own or operate an existing stationary RICE located at an area source of HAP emissions, you must comply with the requirements in Table 2d to this subpart and the operating limitations in Table 2b to this subpart that apply to you. No requirements apply from Table 2b.

Commented [CH3]: Additional regulatory requirements were added. Such as SSM requirements.

Table 2d.13 applies Table 2d **to Subpart ZZZZ of Part 63—Requirements for Existing Stationary RICE Located at Area Sources of HAP Emissions** As stated in §§63.6603 and 63.6640, you **must comply with the following requirements for existing stationary RICE located at area sources of HAP emissions:**

13. Non-emergency, non-black start stationary RICE which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis a. Change oil and filter every 1,440 hours of operation or annually, whichever comes first;[1] b. Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first, and replace as necessary; and c. Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.
Footnote 1 to Table 2.d [1]Sources have the option to utilize an oil analysis program as described in §63.6625(i) or (j) in order to extend the specified oil change requirement in Table 2d of this subpart.

§63.6625 What are my monitoring, installation, collection, operation, and maintenance requirements

(c) If you are operating a new or reconstructed stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, **you must monitor and record your fuel usage daily with separate fuel meters to measure the volumetric flow rate of each fuel**. In addition, you must operate your stationary RICE in a manner which reasonably **minimizes HAP emissions**.

[SSM Requirements] (h) If you operate a new, reconstructed, or existing stationary engine, you **must minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes,** after which time the emission standards applicable to all times other than startup in Tables 1a, 2a, 2c, and 2d to this subpart apply.

(j) If you own or operate a stationary SI engine that is subject to the work, operation or management practices in items 6, 7, or 8 of Table 2c to this subpart **or in items 5, 6, 7, 9, or 11 of Table 2d to this subpart**, you have the option of utilizing an oil analysis program in order to extend the specified oil change requirement in Tables 2c and 2d to this subpart. The oil analysis must be performed at the same frequency specified for changing the oil in Table 2c or 2d to this subpart. The analysis program must at a minimum analyze the following three parameters: Total Acid Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Acid Number increases by more than 3.0 milligrams of potassium hydroxide (KOH) per gram from Total Acid Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the engine owner or operator is not required to change the oil. If any of the limits are exceeded, the engine owner or operator must change the oil within 2 business days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil within 2 business days or before commencing operation,

Commented [CH4]: Footnote 1 to Table 2.d indicates that this alternative oil sample plan is allowed. However, this regulation does not list item 13 from Table 2.d.

I though you said that you wanted to use this alternative monitoring, but do you know if the alternative oil monitoring can be used since it is not listed in both 63.6625 and Table 2.d?

<table>
<tr><th>Federal Regulation</th><th>Title</th><th>Applies (Y/N)</th><th>Unit(s) or Facility</th><th>Comments</th></tr>
<tr><td colspan="5">whichever is later. The owner or operator must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine.</td></tr>
<tr><td colspan="5">TABLE 6 TO SUBPART ZZZZ OF PART 63—CONTINUOUS COMPLIANCE WITH EMISSION LIMITATIONS, AND OTHER REQUIREMENTS
9. Existing ……non-emergency stationary SI RICE located at an area source of HAP which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, …a. Work or Management practices (i) Operating and maintaining the stationary RICE according to the manufacturer's emission-related operation and maintenance instructions; or ii. Develop and follow your own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.

Table 7 to Subpart ZZZZ of Part 63—Requirements for Reports As stated in §63.6650, you must comply with the following requirements for reports:

<table>
<tr><th>For each . . .</th><th>You must submit a . . .</th><th>The report must contain . . .</th><th>You must submit the report . . .</th></tr>
<tr><td>2. New or reconstructed non-emergency stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis</td><td>Report</td><td>a. The fuel flow rate of each fuel and the heating values that were used in your calculations, and you must demonstrate that the percentage of heat input provided by landfill gas or digester gas, is equivalent to 10 percent or more of the gross heat input on an annual basis; and</td><td>i. Annually, according to the requirements in §63.6650.</td></tr>
<tr><td></td><td></td><td>b. The operating limits provided in your federally enforceable permit, and any deviations from these limits; and</td><td>i. See item 2.a.i. [annually]</td></tr>
<tr><td></td><td></td><td>c. Any problems or errors suspected with the meters.</td><td>i. See item 2.a.i. [annually]</td></tr>
</table>
§63.6605 What are my general requirements for complying with this subpart? (a) You must be in compliance with the emission limitations, operating limitations, and other requirements in this subpart that apply to you at all times.

(b) At all times you must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require you to make any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.</td></tr>
<tr><td>40 CFR 63 Subpart AAAA</td><td>National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills</td><td>No</td><td></td><td>No requirements under 40 CFR 60, Subpart AAAA apply to the Four Peaks Energy LLC facility.

Four Peaks is not subject, however the Landfill that</td></tr>
</table>

Federal Regulation	Title	Applies (Y/N)	Unit(s) or Facility	Comments
				is operated by a separate entity, the Camino Real Environmental Center, is subject to provisions of this subpart and meets the requirements by meeting NSPS WWW or Cf.
40 CFR 68	Chemical Accident Prevention	No		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, 68 The Four Peaks facility does not have more than a threshold quantity of a regulated substance in a process, as determined under §68.115 Threshold determination and 68.130.
40 CFR 72	Title IV – Acid Rain	No		The Four Peaks facility is not subject to Acid Rain Permit under the New unit exemption. A new unit is defined as a unit that commences commercial operation on or after November 15, 1990, including any such unit that serves a generator with a nameplate capacity of 25 MWe or less or that is a simple combustion turbine.
40 CFR 82	Protection of Stratospheric Ozone	No		This Four Peaks facility does not process, store, or accept waste with ozone depleting substances subject to this regulation.

11.0 **Minor NSR Exempt Equipment and Activities**
None were reported for this facility.

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

Commented [CH5]: Explanations for conditions was just added.

A100.A Introduction: This permit, NSR 3275-M2, supersedes all portions of Air Quality Permit NSR 3275M1R1 issued 12-28-2006~~, except portions requiring compliance tests. Compliance test conditions from previous permits, if not completed, are still in effect, in addition to compliance test requirements contained in this permit~~. Deleted the language regarding previous compliance tests. The tests in the previous permit would no longer apply to the new operating scenario. Therefore, the permittee requested this language be removed.

A105.A The landfill gas fuel pre-treatment system is considered a control device pursuant to 40 CFR 60, Subparts WWW and Cf. Combustion of the gas is not required. Therefore, Four Peaks Energy LLC is subject to 60.752(b)(2)(iii)(C) in NSPS WWW and 60.33f(c)(3) and (4) in NSPS Cf.

A106.B & A601.A Engine units E1 and E2 are subject to maintenance emissions standards in 40 CFR 63, Subpart ZZZZ as new stationary engines that use landfill gas as fuel. The regulation requires some specific maintenance on the engines. The Permittee normally complete regular maintenance on engines in addition to what is listed in the regulation. MACT ZZZZ also requires the permittee to monitor and record fuel usage daily with separate fuel meters for each

engine to measure the volumetric flow rate of each of their fuel usage.

A107.A The permittee must report excess emissions per 20.2.7 NMAC if any emissions ever exceed current limits. There are no higher emission rates during startup and shutdown, and according to the permittee, the landfill gas cannot be vented directly to the atmosphere. Therefore, no higher limits are needed. The permittee is subject to the SSM plan requirements at 20.2.7.14 NMAC.

A111.A 20.2.61 NMAC Engine Stack Opacity Requirements. The regulation limits combustion emissions stacks to less than a 20% opacity. Per the permittee, landfill gas (LFG) should not produce visible emissions in the same manner as natural gas fueled engines. Therefore, the condition was written to require visible emissions observations only when visible emissions are seen.
The condition allows the permittee three options to comply.

1. Look for visible emissions using EPA Method 22. Trying to comply with zero visible emission, or zero opacity, is more stringent the 20% opacity limit and the test does not require certification.
2. 20.2.61.114 NMAC requires EPA Method 9 Opacity measurements, or other method approved by the Department, which requires the tester be certified every six months. However, only Method 9 can measure opacity.
3. If visible emissions are seen, with or without either test, the operator has the option to shut down the engine to maintain/repair and mitigate visible emissions. After maintenance or repair a visible emissions and/or opacity measurement is required.

A 10-minute opacity measurement for method 9 is required by the regulation 20.2.61 NMAC.
Method 22 doesn't say how long to do observations. 12 minutes comes from a minimum of 24 observations of 15 seconds each which equals 6 minutes, then multiply by 2 to get at least 10 minutes of measurements per 20.2.61 NMAC.

A601.B Periodic Emissions Tests on E1 and E2 emissions stacks. NOx and CO emissions must be measured at the emissions stack at least one every calendar year and compared to any required NOx or CO emission limit in the permit. The required frequency is met as long as each testing event falls within a different calendar year and are completed at least 3 months apart.

A601.C Initial compliance tests on emission stacks are required for engines E1 and E2 for NOx, CO, and VOCs using EPA reference methods. This is required since the emission limits changed and need to be verified and previous test reports may not be correct.

Time is needed for the LFG to level off once the gas collection and control system upgrades are complete and the engines require maintenance and repair once they start operating on the new level of LFG. Therefore, the condition includes time to complete the compliance tests.

A602.A Landfill Gas (LFG) Pre-Treatment system requirements in **40 CFR 60, Subparts WWW and Cf.**

A602.B LFG Fuel Sulfur Limit – The total reduced sulfur in the LFG is limited to 234.5 ppmv which is the value used to calculate SO2 emission limits.

A602.C LFG Fuel Monitoring – Fuel pre-treatment systems for landfill gas to energy projects are equipped with monitors, that measure the fuel flow rate and methane concentration or heat rate of the fuel and other parameters. For efficient combustions, these systems automatically adjust the fuel flow rate as methane content changes. The systems also monitor and record parameters such as oxygen content for safety reasons or to mitigate potential damage to the engines. Under certain circumstances, Four Peaks will notify the landfill of any issues or shut out the LFG from the engines. Contaminants such as siloxane are not monitored, but instead engine parts are replaced if there is siloxane buildup.

13.0 **Permit writer's notes**

Emissions Estimates Summary from Caterpillar Engines:
The permit writer, Cember Hardison, verified all emission rates and assumptions used in calculations for these units and compared it to the reported gas flow rate and composition reported by the Camino Real Landfill.

The only emission sources from the Four Peaks Energy LLC are combustion emissions from the engine exhaust stacks and the Landfill Gas bypass valve upstream of the bypass

NOx, SO, TSP, PM10, PM2.5 were calculated using AP-42 emission factors from Table 2.4-5 Municipal Solid Waste Landfill - Control Devices, a landfill gas flow rate of 550 cfm per engine, and 50% methane content per the AP42. 50% methane is also the amount reflected in the Tier 2 test results of the landfill gas in 1999. SO2 emissions were based on a total sulfur concentration of **234.5 ppmv**.

CO emissions were calculated using the Caterpillar 3520C emission factors and VOC emission rates used a 1 g/hp-hr value which is slightly higher than the Caterpillar guaranteed emission rates. The permit writer also calculated the CO emission rates at 3 different loads, 100%, 75% and 50% to ensure that higher CO emission rates did not occur at lower loads. CO emissions are sometimes higher at lower loads, due to less efficient combustion of gas.

Methane Content and Flow Rate for Efficient Operation
The methane content of LFG can vary. To operate efficiently, these engines require at least 500 cfm of gas flow with at least 50% methane.

40 CFR 60, Subparts WWW and Cf consider Landfill Gas (LFG) Pre-Treatment a Control Device
Per 60.752(b)(2)(iii)(C) and 60.33f(c)(3) and (4) a LFG pre-treatment system that treats the gas to the extent that it can be sold or used (such as fuel to generate electric power) is an approved control device for treating LFG from a Landfill Gas Collection and Control System (GCCS). No additional emissions standards from NSPS WWW apply, such as the 98.0% destruction efficiency required for open flares. Also required under this provision is that no LFG may be vented directly to the atmosphere, for example through a bypass value. If gas is vented, it must be combusted to reduce its NMOC content.

Landfill Gas (LFG) Pre-treatment System, Fuel Flow Monitoring, and Fuel CH4 monitoring:
Four Peaks LFG pre-treatment system removes water and particulates from raw landfill gas before sending it to the generator engines as fuel. The constituents of LFG will vary depending on the characteristics of a landfill, therefore the components and design of LFG pre-treatment systems also vary.

To follow is a description from the applicant's explanation of the Four Peaks Energy Facility LFG pre-treatment system:

- The first step upon [the raw landfill gas] entering our treatment skid will be to filter the gas through a 10-micron filter. This step will also allow free liquids to fall out of the gas.
- Step 2 is compression in our LFG blower. The compressed gas exits the blower at high temperatures and passes straight through the economizer, where it loses some heat to cooler gas from later in the process.
- The gas enters step 3 which is to split between two radiator-style gas coolers.
- After being cooled, the gas is in step 4 where it passes through a coalescing filter where a majority of the dewatering takes place.
- The gas then is routed through the economizer again where it is heated slightly by the hot gas coming out of the blower (this prevents liquid from forming due to additional cooling after step 3. Also note that the two gas streams do not mix in the economizer, it's a heat exchanger).
- Finally, the gas content is measured by an analyzer [that measures CH4, CO2, and O2 in the treated Landfill gas] and the flow is measured before it is sent to the energy facility.