NMED AIR QUALITY
TITLE V RENEWAL APPLICATION
PUBLIC SERVICE COMPANY OF NEW MEXICO
LA LUZ ENERGY CENTER

Prepared By:

Adam Erenstein – Manager of Consulting Services

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February 2022

Project 223201.0010

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February 11, 2022

Permit Programs Manager
NMED Air Quality Bureau
525 Camino de los Marquez Suite 1
Santa Fe, NM 87505-1816

Title V Operating Permit Renewal Application
Public Service Company of New Mexico: La Luz Energy Center

Permit Programs Manager:

On behalf of Public Service Company of New Mexico (PNM), we are submitting an application for a Title V operating permit renewal (pursuant 20.2.70.300.B.(2) NMAC) for the La Luz Energy Center. The facility is currently permitted under NSR permit No. 5041M1 and Title V permit No. P-263.

The format and content of this application are consistent with the Bureau's current policy regarding Title V operating permit renewal applications; it is a complete application package using the most current application form.

Enclosed is a hard copy of the application, including the original certification and two disks containing the electronic files. Please feel free to contact either myself at (505) 266-6611 or by email at aerenstein@trinityconsultants.com if you have any questions regarding this application. Alternatively, you may contact Robin DeLapp for PNM, at (505) 241-2016 or by email at robin.delapp@pnmresources.com.

Sincerely,

Adam Erenstein
Manager of Consulting Services

Cc: Robin DeLapp (PNM)
Trinity Project File 223201.0010

Mail Application To:		**For Department use only:**
New Mexico Environment Department Air Quality Bureau Permits Section 525 Camino de los Marquez, Suite 1 Santa Fe, New Mexico, 87505 Phone: (505) 476-4300 Fax: (505) 476-4375 www.env.nm.gov/aqb		RECEIVED FEB 14 2022 Air Quality Bureau AIRS No.:

Universal Air Quality Permit Application

Use this application for NOI, NSR, or Title V sources.

Use this application for: the initial application, modifications, technical revisions, and renewals. For technical revisions, complete Sections, 1-A, 1-B, 2-E, 3, 9 and any other sections that are relevant to the requested action; coordination with the Air Quality Bureau permit staff prior to submittal is encouraged to clarify submittal requirements and to determine if more or less than these sections of the application are needed. Use this application for streamline permits as well. See Section 1-I for submittal instructions for other permits.

This application is submitted as (check all that apply): ☐ Request for a No Permit Required Determination (no fee)
☐ **Updating** an application currently under NMED review. Include this page and all pages that are being updated (no fee required).
Construction Status: ☐ Not Constructed ☑ Existing Permitted (or NOI) Facility ☐ Existing Non-permitted (or NOI) Facility
Minor Source: ☐ a NOI 20.2.73 NMAC ☐ 20.2.72 NMAC application or revision ☐ 20.2.72.300 NMAC Streamline application
Title V Source: ☐ Title V (new) ☑ Title V renewal ☐ TV minor mod. ☐ TV significant mod. TV Acid Rain: ☐ New ☐ Renewal
PSD Major Source: ☐ PSD major source (new) ☐ minor modification to a PSD source ☐ a PSD major modification

Acknowledgements:
☑ I acknowledge that a pre-application meeting is available to me upon request. ☑ Title V Operating, Title IV Acid Rain, and NPR applications have no fees.
☐ $500 NSR application Filing Fee enclosed OR ☐ The full permit fee associated with 10 fee points (required w/ streamline applications).
☐ Check No.: in the amount of
☑ I acknowledge the required submittal format for the hard copy application is printed double sided 'head-to-toe', 2-hole punched (except the Sect. 2 landscape tables is printed 'head-to-head'), numbered tab separators. Incl. a copy of the check on a separate page.
☐ I acknowledge there is an annual fee for permits in addition to the permit review fee: www.env.nm.gov/air-quality/permit-fees-2/.
☐ This facility qualifies for the small business fee reduction per 20.2.75.11.C. NMAC. The full $500.00 filing fee is included with this application and I understand the fee reduction will be calculated in the balance due invoice. The Small Business Certification Form has been previously submitted or is included with this application. (Small Business Environmental Assistance Program Information: www.env.nm.gov/air-quality/small-biz-eap-2/.)

Citation: Please provide the **low level citation** under which this application is being submitted: **20.2.70.300.B.(2) NMAC**
(e.g. application for a new minor source would be 20.2.72.200.A NMAC, one example for a Technical Permit Revision is 20.2.72.219.B.1.b NMAC, a Title V acid rain application would be: 20.2.70.200.C NMAC)

Section 1 – Facility Information

Section 1-A: Company Information

		AI # if known (see 1st 3 to 5 #s of permit IDEA ID No.): 32274	Updating Permit/NOI #: P-263
1	Facility Name: La Luz Energy Center	Plant primary SIC Code (4 digits): 4911	
		Plant NAIC code (6 digits): 221112	
a	Facility Street Address (If no facility street address, provide directions from a prominent landmark): 3.9 miles southwest of the intersection of State Route 314 and 309 in the City of Belen in Valencia County		
2	Phone/Fax: (505) 241-2016 / (505) 241-2384	Phone/Fax: (505) 241-2016 / (505) 241-2384	
a	Plant Operator Address: 2401 Aztec Road, NE, MS Z100 Albuquerque, NM 87107		

b	Plant Operator's New Mexico Corporate ID or Tax ID: 85-0019030	
3	Plant Owner(s) name(s): Public Service Company of New Mexico	Phone/Fax: (505) 241-2016 / (505) 241-2384
a	Plant Owner(s) Mailing Address(s): 2401 Aztec Road, NE, MS Z100 Albuquerque, NM 87107	
4	Bill To (Company): Public Service Company of New Mexico	Phone/Fax: (505) 241-2016 / (505) 241-2384
a	Mailing Address: 2401 Aztec Road, NE, MS Z100 Albuquerque, NM 87107	E-mail: Robin.DeLapp@pnmresources.com
5	☑ Preparer: Trinity Consultants, Inc. ☑ Consultant: Adam Erenstein	Phone/Fax: 505-266-6611 / N/A
a	Mailing Address: 9400 Holly Ave NE, Bldg 3, Suite 300, Albuquerque, NM 87122	E-mail: aerenstein@trinityconsultants.com
6	Plant Operator Contact: Robin DeLapp	Phone/Fax: (505) 241-2016 / (505) 241-2384
a	Address: 2401 Aztec Road, NE, MS Z100 Albuquerque, NM 87107	E-mail: Robin.DeLapp@pnmresources.com
7	Air Permit Contact: Robin DeLapp	Title: Technical Project Manager
a	E-mail: Robin.DeLapp@pnmresources.com	Phone/Fax: (505) 241-2016 / (505) 241-2384
b	Mailing Address: 2401 Aztec Road, NE, MS Z100 Albuquerque, NM 87107	
c	The designated Air permit Contact will receive all official correspondence (i.e. letters, permits) from the Air Quality Bureau.	

Section 1-B: Current Facility Status

1.a	Has this facility already been constructed? ☑ Yes ☐ No	1.b If yes to question 1.a, is it currently operating in New Mexico? ☑ Yes ☐ No
2	If yes to question 1.a, was the existing facility subject to a Notice of Intent (NOI) (20.2.73 NMAC) before submittal of this application? ☐ Yes ☑ No	If yes to question 1.a, was the existing facility subject to a construction permit (20.2.72 NMAC) before submittal of this application? ☑ Yes ☐ No
3	Is the facility currently shut down? ☐ Yes ☑ No	If yes, give month and year of shut down (MM/YY): N/A
4	Was this facility constructed before 8/31/1972 and continuously operated since 1972? ☐ Yes ☑ No	
5	If Yes to question 3, has this facility been modified (see 20.2.72.7.P NMAC) or the capacity increased since 8/31/1972? ☐Yes ☑No ☐N/A	
6	Does this facility have a Title V operating permit (20.2.70 NMAC)? ☑ Yes ☐ No	If yes, the permit No. is: P-263
7	Has this facility been issued a No Permit Required (NPR)? ☐ Yes ☑ No	If yes, the NPR No. is: N/A
8	Has this facility been issued a Notice of Intent (NOI)? ☐ Yes ☑ No	If yes, the NOI No. is: N/A
9	Does this facility have a construction permit (20.2.72/20.2.74 NMAC)? ☑ Yes ☐ No	If yes, the permit No. is: 5041-M1
10	Is this facility registered under a General permit (GCP-1, GCP-2, etc.)? ☐ Yes ☑ No	If yes, the register No. is: N/A

Section 1-C: Facility Input Capacity & Production Rate

1	What is the facility's maximum input capacity, specify units (reference here and list capacities in Section 20, if more room is required)			
a	Current	Hourly: 791 MMBtu	Daily: 18,984 MMBtu	Annually: 6,929,160 MMBtu
b	Proposed	Hourly: 791 MMBtu	Daily: 18,984 MMBtu	Annually: 6,929,160 MMBtu
2	What is the facility's maximum production rate, specify units (reference here and list capacities in Section 20, if more room is required)			
a	Current	Hourly: 84 MW	Daily: 84 MW	Annually: 84 MW

b	Proposed	Hourly: 84 MW	Daily: 84 MW	Annually: 84 MW

Section 1-D: Facility Location Information

1	Section: 35	Range: 1E	Township: 5N	County: Valencia	Elevation (ft): 5,175
2	UTM Zone: ☐ 12 or ☑ 13			Datum: ☐ NAD 27 ☐ NAD 83 ☑ WGS 84	
a	UTM E (in meters, to nearest 10 meters): 333,600 m E			UTM N (in meters, to nearest 10 meters): 3,831,980 m N	
b	**AND** Latitude (deg., min., sec.): 34°,36',58.3"N			Longitude (deg., min., sec.): 106°,48',54.0"W	
3	Name and zip code of nearest New Mexico town: Belen 87002				
4	Detailed Driving Instructions from nearest NM town (attach a road map if necessary): From the intersection of I-25 and Camino Del Llano (exit 191), go west along Camino Del Llano 1.5 miles, turn left (south) onto Harrison Rd. Continue on Harrison Rd 2.2 miles, turn left (east) towards existing substation along unnamed dirt road 0.2 miles to gate.				
5	The facility is 3.9 miles southwest of Belen, NM.				
6	Status of land at facility (check one): ☑ Private ☐ Indian/Pueblo ☐ Federal BLM ☐ Federal Forest Service ☐ Other (specify)				
7	List all municipalities, Indian tribes, and counties within a ten (10) mile radius (20.2.72.203.B.2 NMAC) of the property on which the facility is proposed to be constructed or operated: Municipalities: Belen, Counties: Valencia County, Socorro County, Tribes: None.				
8	**20.2.72** NMAC applications **only**: Will the property on which the facility is proposed to be constructed or operated be closer than 50 km (31 miles) to other states, Bernalillo County, or a Class I area (see www.env.nm.gov/aqb/modeling/class1areas.html)? ☑ Yes ☐ No (20.2.72.206.A.7 NMAC) If yes, list all with corresponding distances in kilometers: Bernalillo County, 17.6 miles (28.3 km)				
9	Name nearest Class I area: Bosque del Apache				
10	Shortest distance (in km) from facility boundary to the boundary of the nearest Class I area (to the nearest 10 meters): 82.50 km				
11	Distance (meters) from the perimeter of the Area of Operations (AO is defined as the plant site inclusive of all disturbed lands, including mining overburden removal areas) to nearest residence, school or occupied structure: 200 meters				
12	Method(s) used to delineate the Restricted Area: "**Restricted Area**" is an area to which public entry is effectively precluded. Effective barriers include continuous fencing, continuous walls, or other continuous barriers approved by the Department, such as rugged physical terrain with steep grade that would require special equipment to traverse. If a large property is completely enclosed by fencing, a restricted area within the property may be identified with signage only. Public roads cannot be part of a Restricted Area.				
13	Does the owner/operator intend to operate this source as a portable stationary source as defined in 20.2.72.7.X NMAC? ☐ Yes ☑ No A portable stationary source is not a mobile source, such as an automobile, but a source that can be installed permanently at one location or that can be re-installed at various locations, such as a hot mix asphalt plant that is moved to different job sites.				
14	Will this facility operate in conjunction with other air regulated parties on the same property? ☒ No ☐ Yes If yes, what is the name and permit number (if known) of the other facility?				

Section 1-E: Proposed Operating Schedule (The 1-E.1 & 1-E.2 operating schedules may become conditions in the permit.)

1	Facility **maximum** operating ($\frac{\text{hours}}{\text{day}}$): 24	($\frac{\text{days}}{\text{week}}$): 7	($\frac{\text{weeks}}{\text{year}}$): 52	($\frac{\text{hours}}{\text{year}}$): 8,760		
2	Facility's maximum daily operating schedule (if less than 24 $\frac{\text{hours}}{\text{day}}$)? Start: N/A		☐AM ☐PM	End: N/A	☐AM ☐PM	
3	Month and year of anticipated start of construction: N/A – No construction proposed in this application.					
4	Month and year of anticipated construction completion: N/A – No construction proposed in this application.					
5	Month and year of anticipated startup of new or modified facility: N/A – No construction proposed in this application.					
6	Will this facility operate at this site for more than one year? ☑ Yes ☐ No					

Section 1-F: Other Facility Information

1	Are there any current Notice of Violations (NOV), compliance orders, or any other compliance or enforcement issues related to this facility? ☐ Yes ☑ No If yes, specify:		
a	If yes, NOV date or description of issue: N/A		NOV Tracking No: N/A
b	Is this application in response to any issue listed in 1-F, 1 or 1a above? ☐ Yes ☑ No If Yes, provide the 1c & 1d info below:		
c	Document Title: N/A	Date: N/A	Requirement # (or page # and paragraph #): N/A
d	Provide the required text to be inserted in this permit: N/A		
2	Is air quality dispersion modeling or modeling waiver being submitted with this application? ☐ Yes ☑ No		
3	Does this facility require an "Air Toxics" permit under 20.2.72.400 NMAC & 20.2.72.502, Tables A and/or B? ☐ Yes ☑ No		
4	Will this facility be a source of federal Hazardous Air Pollutants (HAP)? ☑ Yes ☐ No		
a	If Yes, what type of source? ☐ **Major** (☐ ≥10 tpy of any single HAP **OR** ☐ ≥25 tpy of any combination of HAPS) **OR** ☑ **Minor** (☑ <10 tpy of any single HAP **AND** ☑ <25 tpy of any combination of HAPS)		
5	Is any unit exempt under 20.2.72.202.B.3 NMAC? ☐ Yes ☑ No		
a	If yes, include the name of company providing commercial electric power to the facility: _____ Commercial power is purchased from a commercial utility company, which specifically does not include power generated on site for the sole purpose of the user.		

Section 1-G: Streamline Application

(This section applies to 20.2.72.300 NMAC Streamline applications only)

1	☐ I have filled out Section 18, "Addendum for Streamline Applications." ☑ N/A (This is not a Streamline application.)

Section 1-H: Current Title V Information - Required for all applications from TV Sources

(Title V-source required information for all applications submitted pursuant to 20.2.72 NMAC (Minor Construction Permits), or 20.2.74/20.2.79 NMAC (Major PSD/NNSR applications), and/or 20.2.70 NMAC (Title V))

1	Responsible Official (R.O.) (20.2.70.300.D.2 NMAC): Heath Lee		Phone: (505) 241-4723
a	R.O. Title: Director, Plant Management I	R.O. e-mail: heath.lee@pnm.com	
b	R. O. Address: 4400 Paseo Del Norte NE, Albuquerque, NM 87113		
2	Alternate Responsible Official (20.2.70.300.D.2 NMAC): N/A		Phone: N/A
a	A. R.O. Title: N/A	A. R.O. e-mail: N/A	
b	A. R. O. Address: N/A		
3	Company's Corporate or Partnership Relationship to any other Air Quality Permittee (List the names of any companies that have operating (20.2.70 NMAC) permits and with whom the applicant for this permit has a corporate or partnership relationship): None		
4	Name of Parent Company ("Parent Company" means the primary name of the organization that owns the company to be permitted wholly or in part.): PNM Resources		
a	Address of Parent Company: Corporate Headquarters, Albuquerque, NM 87158		
5	Names of Subsidiary Companies ("Subsidiary Companies" means organizations, branches, divisions or subsidiaries, which are owned, wholly or in part, by the company to be permitted.): Public Service Company of New Mexico (PNM) and Texas-New Mexico Power (TNMP)		
6	Telephone numbers & names of the owners' agents and site contacts familiar with plant operations: Robin DeLapp, (505) 241-2016		

7	Affected Programs to include Other States, local air pollution control programs (i.e. Bernalillo) and Indian tribes: Will the property on which the facility is proposed to be constructed or operated be closer than 80 km (50 miles) from other states, local pollution control programs, and Indian tribes and pueblos (20.2.70.402.A.2 and 20.2.70.7.B)? If yes, state which ones and provide the distances in kilometers:

Section 1-I – Submittal Requirements

Each 20.2.73 NMAC (**NOI**), a 20.2.70 NMAC (**Title V**), a 20.2.72 NMAC (**NSR** minor source), or 20.2.74 NMAC (**PSD**) application package shall consist of the following:

Hard Copy Submittal Requirements:

1) One hard copy **original signed and notarized application package** **printed double sided** **'head-to-toe'** **2-hole punched** as we bind the document on top, not on the side; except Section 2 (landscape tables), which should be head-to-head. Please use **numbered tab separators** in the hard copy submittal(s) as this facilitates the review process. For NOI submittals only, hard copies of UA1, Tables 2A, 2D & 2F, Section 3 and the signed Certification Page are required. Please include a copy of the check on a separate page.

2) If the application is for a minor NSR, PSD, NNSR, or Title V application, include one working hard **copy** for Department use. This copy should be printed in book form, 3-hole punched, and **must be double sided**. Note that this is in addition to the head-to-to 2-hole punched copy required in 1) above. Minor NSR Technical Permit revisions (20.2.72.219.B NMAC) only need to fill out Sections 1-A, 1-B, 3, and should fill out those portions of other Section(s) relevant to the technical permit revision. TV Minor Modifications need only fill out Sections 1-A, 1-B, 1-H, 3, and those portions of other Section(s) relevant to the minor modification. NMED may require additional portions of the application to be submitted, as needed.

3) The entire NOI or Permit application package, including the full modeling study, should be submitted electronically. Electronic files for applications for NOIs, any type of General Construction Permit (GCP), or technical revisions to NSRs must be submitted with compact disk (CD) or digital versatile disc (DVD). For these permit application submittals, **two** CD copies are required (in sleeves, not crystal cases, please), with additional CD copies as specified below. NOI applications require only a single CD submittal. Electronic files for other New Source Review (construction) permits/permit modifications or Title V permits/permit modifications can be submitted on CD/DVD or sent through AQB's secure file transfer service.

Electronic files sent by (check one):

☑ CD/DVD attached to paper application

☐ secure electronic transfer. Air Permit Contact Name_____

Email_____

Phone number _____

a. If the file transfer service is chosen by the applicant, after receipt of the application, the Bureau will email the applicant with instructions for submitting the electronic files through a secure file transfer service. Submission of the electronic files through the file transfer service needs to be completed within 3 business days after the invitation is received, so the applicant should ensure that the files are ready when sending the hard copy of the application. The applicant will not need a password to complete the transfer. **Do not use the file transfer service for NOIs, any type of GCP, or technical revisions to NSR permits.**

4) Optionally, the applicant may submit the files with the application on compact disk (CD) or digital versatile disc (DVD) following the instructions above and the instructions in 5 for applications subject to PSD review.

5) If **air dispersion modeling** is required by the application type, include the **NMED Modeling Waiver** and/or electronic air dispersion modeling report, input, and output files. The dispersion modeling ***summary report only*** should be submitted as hard copy(ies) unless otherwise indicated by the Bureau.

6) If the applicant submits the electronic files on CD and the application is subject to PSD review under 20.2.74 NMAC (PSD) or NNSR under 20.2.79 NMC include,
   a. one additional CD copy for US EPA,
   b. one additional CD copy for each federal land manager affected (NPS, USFS, FWS, USDI) and,
   c. one additional CD copy for each affected regulatory agency other than the Air Quality Bureau.

   If the application is submitted electronically through the secure file transfer service, these extra CDs do not need to be submitted.

Electronic Submittal Requirements [in addition to the required hard copy(ies)]:

1) All required electronic documents shall be submitted as 2 separate CDs or submitted through the AQB secure file transfer service. Submit a single PDF document of the entire application as submitted and the individual documents comprising the application.

2) The documents should also be submitted in Microsoft Office compatible file format (Word, Excel, etc.) allowing us to access the text and formulas in the documents (copy & paste). Any documents that cannot be submitted in a Microsoft Office compatible

format shall be saved as a PDF file from within the electronic document that created the file. If you are unable to provide Microsoft office compatible electronic files or internally generated PDF files of files (items that were not created electronically: i.e. brochures, maps, graphics, etc,), submit these items in hard copy format. We must be able to review the formulas and inputs that calculated the emissions.

3) It is preferred that this application form be submitted as 4 electronic files (3 MSWord docs: Universal Application section 1 [UA1], Universal Application section 3-19 [UA3], and Universal Application 4, the modeling report [UA4]) and 1 Excel file of the tables (Universal Application section 2 [UA2]). Please include as many of the 3-19 Sections as practical in a single MS Word electronic document. Create separate electronic file(s) if a single file becomes too large or if portions must be saved in a file format other than MS Word.

4) The electronic file names shall be a maximum of 25 characters long (including spaces, if any). The format of the electronic Universal Application shall be in the format: "A-3423-FacilityName". The "A" distinguishes the file as an application submittal, as opposed to other documents the Department itself puts into the database. Thus, all electronic application submittals should begin with "A-". Modifications to existing facilities should use the core permit number (i.e. '3423') the Department assigned to the facility as the next 4 digits. Use 'XXXX' for new facility applications. The format of any separate electronic submittals (additional submittals such as non-Word attachments, re-submittals, application updates) and Section document shall be in the format: "A-3423-9-description", where "9" stands for the section # (in this case Section 9-Public Notice). Please refrain, as much as possible, from submitting any scanned documents as this file format is extremely large, which uses up too much storage capacity in our database. Please take the time to fill out the header information throughout all submittals as this will identify any loose pages, including the Application Date (date submitted) & Revision number (0 for original, 1, 2, etc.; which will help keep track of subsequent partial update(s) to the original submittal. Do not use special symbols (#, @, etc.) in file names. The footer information should not be modified by the applicant.

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Table 2-A: Regulated Emission Sources

Unit and stack numbering must correspond throughout the application package. If applying for a NOI under 20.2.73 NMAC, equipment exemptions under 2.72.202 NMAC do not apply.

Unit Number[1]	Source Description	Make	Model #	Serial #	Manufacturer's Rated Capacity[3] (Specify Units)	Requested Permitted Capacity[3] (Specify Units)	Date of Manufacture[2] / Date of Construction/ Reconstruction[2]	Controlled by Unit # / Emissions vented to Stack #	Source Classification Code (SCC)	For Each Piece of Equipment, Check One	RICE Ignition Type (CI, SI, 4SLB, 4SRB, 2SLB)[4]	Replacing Unit No.
1	Combustion Turbine	General Electric	LM6000 Sprint	191-770	42MW	42MW	2013 10/8/2015	1 1	20100201	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
2	Combustion Turbine	General Electric	LM6000 Sprint	TBD	42MW	42MW	TBD TBD	2 2	20100201	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
SSM 1-Startup	Startup Turbine #1	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A 1	20100201	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
SSM 2-Startup	Startup Turbine #2	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A 2	20100201	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
SSM 1 - Shutdown	Shutdown Turbine #1	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A 1	20100201	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
SSM 2 - Shutdown	Shutdown Turbine #2	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A 2	20100201	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
Malfunction 1	Malfunction #1	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A 1	20100201	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
Malfunction 2	Malfunction #2	N/A	N/A	N/A	N/A	N/A	N/A N/A	N/A 2	20100201	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
CB-1	Circuit Breaker #1	Unknown	Unknown	Unknown	Unknown	Unknown	N/A N/A	N/A N/A	N/A	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A
CB-2	Circuit Breaker #2	Unknown	Unknown	Unknown	Unknown	Unknown	N/A N/A	N/A N/A	N/A	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced	N/A	N/A

[1] Unit numbers must correspond to unit numbers in the previous permit unless a complete cross reference table of all units in both permits is provided.

[2] Specify dates required to determine regulatory applicability.

[3] To properly account for power conversion efficiencies, generator set rated capacity shall be reported as the rated capacity of the engine in horsepower, not the kilowatt capacity of the generator set.

[4] "4SLB" means four stroke lean burn engine, "4SRB" means four stroke rich burn engine, "2SLB" means two stroke lean burn engine, "CI" means compression ignition, and "SI" means spark ignition

Table 2-B: Insignificant Activities[1] (20.2.70 NMAC) OR Exempted Equipment (20.2.72 NMAC)

All 20.2.70 NMAC (Title V) applications must list all Insignificant Activities in this table. All 20.2.72 NMAC applications must list Exempted Equipment in this table. If equipment listed on this table is exempt under 20.2.72.202.B.5, include emissions calculations and emissions totals for 202.B.5 "similar functions" units, operations, and activities in Section 6, Calculations. Equipment and activities exempted under 20.2.72.202 NMAC may not necessarily be Insignificant under 20.2.70 NMAC (and vice versa). Unit & stack numbering must be consistent throughout the application package. Per Exemptions Policy 02-012.00 (see http://www.env.nm.gov/aqb/permit/aqb_pol.html), 20.2.72.202.B NMAC Exemptions do not apply, but 20.2.72.202.A NMAC exemptions do apply to NOI facilities under 20.2.73 NMAC. List 20.2.72.301.D.4 NMAC Auxiliary Equipment for Streamline applications in Table 2-A. The List of Insignificant Activities (for TV) can be found online at https://www.env.nm.gov/wp-content/uploads/sites/2/2017/10/InsignificantListTitleV.pdf. TV sources may elect to enter both TV Insignificant Activities and Part 72 Exemptions on this form.

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]	For Each Piece of Equipment, Check Onc
			Serial No.	Capacity Units	Insignificant Activity citation (e.g. IA List Item #1.a)	Date of Installation /Construction[2]	
Haul	Ammonia Delivery Truck Travel	N/A	N/A	N/A	20.2.72.202.B.5	N/A	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	N/A	IA List Item #1.a	N/A	
TK-1	Ammonia Storage Tank	Steel Structures, Inc.	2012	4962	20.2.72.202.B.5	2015	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			3221	gal	IA List Item #1.a	October 2015	
TK-2	Ammonia Storage Tank	TBD	N/A	N/A	20.2.72.202.B.5	N/A	☑ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
			N/A	N/A	IA List Item #1.a	N/A	
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced
							☐ Existing (unchanged) ☐ To be Removed ☐ New/Additional ☐ Replacement Unit ☐ To Be Modified ☐ To be Replaced

[1] Insignificant activities exempted due to size or production rate are defined in 20.2.70.300.D.6, 20.2.70.7.Q NMAC, and the NMED/AQB List of Insignificant Activities, dated September 15, 2008. Emissions from these insignificant activities do not need to be reported, unless specifically requested.

[2] Specify date(s) required to determine regulatory applicability.

Table 2-C: Emissions Control Equipment

Unit and stack numbering must correspond throughout the application package. Only list control equipment for TAPs if the TAP's maximum uncontrolled emissions rate is over its respective threshold as listed in 20.2.72 NMAC, Subpart V, Tables A and B. In accordance with 20.2.72.203.A(3) and (8) NMAC, 20.2.70.300.D(5)(b) and (e) NMAC, and 20.2.73.200.B(7) NMAC, the permittee shall report all control devices and list each pollutant controlled by the control device regardless if the applicant takes credit for the reduction in emissions.

Control Equipment Unit No.	Control Equipment Description	Date Installed	Controlled Pollutant(s)	Controlling Emissions for Unit Number(s)[1]	Efficiency (% Control by Weight)	Method used to Estimate Efficiency
1A	SCR Unit to control NO_x emissions	Oct-15	NO_x	1	90%	Industry Standard
2A	SCR Unit to control NO_x emissions	TBD	NO_x	2	90%	Industry Standard
1B	Oxidation catalyst to control CO emissions	Oct-15	CO	1	85%	Industry Standard
2B	Oxidation catalyst to control CO emissions	TBD	CO	2	85%	Industry Standard

[1] List each control device on a separate line. For each control device, list all emission units controlled by the control device.

Table 2-D: Maximum Emissions (under normal operating conditions)

☐ **This Table was intentionally left blank because it would be identical to Table 2-E.**

Maximum Emissions are the emissions at maximum capacity and prior to (in the absence of) pollution control, emission-reducing process equipment, or any other emission reduction. Calculate the hourly emissions using the worst case hourly emissions for each pollutant. For each pollutant, calculate the annual emissions as if the facility were operating at maximum plant capacity without pollution controls for 8760 hours per year, unless otherwise approved by the Department. List Hazardous Air Pollutants (HAP) & Toxic Air Pollutants (TAPs) in Table 2-I. Unit & stack numbering must be consistent throughout the application package. Fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected. Numbers shall be expressed to at least 2 decimal points (e.g. 0.41, 1.41, or 1.41E-4).

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1.00	36.42	123.09	35.47	119.88	2.03	6.85	0.40	1.37	4.00	13.52	4.00	13.52	4.00	13.52	-	-	-	-
2.00	36.42	123.09	35.47	119.88	2.03	6.85	0.40	1.37	4.00	13.52	4.00	13.52	4.00	13.52	-	-	-	-
Totals	72.84	246.18	70.94	239.76	4.05	13.70	0.81	2.74	8.00	27.04	8.00	27.04	8.00	27.04	-	-	-	-

[1]**Condensable Particulate Matter:** Include condensable particulate matter emissions for PM10 and PM2.5 if the source is a combustion source. Do not include condensable particulate matter for PM unless PM is set equal to PM10 and PM2.5. Particulate matter (PM) is not subject to an ambient air quality standard, but PM is a regulated air pollutant under PSD (20.2.74 NMAC) and Title V (20.2.70 NMAC).

Table 2-E: Requested Allowable Emissions

Unit & stack numbering must be consistent throughout the application package. Fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected. Numbers shall be expressed to at least 2 decimal points (e.g. 0.41, 1.41, or $1.41E^{-4}$).

Unit No.	NOx		CO		VOC		SOx		PM[1]		PM10[1]		PM2.5[1]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1.00	3.64	12.31	5.32	17.98	1.01	3.43	0.40	1.37	4.00	13.52	4.00	13.52	4.00	13.52	-	-	-	-
2.00	3.64	12.31	5.32	17.98	1.01	3.43	0.40	1.37	4.00	13.52	4.00	13.52	4.00	13.52	-	-	-	-
Totals	7.28	24.62	10.64	35.96	2.03	6.85	0.81	2.74	8.00	27.04	8.00	27.04	8.00	27.04	-	-	-	-

[1] **Condensable Particulate Matter:** Include condensable particulate matter emissions for PM10 and PM2.5 if the source is a combustion source. Do not include condensable particulate matter for PM unless PM is set equal to PM10 and PM2.5. Particulate matter (PM) is not subject to an ambient air quality standard, but it is a regulated air pollutant under PSD (20.2.74 NMAC) and Title V (20.2.70 NMAC).

Table 2-F: Additional Emissions during Startup, Shutdown, and Routine Maintenance (SSM)

☐ This table is intentionally left blank since all emissions at this facility due to routine or predictable startup, shutdown, or scehduled maintenance are no higher than those listed in Table 2-E and a malfunction emission limit is not already permitted or requested. If you are required to report GHG emissions as described in Section 6a, include any GHG emissions during Startup, Shutdown, and/or Scheduled Maintenance (SSM) in Table 2-P. Provide an explanations of SSM emissions in Section 6 and 6a.

All applications for facilities that have emissions during routine our predictable startup, shutdown or scheduled maintenance (SSM)[1], including NOI applications, must include in this table the Maximum Emissions during routine or predictable startup, shutdown and scheduled maintenance (20.2.7 NMAC, 20.2.72.203.A.3 NMAC, 20.2.73.200.D.2 NMAC). In Section 6 and 6a, provide emissions calculations for all SSM emissions reported in this table. Refer to "Guidance for Submittal of Startup, Shutdown, Maintenance Emissions in Permit Applications (https://www.env.nm.gov/aqb/permit/aqb_pol.html) for more detailed instructions. Numbers shall be expressed to at least 2 decimal points (e.g. 0.41, 1.41, or 1.41E-4).

Unit No.	NOx		CO		VOC		SOx		PM[2]		PM10[2]		PM2.5[2]		H_2S		Lead	
	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1-Startup	20.03	10.01	20.39	10.20	1.52	0.76	0.40	0.20	4.00	2.00	4.00	2.00	4.00	2.00	-	-	-	-
2-Startup	20.03	10.01	20.39	10.20	1.52	0.76	0.40	0.20	4.00	2.00	4.00	2.00	4.00	2.00	-	-	-	-
1-Shutdown	9.10	4.55	10.34	5.17	1.18	0.59	0.40	0.20	4.00	2.00	4.00	2.00	4.00	2.00	-	-	-	-
2-Shutdown	9.10	4.55	10.34	5.17	1.18	0.59	0.40	0.20	4.00	2.00	4.00	2.00	4.00	2.00	-	-	-	-
1-Malfunction	20.03	5.00	20.39	5.00	1.52	5.00	0.40	1.77	4.00	5.00	4.00	5.00	4.00	5.00	-	-	-	-
2-Malfunction	20.03	5.00	20.39	5.00	1.52	5.00	0.40	1.77	4.00	5.00	4.00	5.00	4.00	5.00	-	-	-	-
Totals	40.06	39.13	40.79	40.74	3.04	12.70	0.81	4.35	8.00	18.00	8.00	18.00	8.00	18.00	-	-	-	-

[1] **For instance**, if the short term steady-state Table 2-E emissions are 5 lb/hr and the SSM rate is 12 lb/hr, enter 7 lb/hr in this table. If the annual steady-state Table 2-E emissions are 21.9 TPY, and the number of scheduled SSM events result in annual emissions of 31.9 TPY, enter 10.0 TPY in the table below.

[2] **Condensable Particulate Matter:** Include condensable particulate matter emissions for PM10 and PM2.5 if the source is a combustion source. Do not include condensable particulate matter for PM unless PM is set equal to PM10 and PM2.5. Particulate matter (PM) is not subject to an ambient air quality standard, but it is a regulated air pollutant under PSD (20.2.74 NMAC) and Title V (20.2.70 NMAC).

Table 2-G: Stack Exit and Fugitive Emission Rates for Special Stacks

☑ I have elected to leave this table blank because this facility does not have any stacks/vents that split emissions from a single source or combine emissions from more than one source listed in table 2-A. Additionally, the emission rates of all stacks match the Requested allowable emission rates stated in Table 2-E.

Use this table to list stack emissions (requested allowable) from split and combined stacks. List Toxic Air Pollutants (TAPs) and Hazardous Air Pollutants (HAPs) in Table 2-I. List all fugitives that are associated with the normal, routine, and non-emergency operation of the facility. Unit and stack numbering must correspond throughout the application package. Refer to Table 2-E for instructions on use of the "-" symbol and on significant figures.

Stack No.	Serving Unit Number(s) from Table 2-A	NOx		CO		VOC		SOx		PM		PM10		PM2.5		□ H_2S or □ Lead	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
Totals:																	

Table 2-H: Stack Exit Conditions

Unit and stack numbering must correspond throughout the application package. Include the stack exit conditions for each unit that emits from a stack, including blowdown venting parameters and tank emissions. If the facility has multiple operating scenarios, complete a separate Table 2-H for each scenario and, for each, type scenario name here:

Stack Number	Serving Unit Number(s) from Table 2-A	Orientation (H-Horizontal V=Vertical)	Rain Caps (Yes or No)	Height Above Ground (ft)	Temp. (F)	Flow Rate		Moisture by Volume (%)	Velocity (ft/sec)	Inside Diameter (ft)
						(acfs)	(dscfs)			
1	1	V	N	45	851	9392	-	-	119.6	10.0
2	2	V	N	45	851	9392	-	-	119.6	10.0

Table 2-I: Stack Exit and Fugitive Emission Rates for HAPs and TAPs

In the table below, report the Potential to Emit for each HAP from each regulated emission unit listed in Table 2-A, only if the entire facility emits the HAP at a rate greater than or equal to one (1) ton per year For each such emission unit, HAPs shall be reported to the nearest 0.1 tpy. Each facility-wide Individual HAP total and the facility-wide Total HAPs shall be the sum of all HAP sources calculated to the nearest 0.1 ton per year. Per 20.2.72.403.A.1 NMAC, facilities not exempt [see 20.2.72.402.C NMAC] from TAP permitting shall report each TAP that has an uncontrolled emission rate in excess of its pounds per hour screening level specified in 20.2.72.502 NMAC. TAPs shall be reported using one more significant figure than the number of significant figures shown in the pound per hour threshold corresponding to the substance. Use the HAP nomenclature as it appears in Section 112 (b) of the 1990 CAAA and the TAP nomenclature as it listed in 20.2.72.502 NMAC. Include tank-flashing emissions estimates of HAPs in this table. For each HAP or TAP listed, fill all cells in this table with the emission numbers or a "-" symbol. A "-" symbol indicates that emissions of this pollutant are not expected or the pollutant is emitted in a quantity less than the threshold amounts described above.

Stack No.	Unit No.(s)	Total HAPs		Ammonia ☐ HAP or ☑ TAP		Formaldehyde ☑ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP		Provide Pollutant Name Here ☐ HAP or ☐ TAP	
		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
1	1	0.41	1.37	5.4	18.2	0.28	0.95												
2	2	0.41	1.37	5.4	18.2	0.28	0.95												
1	SSM 1 - Startup	0.41	0.20	5.4	2.7	0.28	0.14												
2	SSM 2 - Startup	0.41	0.20	5.4	2.7	0.28	0.14												
1	SSM 1 - Shutdown	0.41	0.20	5.4	2.7	0.28	0.14												
2	SSM 2 - Shutdown	0.41	0.20	5.4	2.7	0.28	0.14												
1	Malfunction 1	0.41	1.8	5.4	2.7	-	-												
2	Malfunction 2	0.41	1.8	5.4	2.7	-	-												
Totals:		0.81	7.12	10.76	52.50	0.56	2.46												

Table 2-J: Fuel

Specify fuel characteristics and usage. Unit and stack numbering must correspond throughout the application package.

Unit No.	Fuel Type (low sulfur Diesel, ultra low sulfur diesel, Natural Gas, Coal, …)	Fuel Source: purchased commercial, pipeline quality natural gas, residue gas, raw/field natural gas, process gas (e.g. SRU tail gas) or other	Specify Units				
			Lower Heating Value	Hourly Usage	Annual Usage	% Sulfur	% Ash
1	Natural Gas	Pipeline Quality Natural Gas	1047 BTU/scf	377.7 Mscf/hr (HHV)	2,553.6 MMscf/yr (HHV)	0.75 grains/100 dscf	0
2	Natural Gas	Pipeline Quality Natural Gas	1047 BTU/scf	377.7 Mscf/hr (HHV)	2,553.6 MMscf/yr (HHV)	0.75 grains/100 dscf	0

Table 2-K: Liquid Data for Tanks Listed in Table 2-L

For each tank, list the liquid(s) to be stored in each tank. If it is expected that a tank may store a variety of hydrocarbon liquids, enter "mixed hydrocarbons" in the Composition column for that tank and enter the corresponding data of the most volatile liquid to be stored in the tank. If tank is to be used for storage of different materials, list all the materials in the "All Calculations" attachment, run the newest version of TANKS on each, and use the material with the highest emission rate to determine maximum uncontrolled and requested allowable emissions rate. The permit will specify the most volatile category of liquids that may be stored in each tank. Include appropriate tank-flashing modeling input data. Use additional sheets if necessary. Unit and stack numbering must correspond throughout the application package.

Tank No.	SCC Code	Material Name	Composition	Liquid Density (lb/gal)	Vapor Molecular Weight (lb/lb*mol)	Average Storage Conditions		Max Storage Conditions	
						Temperature (°F)	True Vapor Pressure (psia)	Temperature (°F)	True Vapor Pressure (psia)
N/A - There are no regulated storage tanks at this facility.									

Table 2-L: Tank Data

Include appropriate tank-flashing modeling input data. Use an addendum to this table for unlisted data categories. Unit and stack numbering must correspond throughout the application package. Use additional sheets if necessary. See reference Table 2-L2. Note: 1.00 bbl = 10.159 M3 = 42.0 gal

Tank No.	Date Installed	Materials Stored	Seal Type (refer to Table 2-LR below)	Roof Type (refer to Table 2-LR below)	Capacity		Diameter (M)	Vapor Space (M)	Color (from Table VI-C)		Paint Condition (from Table VI-C)	Annual Throughput (gal/yr)	Turn-overs (per year)
					(bbl)	(M^3)			Roof	Shell			
N/A - There are no regulated storage tanks at this facility.													

Table 2-L2: Liquid Storage Tank Data Codes Reference Table

Roof Type	Seal Type, Welded Tank Seal Type		Seal Type, Riveted Tank Seal Type		Roof, Shell Color	Paint Condition
FX: Fixed Roof	**Mechanical Shoe Seal**	**Liquid-mounted resilient seal**	**Vapor-mounted resilient seal**	**Seal Type**	**WH**: White	Good
IF: Internal Floating Roof	**A**: Primary only	**A**: Primary only	**A**: Primary only	**A**: Mechanical shoe, primary only	**AS**: Aluminum (specular)	Poor
EF: External Floating Roof	**B**: Shoe-mounted secondary	**B**: Weather shield	**B**: Weather shield	**B**: Shoe-mounted secondary	**AD**: Aluminum (diffuse)	
P: Pressure	**C**: Rim-mounted secondary	**C**: Rim-mounted secondary	**C**: Rim-mounted secondary	**C**: Rim-mounted secondary	**LG**: Light Gray	
					MG: Medium Gray	
					BL: Black	
					OT: Other (specify)	

Note: 1.00 bbl = 0.159 M^3 = 42.0 gal

Table 2-M: Materials Processed and Produced (Use additional sheets as necessary.)

Material Processed				Material Produced			
Description	**Chemical Composition**	**Phase (Gas, Liquid, or Solid)**	**Quantity (specify units)**	**Description**	**Chemical Composition**	**Phase**	**Quantity (specify units)**
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 2-N: CEM Equipment

Enter Continuous Emissions Measurement (CEM) Data in this table. If CEM data will be used as part of a federally enforceable permit condition, or used to satisfy the requirements of a state or federal regulation, include a copy of the CEM's manufacturer specification sheet in the Information Used to Determine Emissions attachment. Unit and stack numbering must correspond throughout the application package. Use additional sheets if necessary.

Stack No.	Pollutant(s)	Manufacturer	Model No.	Serial No.	Sample Frequency	Averaging Time	Range	Sensitivity	Accuracy
1	NOx, CO, O2	Teledyne	T200M	447	10 secs	1 hr	low	10 ppm	-
1	NOx, CO, O2	Teledyne	T200M	447	10 secs	1 hr	high	150 ppm	-
1	CO	Teledyne	T300M	245	10 secs	1 hr	low	10 ppm	-
1	CO	Teledyne	T300M	245	10 secs	1 hr	high	2000 ppm	-
1	O2	Teledyne	T200M	447	10 secs	1 hr	single	0.25	-
1	Fuel	Yokogawa	YEWFLO	U1S200291	10 secs	1 hr	single	0-100 %	-
2	NOx, CO, O2, Fuel	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD

Table 2-O: Parametric Emissions Measurement Equipment

Unit and stack numbering must correspond throughout the application package. Use additional sheets if necessary.

Unit No.	Parameter/Pollutant Measured	Location of Measurement	Unit of Measure	Acceptable Range	Frequency of Maintenance	Nature of Maintenance	Method of Recording	Averaging Time
N/A - No Parametric Emissions Measurement Equipment is associated with this facility.								

Table 2-P: Greenhouse Gas Emissions

Applications submitted under 20.2.70, 20.2.72, & 20.2.74 NMAC are required to complete this Table. Power plants, Title V major sources, and PSD major sources must report and calculate all GHG emissions for each unit. Applicants must report potential emission rates in short tons per year (see Section 6.a for assistance). Include GHG emissions during Startup, Shutdown, and Scheduled Maintenance in this table. For minor source facilities that are not power plants, are not Title V, or are not PSD, there are three options for reporting GHGs 1) report GHGs for each individual piece of equipment; 2) report all GHGs from a group of unit types, for example report all combustion source GHGs as a single unit and all venting GHG as a second separate unit; OR 3) check the following box ☐ By checking this box, the applicant acknowledges the total CO2e emissions are less than 75,000 tons per year.

		CO_2 ton/yr	N_2O ton/yr	CH_4 ton/yr	SF_6 ton/yr	PFC/HFC ton/yr[2]									**Total GHG** Mass Basis ton/yr[4]	**Total CO_2e** ton/yr[5]
Unit No.	**GWPs [1]**	**1**	**298**	**25**	**22,800**	**footnote 3**										
1	**mass GHG**	156,373.87	0.29	2.95	-	-									156,377.11	
	CO_2e	156,373.87	87.82	73.68	-	-										156,535.37
2	**mass GHG**	156,373.87	0.29	2.95	-	-									156,377.11	
	CO_2e	156,373.87	87.82	73.68	-	-										156,535.37
SSM 1 - Startup	**mass GHG**	23,132.23	0.044	0.44	-	-									23,132.71	
	CO_2e	23,132.23	12.99	10.90	-	-										23,156.12
SSM 2 - Startup	**mass GHG**	23,132.23	0.044	0.44	-	-									23,132.71	
	CO_2e	23,132.23	12.99	10.90	-	-										23,156.12
SSM 1 - Shutdown	**mass GHG**	23,132.23	0.044	0.44	-	-									23,132.71	
	CO_2e	23,132.23	12.99	10.90	-	-										23,156.12
SSM 2 - Shutdown	**mass GHG**	23,132.23	0.044	0.44	-	-									23,132.71	
	CO_2e	23,132.23	12.99	10.90	-	-										23,156.12
CB-1	**mass GHG**	-	-	-	0.00043	-									0.00043	
	CO_2e	-	-	-	9.69	-										9.69
CB-2	**mass GHG**	-	-	-	0.00043	-									0.00043	
	CO_2e	-	-	-	9.69	-										9.69
	mass GHG															
	CO_2e															
	mass GHG															
	CO_2e															
	mass GHG															
	CO_2e															
	mass GHG															
	CO_2e															
	mass GHG															
	CO2e															
Total	**mass GHG**	405,276.65	0.76	7.64	0.00085	-									405,285.05	
	CO_2e	405276.65	227.61	190.95	19.38	-										405,714.60

[1] **GWP** (Global Warming Potential): Applicants must use the most current GWPs codified in Table A-1 of 40 CFR part 98. GWPs are subject to change, therefore, applicants need to check 40 CFR 98 to confirm GWP values.

[2] For **HFCs** or **PFCs** describe the specific HFC or PFC compound and use a separate column for each individual compound.

[3] For each new compound, enter the appropriate GWP for each HFC or PFC compound from Table A-1 in 40 CFR 98.

[4] Green house gas emissions on a **mass basis** is the ton per year green house gas emission before adjustment with its GWP.

[5] **CO_2e** means Carbon Dioxide Equivalent and is calculated by multiplying the TPY mass emissions of the green house gas by its GWP.

Section 3

Application Summary

The **Application Summary** shall include a brief description of the facility and its process, the type of permit application, the applicable regulation (i.e. 20.2.72.200.A.X, or 20.2.73 NMAC) under which the application is being submitted, and any air quality permit numbers associated with this site. If this facility is to be collocated with another facility, provide details of the other facility including permit number(s). In case of a revision or modification to a facility, provide the lowest level regulatory citation (i.e. 20.2.72.219.B.1.d NMAC) under which the revision or modification is being requested. Also describe the proposed changes from the original permit, how the proposed modification will affect the facility's operations and emissions, de-bottlenecking impacts, and changes to the facility's major/minor status (both PSD & Title V).

The **Process Summary** shall include a brief description of the facility and its processes.

Startup, Shutdown, and Maintenance (SSM) routine or predictable emissions: Provide an overview of how SSM emissions are accounted for in this application. Refer to "Guidance for Submittal of Startup, Shutdown, Maintenance Emissions in Permit Applications (http://www.env.nm.gov/aqb/permit/app_form.html) for more detailed instructions on SSM emissions.

Public Service Company of New Mexico (PNM) is submitting this Title V Renewal operating permit application pursuant to 20.2.70.300.B.(2) "Operating Permits" New Mexico Administrative Code (NMAC) for La Luz Energy Center (La Luz). La Luz is a power generating facility owned and operated by PNM and located approximately 3.9 miles southwest of Belen in Valencia County. The facility is currently permitted under NSR Permit No. 5041-M1 and Title V Permit No. P-263 for the following equipment:

- Two General Electric (GE) LM6000 PC Sprint simple cycle turbine, natural gas fire
- Water injection system, one per turbine
- Selective catalytic reduction system (SCR), one per turbine
- Oxidation catalyst system, one per turbine
- Inlet air filter, one per turbine
- Atmospheric vertical storage tank (for aqueous ammonia, NH3), one per turbine
- Pumps
- Water tanks
- Wastewater tanks
- Air compressors
- Fin fan coolers

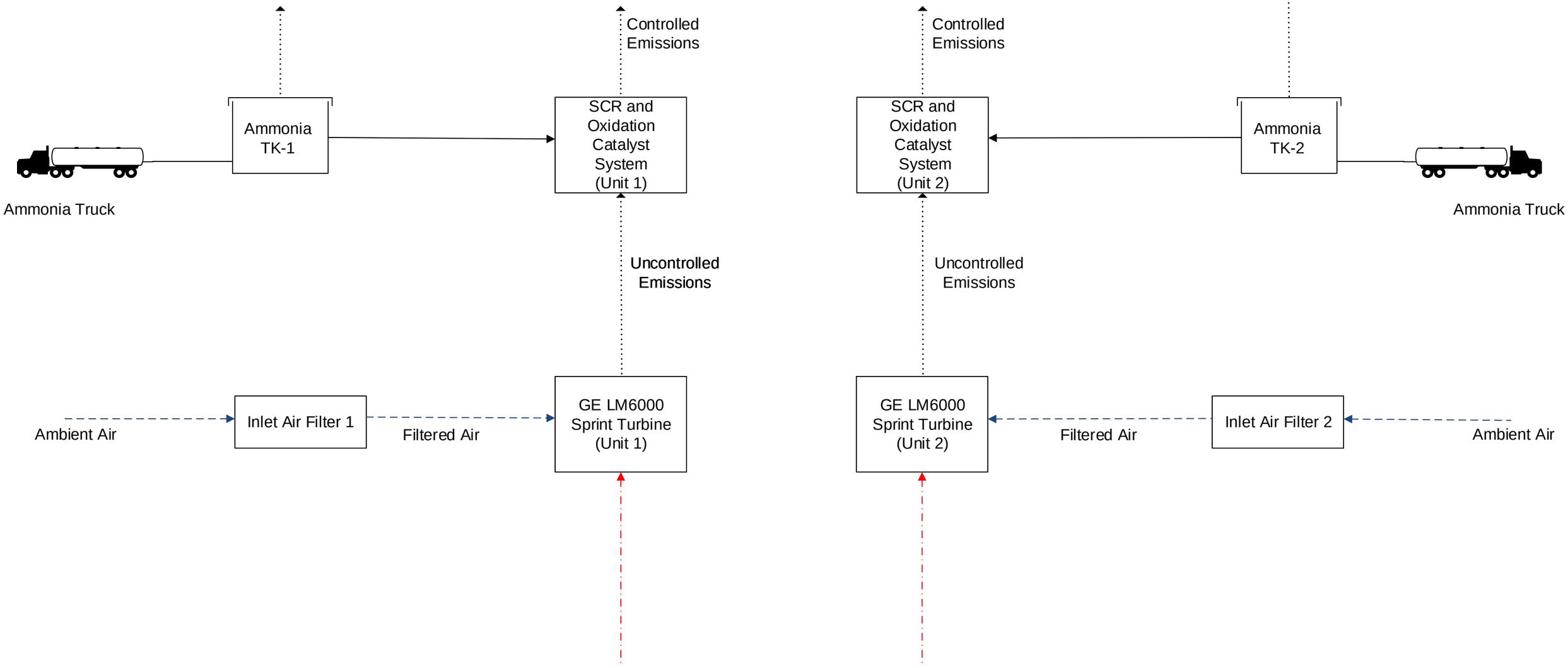
The facility is located at latitude 34°, 36', 58.3" N and longitude 106°, 48', 54.0" W. The facility Universal Transverse Mercator (UTM) coordinates are 333,600 Easting, 3,831,980 Northing, Zone 13, WGS84, at an elevation of 5,175 feet. The approximate location of this facility is 3.9 miles southwest of the intersection of State Route 314 and State Route 309 in the city of Belen in Valencia County.

Section 4

Process Flow Sheet

A **process flow sheet** and/or block diagram indicating the individual equipment, all emission points and types of control applied to those points. The unit numbering system should be consistent throughout this application.

A process flow sheet is attached.



Key

Natural Gas | Air | Emission | Ammonia

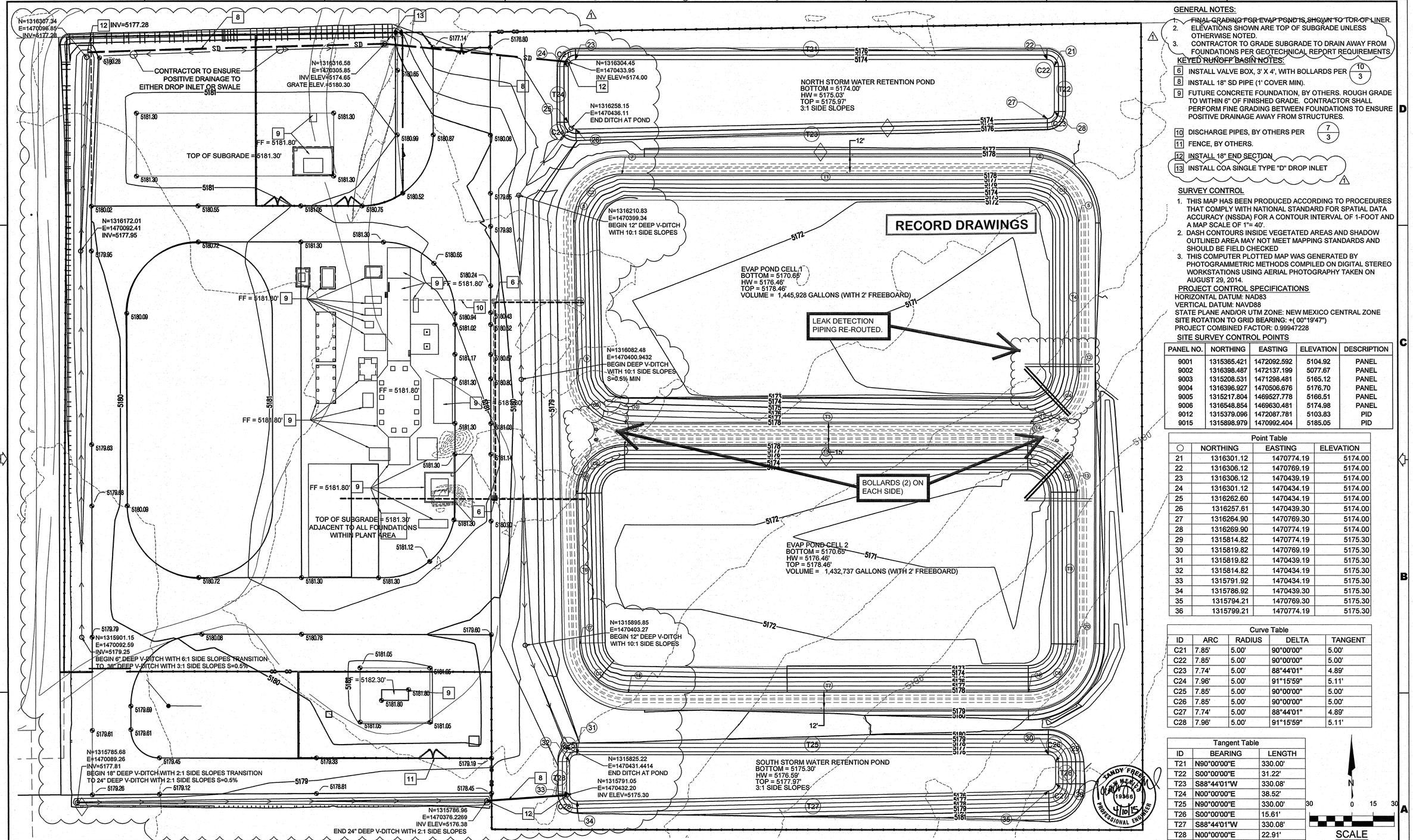
Public Service Company of New Mexico
La Luz Energy Center
Process Flow Diagram
Trinity Consultants

Section 5

Plot Plan Drawn To Scale

A **plot plan drawn to scale** showing emissions points, roads, structures, tanks, and fences of property owned, leased, or under direct control of the applicant. This plot plan must clearly designate the restricted area as defined in UA1, Section 1-D.12. The unit numbering system should be consistent throughout this application.

A plot plan is attached.



GENERAL NOTES:

1. FINAL GRADING FOR EVAP POND IS SHOWN TO TOP OF LINER.
2. ELEVATIONS SHOWN ARE TOP OF SUBGRADE UNLESS OTHERWISE NOTED.
3. CONTRACTOR TO GRADE SUBGRADE TO DRAIN AWAY FROM FOUNDATIONS PER GEOTECHNICAL REPORT REQUIREMENTS.

KEYED RUNOFF BASIN NOTES:

6 INSTALL VALVE BOX, 3' X 4', WITH BOLLARDS PER (10/3)

8 INSTALL 18" SD PIPE (1' COVER MIN).

9 FUTURE CONCRETE FOUNDATION, BY OTHERS. ROUGH GRADE TO WITHIN 6" OF FINISHED GRADE. CONTRACTOR SHALL PERFORM FINE GRADING BETWEEN FOUNDATIONS TO ENSURE POSITIVE DRAINAGE AWAY FROM STRUCTURES.

10 DISCHARGE PIPES, BY OTHERS PER (7/3)

11 FENCE, BY OTHERS.

12 INSTALL 18" END SECTION

13 INSTALL COA SINGLE TYPE "D" DROP INLET (1)

SURVEY CONTROL

1. THIS MAP HAS BEEN PRODUCED ACCORDING TO PROCEDURES THAT COMPLY WITH NATIONAL STANDARD FOR SPATIAL DATA ACCURACY (NSSDA) FOR A CONTOUR INTERVAL OF 1-FOOT AND A MAP SCALE OF 1"= 40'.
2. DASH CONTOURS INSIDE VEGETATED AREAS AND SHADOW OUTLINED AREA MAY NOT MEET MAPPING STANDARDS AND SHOULD BE FIELD CHECKED
3. THIS COMPUTER PLOTTED MAP WAS GENERATED BY PHOTOGRAMMETRIC METHODS COMPILED ON DIGITAL STEREO WORKSTATIONS USING AERIAL PHOTOGRAPHY TAKEN ON AUGUST 29, 2014.

PROJECT CONTROL SPECIFICATIONS

HORIZONTAL DATUM: NAD83
VERTICAL DATUM: NAVD88
STATE PLANE AND/OR UTM ZONE: NEW MEXICO CENTRAL ZONE
SITE ROTATION TO GRID BEARING: +(00°19'47")
PROJECT COMBINED FACTOR: 0.99947228

SITE SURVEY CONTROL POINTS

PANEL NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
9001	1315365.421	1472092.592	5104.92	PANEL
9002	1316398.487	1472137.199	5077.67	PANEL
9003	1315208.531	1471298.481	5165.12	PANEL
9004	1316396.927	1470506.676	5176.70	PANEL
9005	1315217.804	1469527.778	5166.51	PANEL
9006	1316548.854	1469630.481	5174.98	PANEL
9012	1315379.096	1472087.781	5103.83	PID
9015	1315898.979	1470992.404	5185.05	PID

Point Table			
○	NORTHING	EASTING	ELEVATION
21	1316301.12	1470774.19	5174.00
22	1316306.12	1470769.19	5174.00
23	1316306.12	1470439.19	5174.00
24	1316301.12	1470434.19	5174.00
25	1316262.60	1470434.19	5174.00
26	1316257.61	1470439.30	5174.00
27	1316264.90	1470769.30	5174.00
28	1316269.90	1470774.19	5174.00
29	1315814.82	1470774.19	5175.30
30	1315819.82	1470769.19	5175.30
31	1315819.82	1470439.19	5175.30
32	1315814.82	1470434.19	5175.30
33	1315791.92	1470434.19	5175.30
34	1315786.92	1470439.30	5175.30
35	1315794.21	1470769.30	5175.30
36	1315799.21	1470774.19	5175.30

Curve Table				
ID	ARC	RADIUS	DELTA	TANGENT
C21	7.85'	5.00'	90°00'00"	5.00'
C22	7.85'	5.00'	90°00'00"	5.00'
C23	7.74'	5.00'	88°44'01"	4.89'
C24	7.96'	5.00'	91°15'59"	5.11'
C25	7.85'	5.00'	90°00'00"	5.00'
C26	7.85'	5.00'	90°00'00"	5.00'
C27	7.74'	5.00'	88°44'01"	4.89'
C28	7.96'	5.00'	91°15'59"	5.11'

Tangent Table		
ID	BEARING	LENGTH
T21	N90°00'00"E	330.00'
T22	S00°00'00"E	31.22'
T23	S88°44'01"W	330.08'
T24	N00°00'00"E	38.52'
T25	N90°00'00"E	330.00'
T26	S00°00'00"E	15.61'
T27	S88°44'01"W	330.08'
T28	N00°00'00"E	22.91'

N 30 0 15 30

SCALE

NOTES:

Bohannan Huston
www.bhinc.com 800.877.5332

REV	DATE	DESCRIPTION	DRAWN
1	4/10/2015	SITE GRADING UPDATED	TMF

LA LUZ ENERGY CENTER
11 La Luz Energy Center Road - *Belen, NM 87002*

Public Service Company New Mexico
414 Silver Ave. SW
Albuquerque, NM 87102
Phone:(505) 246-5700

TTS CONSTRUCTION 1220 East Pine Street, Lodi, CA 95240 Phone (209) 333-7788

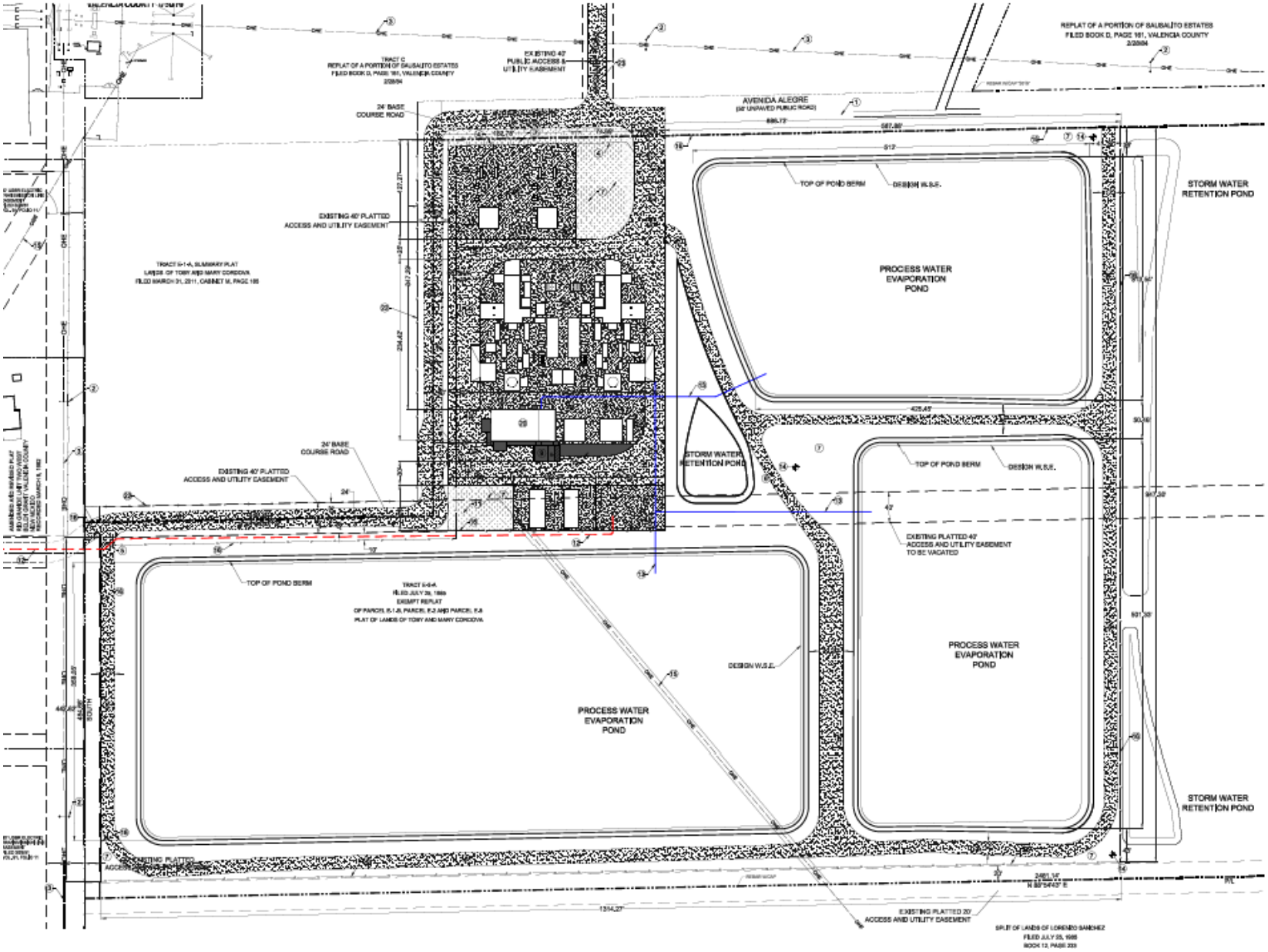
Integrated Engineers & Contractors Corporation
8795 Folsom Blvd, Suite 205 Sacramento, CA 95826
Phone (916) 383-6000 Fax (916) 383-6010

Wellhead Construction, Inc.
650 Bercut Dr, Suite C - Sacramento, CA 95814
Phone: 916-447-5171 Fax: 916-447-7602

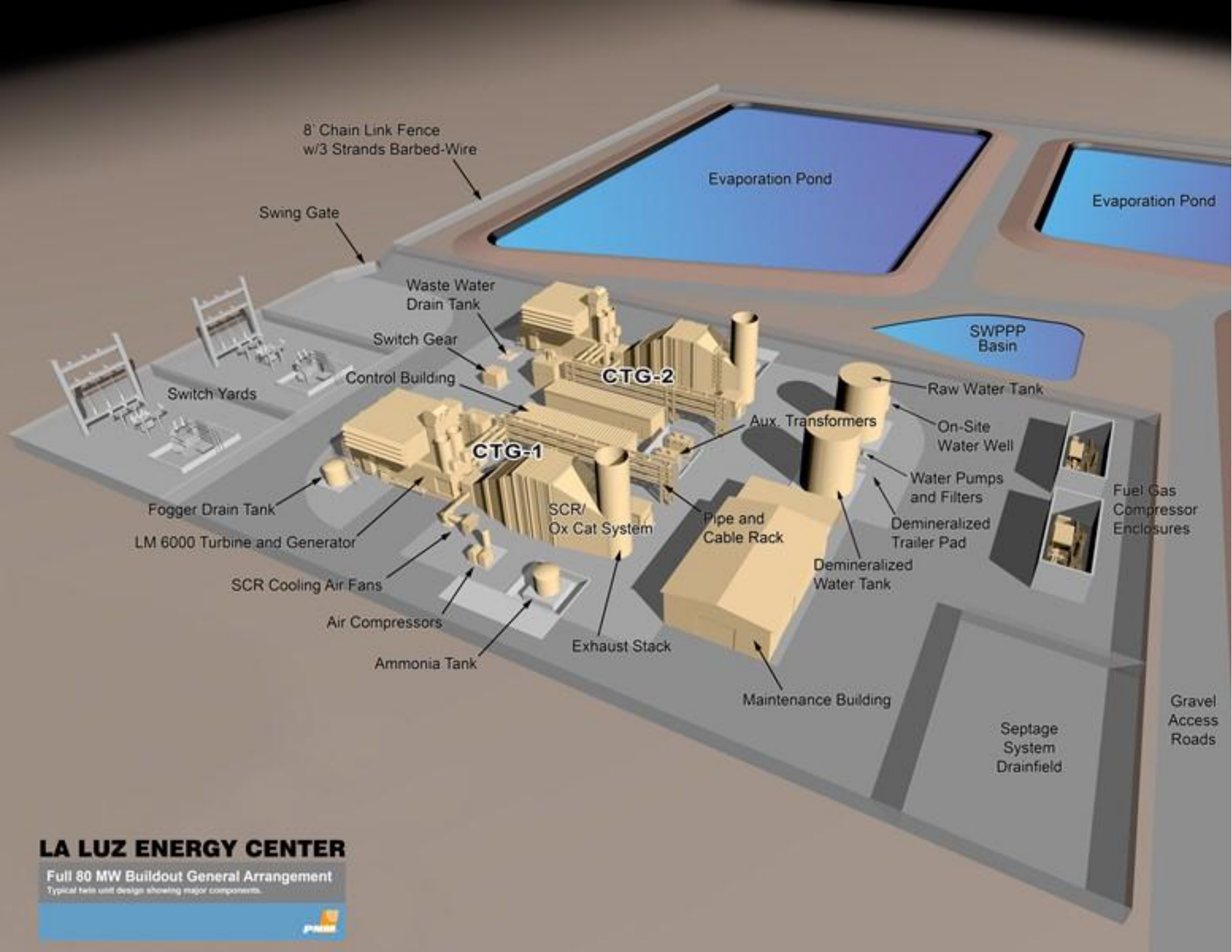
DRAWN: CAFFREY, A DATE: 03/18/2015
ENG. APPROVAL: — DATE: —

DRAWING TITLE: SITE GRADING

SIZE: D | FSCM NO. | DWG NO.: LLEC-C-301 | REV: —
SCALE: NONE | PROJECT: LA LUZ ENERGY CNTR | SHEET: 1



Site Facility Plot Plan
La Luz Energy Facility
Public Service Company of New Mexico



LA LUZ ENERGY CENTER

Full 80 MW Buildout General Arrangement

Typical twin unit design showing major components.

Section 6

All Calculations

Show all calculations used to determine both the hourly and annual controlled and uncontrolled emission rates. All calculations shall be performed keeping a minimum of three significant figures. Document the source of each emission factor used (if an emission rate is carried forward and not revised, then a statement to that effect is required). If identical units are being permitted and will be subject to the same operating conditions, submit calculations for only one unit and a note specifying what other units to which the calculations apply. All formulas and calculations used to calculate emissions must be submitted. The "Calculations" tab in the UA2 has been provided to allow calculations to be linked to the emissions tables. Add additional "Calc" tabs as needed. If the UA2 or other spread sheets are used, all calculation spread sheet(s) shall be submitted electronically in Microsoft Excel compatible format so that formulas and input values can be checked. Format all spread sheets and calculations such that the reviewer can follow the logic and verify the input values. Define all variables. If calculation spread sheets are not used, provide the original formulas with defined variables. Additionally, provide subsequent formulas showing the input values for each variable in the formula. All calculations, including those calculations are imbedded in the Calc tab of the UA2 portion of the application, the printed Calc tab(s), should be submitted under this section.

Tank Flashing Calculations: The information provided to the AQB shall include a discussion of the method used to estimate tank-flashing emissions, relative thresholds (i.e., NOI, permit, or major source (NSPS, PSD or Title V)), accuracy of the model, the input and output from simulation models and software, all calculations, documentation of any assumptions used, descriptions of sampling methods and conditions, copies of any lab sample analysis. If Hysis is used, all relevant input parameters shall be reported, including separator pressure, gas throughput, and all other relevant parameters necessary for flashing calculation.

SSM Calculations: It is the applicant's responsibility to provide an estimate of SSM emissions or to provide justification for not doing so. In this Section, provide emissions calculations for Startup, Shutdown, and Routine Maintenance (SSM) emissions listed in the Section 2 SSM and/or Section 22 GHG Tables and the rational for why the others are reported as zero (or left blank in the SSM/GHG Tables). Refer to "Guidance for Submittal of Startup, Shutdown, Maintenance Emissions in Permit Applications (http://www.env.nm.gov/aqb/permit/app_form.html) for more detailed instructions on calculating SSM emissions. If SSM emissions are greater than those reported in the Section 2, Requested Allowables Table, modeling may be required to ensure compliance with the standards whether the application is NSR or Title V. Refer to the Modeling Section of this application for more guidance on modeling requirements.

Glycol Dehydrator Calculations: The information provided to the AQB shall include the manufacturer's maximum design recirculation rate for the glycol pump. If GRI-Glycalc is used, the full input summary report shall be included as well as a copy of the gas analysis that was used.

Road Calculations: Calculate fugitive particulate emissions and enter haul road fugitives in Tables 2-A, 2-D and 2-E for:

1. If you transport raw material, process material and/or product into or out of or within the facility and have PER emissions greater than 0.5 tpy.
2. If you transport raw material, process material and/or product into or out of the facility more frequently than one round trip per day.

Significant Figures:

A. All emissions standards are deemed to have at least two significant figures, but not more than three significant figures.

B. At least 5 significant figures shall be retained in all intermediate calculations.

C. In calculating emissions to determine compliance with an emission standard, the following rounding off procedures shall be used:

(1) If the first digit to be discarded is less than the number 5, the last digit retained shall not be changed;

(2) If the first digit discarded is greater than the number 5, or if it is the number 5 followed by at least one digit other than the number zero, the last figure retained shall be increased by one unit; **and**

(3) If the first digit discarded is exactly the number 5, followed only by zeros, the last digit retained shall be rounded upward if it is an odd number, but no adjustment shall be made if it is an even number.

(4) The final result of the calculation shall be expressed in the units of the standard.

Control Devices: In accordance with 20.2.72.203.A(3) and (8) NMAC, 20.2.70.300.D(5)(b) and (e) NMAC, and 20.2.73.200.B(7) NMAC, the permittee shall report all control devices and list each pollutant controlled by the control device

regardless if the applicant takes credit for the reduction in emissions. The applicant can indicate in this section of the application if they chose to not take credit for the reduction in emission rates. For notices of intent submitted under 20.2.73 NMAC, only uncontrolled emission rates can be considered to determine applicability unless the state or federal Acts require the control. This information is necessary to determine if federally enforceable conditions are necessary for the control device, and/or if the control device produces its own regulated pollutants or increases emission rates of other pollutants.

The emission calculations which were submitted and approved as part of the latest NSR permit application (5041-M1) are included in this section for reference.

Emissions from the two 42 megawatt (MW) GE LM6000 PC Sprint simple-cycle gas turbines, with control by the selective catalytic reduction (SCR) and oxidation catalyst systems, have been estimated for steady state operations and Startup, Shutdown and Maintenance and Malfunction (SSM and Malfunction). Emissions for criteria pollutants (particulate matter less than 10 microns in diameter (PM_{10}), particulate matter less than 2.5 microns in diameter ($PM_{2.5}$), sulfur dioxide (SO_2), nitrogen oxides (NOX), carbon monoxide (CO)), volatile organic compounds (VOC), toxic air pollutants (TAP), hazardous air pollutants (HAP), and greenhouse gases (GHG) on a mass basis, as well as GHG converted to carbon dioxide equivalents (CO_{2e}) have been calculated. Working and breathing emissions from the two 6,000 gallon ammonia tanks, the emissions from the haul road used by the ammonia delivery trucks and the GHG emissions of the circuit breakers have also been calculated. Emission calculation methodologies are described below and detailed emission calculations are included.

Turbine 1 and 2

Calculations for the hourly and annual controlled and uncontrolled emissions of NO_x, CO, VOC, PM, PM_{10}, $PM_{2.5}$, and SO_x for the turbines are divided into Steady State emissions and Startup, Shutdown, and Maintenance and Malfunction emissions.

Steady State

Hourly uncontrolled emissions of NO_x, CO, and VOC are calculated using the uncontrolled emission rates of 25 parts per million (ppm) at 15 percent oxygen for NO_x, 40 ppm at 15 percent oxygen for CO, and 4 ppm at 15 percent oxygen for VOC per Equation 1 below. Hourly controlled emission factors of NO_x, CO, and VOC are based on SCR data. They are calculated using the emission rates of 2.5 ppm at 15 percent oxygen for NO_x, 6 ppm at 15 percent oxygen for CO, and 2 ppm at 15 percent oxygen for VOC. Hourly controlled emissions are calculated using Equation 1 below.

Equation 1

$$\text{Emissions}\left(\frac{\text{lb}}{\text{hr}}\right) = \frac{\text{ppm}}{1{,}000{,}000} * \left(\frac{20.9}{20.9 - 15}\right) * \text{F factor} * \text{MW} * \left(\frac{1}{379.5}\right) * \text{HIHHV}\left(\frac{\text{MMBtu}}{\text{hr}}\right)$$

Where:
ppm = parts per million (varies by pollutant for uncontrolled and controlled)
MW = molecular weight (lb/lb-mole) (NO_x = 46; CO = 28; VOC = 16)
H.I. HHV = heat input higher heating value = 395.5 MMBtu/hr
F factor at 60˚ Fahrenheit (F) = 8,578 dscf/MMBtu
Conversion factor = (1/(379.5 scf/lb-mol)) at 60˚ F
Correction factor to 15 percent oxygen = (20.9/(20.9-15))

Emission factors for PM, PM_{10}, and $PM_{2.5}$ were obtained from the manufacturer guarantee from GE for the combustion turbine. The hourly controlled and uncontrolled emission rate is 4 pounds per hour (lb/hr) for PM, PM_{10}, and $PM_{2.5}$. Note that for calculation purposes PM includes both filterable and condensable PM and therefore PM = PM_{10} = $PM_{2.5}$.

The SO_x controlled and uncontrolled hourly emissions are calculated based on the sulfur limit of natural gas of 0.75 grains/100 dry standard cubic feet (dscf). The emission factor was converted to the hourly emission rate using Equation 2 below.

Equation 2

$$\text{Emissions}\left(\frac{\text{lb}}{\text{hr}}\right) = \frac{\text{E.F.}\left(\frac{\text{grains}}{\text{dscf}}\right)}{7{,}000\left(\frac{\text{grains}}{\text{lb}}\right)} * 1{,}000{,}000 * \frac{\text{HIHHV}\left(\frac{\text{MMBtu}}{\text{hr}}\right)}{\text{HC}\left(\frac{\text{Btu}}{\text{scf}}\right)}$$

Where:
E.F. = emission factor = 0.0075 grains/dscf

HIHHV = heat input higher heating value = 395.5 MMBtu (million British thermal units)/hr
HC = heat content = 1,047 Btu (British thermal units)/scf
Conversion factor = 7,000 grains/lb
Conversion factor = 1,000,000 Btu/MMBtu

The HAP emissions associated with the turbines have been calculated. The emission factors for stationary gas turbines were obtained from U.S. Environmental Protection Agency (USEPA) AP-42 Section 3.1 "Stationary Gas Turbines"(April 2000) Table 3.1-3 for pollutants on the USEPA HAP list.

Hourly emissions were calculated by multiplying the AP-42 emission factors by the heat input of the CTG per Equation 3 below. Annual emissions are calculated by multiplying hourly emissions by 8,760 hours per year, as Startup and Shutdown HAP emissions are assumed to be the same as normal operational emissions.

Equation 3

$$\text{Hourly emissions}\left(\frac{\text{lb}}{\text{hr}}\right) = \text{EF}\left(\frac{\text{lb}}{\text{MMBtu}}\right) * \text{HIHHV}\left(\frac{\text{MMBtu}}{\text{hr}}\right)$$

Where:
EF = AP-42 HAP emission factor (lb/MMBtu)
HIHHV = Heat input higher heating value= 395.5 MMBtu/hr

Neither the 10 tpy for a single HAP nor the 25 tpy for total HAP major source thresholds are exceeded. Therefore, the facility is not a major source of HAP. Only the emissions for formaldehyde are greater than one ton per year, and it is therefore included in section 2-I of this application.

New Mexico Administrative Code (NMAC) 20.2.72.502 lists ammonia as a TAP. Ammonia emissions from the turbines have been calculated using the proposed ammonia slip permit limit of 10 ppm (at 15 percent oxygen). Hourly emissions are calculated per Equation 2 above using the ammonia molecular weight of 17.

Calculated ammonia hourly emissions were compared to the permitting levels provided in NMAC 20.2.72.502. As provided in NMAC 20.2.72.502, a correction factor was applied to the emission permitting level for the purpose of determining whether a permit is necessary. The correction factor of 5 was chosen based on the proposed exhaust stack height of 13.7 meters.

The potential ammonia emissions of 10.77 lb/hr from both turbines together exceeds the corrected permitting screening level of 6.0 lb/hr. The previous modeling results indicated that a formal health risk assessment is not required.

The GHG emissions associated with the facility have been estimated using the emission factors and calculation methodology provided in USEPA 40 Code of Federal Regulations (CFR) Part 98 Subpart C for natural gas combustion. The GHG pollutants associated with natural gas combustion are CO_2, methane (CH_4), and nitrous oxide (N_2O). The CO_2 emission factor was obtained from Table C-1 and the CH_4 and N_2O emission factors were obtained from Table C-2 of Subpart C.

Annual emissions in metric tonnes (MT) per year (MT/yr) were calculated by multiplying the Subpart C emission factor by the annual heat input per Equation 4 below.

Equation 4

$$\text{Annual GHG emissions}\left(\frac{\text{MT}}{\text{yr}}\right) = \text{EF}\left(\frac{\text{kg}}{\text{MMBtu}}\right) * \frac{\text{HIHHV}\left(\frac{\text{MMBtu}}{\text{yr}}\right)}{1{,}000\left(\frac{\text{kg}}{\text{MT}}\right)}$$

Where:
EF, emission factor: CO_2 = 53.02, CH_4 = 0.001, N_2O = 0.0001 (kilograms (kg)/MMBtu)(EFs have been updated from the initial permit application)
HIHHV = heat input higher heating value = 395.5 MMBtu/hr
Conversion factor = 1,000 kg/MT

The annual GHG values in MT/yr were converted to short tons (ST) per year (ST/yr) for ease in comparison to relevant significant thresholds. The conversion factor from MT to ST is to multiply by 1.10231.

The annual GHG emissions in ST were multiplied by the global warming potentials (GWP) provided in 40 CFR Part 98 Subpart C for each of CO_2, CH_4, and N_2O to calculate the CO_{2e} values using Equation 5.

Equation 5

$$\text{Annual } CO_2e\left(\frac{ST}{yr}\right) = \sum(\text{Annual GHG}\left(\frac{ST}{yr}\right) * GWP)_{pollutant}$$

Where:

Annual GHG (ST/yr) = Annual GHG (MT/yr) * 1.10231
GWP: CO_2 = 1, CH_4 = 25, N_2O = 298 (GWPs have been updated from the initial permit application)

Annual steady state emissions from the turbines are calculated based on 6,760 hours per year at normal operational emission levels.

Startup, Shutdown, and Maintenance and Malfunction (SSM and Malfunction)

SSM and Malfunction emissions are presented on a lb/hr basis. Malfunction tpy is calculated for 8760 hrs/yr, with a maximum of 5 tpy per turbine. Startup is defined as the time from first firing the turbine to the time when normal operation (greater than 50 percent load) is achieved with the control equipment (SCR and oxidation catalyst) fully functional. Based on information provided by the equipment vendor, turbine startups typically last 10 to 20 minutes, but may require up to 30 minutes. For calculation purposes, the 30-minute duration was applied as a conservative measure. Shutdowns typically last 10 minutes; and the 10-minute duration was used to estimate shutdown emissions.

To estimate startup emissions on a lb/hr basis for NO_x, CO, and VOC, uncontrolled hourly emissions were multiplied by (30/60) minutes and summed with the pound per hour emission rate during normal operations multiplied by (30/60) minutes as shown in Equation 6 below.

Equation 6

$$\text{Startup hourly emissions}\left(\frac{lb}{hr}\right) = UE * \left(\frac{30}{60}\right) + CE * \left(\frac{30}{60}\right)$$

Where:

UE = uncontrolled hourly emissions (lb/hr)
CE = controlled hourly emissions (lb/hr)
Portion of hourly emission that is 30 minutes = (30/60)

To estimate shutdown emissions on a lb/hr basis for NO_x, CO, and VOC, uncontrolled hourly emissions were multiplied by (10/60) minutes and summed with the pound per hour emission rate during normal operations multiplied by (50/60) minutes as shown in Equation 7 below.

Equation 7

$$\text{Shutdown hourly emissions}\left(\frac{lb}{hr}\right) = UE * \left(\frac{10}{60}\right) + CE * \left(\frac{50}{60}\right)$$

Where:

UE = uncontrolled hourly emissions (lb/hr)
CE = controlled hourly emissions (lb/hr)
Portion of hourly emission that is 10 minutes = (10/60)
Portion of hourly emission that is 50 minutes = (50/60)

The PM, PM_{10}, $PM_{2.5}$, HAPs, NH_3, and SO_x startup and shutdown emissions on a lb/hr basis are assumed to be the same as the hourly emission rates for normal operation.

Circuit Breakers

The GHG emissions from circuit breakers, which are in the form of sulfur hexafluoride (SF6), associated with the facility have been calculated using vendor information. The vendor indicated that a 120 kilovolt (KV) circuit breaker includes 85 lbs of SF6 and the vendor guarantees an annual leakage rate of 1 percent or less. GHG emissions are calculated using Equation 13 below. It was assumed that each turbine would be equipped with one circuit breaker.

Equation 8

$$\text{Annual GHG emissions}\left(\frac{\text{ST}}{\text{yr}}\right) = \text{Quantity} * \text{Leak Rate} * 2{,}000\left(\frac{\text{lb}}{\text{ton}}\right) * 2$$

Where:

Quantity (lb/breaker) = pounds of SF6 per circuit breaker = 85 pounds
Leak Rate (%/year) = percent leak rate per year = 1%
Conversion = 2,000 pounds per ton

CO_{2e} is calculated using Equation 5 above with a GWP for SF6 of 23,900. The resulting value is 20.3 ST/yr for the facility with two circuit breakers.

Exempt/Insignificant Sources

Haul Roads

Haul Road emissions are calculated for the aqueous ammonia truck deliveries using the calculation methodology provided in AP-42 Section 13.2.2 "Unpaved Roads" (November 2006) Equation 1a for Industrial Roads. The AP-42 equation to calculate the size specific emission factor in pounds per vehicle mile traveled is presented here as Equation 8.

Equation 9

$$\text{Emission factor}\left(\frac{\text{lb}}{\text{VMT}}\right) = k * \left(\frac{s}{12}\right)^{a} * \left(\frac{W}{3}\right)^{b}$$

Where:

k = constant (PM = 4.9, PM_{10} = 1.5, $PM_{2.5}$ = 0.15)
s = surface material mean silt content (%) = 4.8 for plant road
W = mean vehicle weight (tons) = 20
a = constant (PM = 0.7, PM_{10} = 0.9, $PM_{2.5}$ = 0.9)
b = constant (PM = 0.45, PM_{10} = 0.45, $PM_{2.5}$ = 0.45)

The resulting PM, PM_{10}, and $PM_{2.5}$ emission factors in pounds per vehicle mile traveled were multiplied by the estimated 0.38 mile of travel (1,000 feet to the tank and 1,000 feet to leave the property) on unpaved roads within the property boundary to estimate emissions on a pound per trip basis for each of PM, PM_{10}, and $PM_{2.5}$.

The facility's maximum annual ammonia usage is estimated at one truck delivery per week. Therefore, annual emissions are based on up to 52 deliveries per year. The resulting estimated annual emissions are 0.06 tons per year (tpy) for PM, 0.015 tpy for PM_{10}, and 0.002 tpy for $PM_{2.5}$.

Ammonia Tanks

There are ammonia emissions from the storage tanks. Losses from atmospheric ammonia storage tanks are a combination of working losses and breathing losses. Working losses occur when vapor in the tank is displaced due to the addition of liquid during tank filling. These losses are dependent on the amount of material pumped in, the frequency of filling, the vapor pressure of the material stored, and the ambient temperature. Breathing losses occur due to ambient temperature fluctuations that affect the vapor space inside the tank. When temperatures rise during the day, pressure increases inside the tank and air is expelled. As temperatures fall at night, pressure decreases and fresh air flows into the tank.

The working losses were calculated using Equation 9 below.

Equation 10

$$L_W = Q_W * \left(\frac{1}{359}\right) * \left(\frac{273.15}{T}\right) * \left(\frac{VP}{760}\right) * MW * K_N * K_P$$

Where:

L_W = working losses (lb/yr)
Q_W = annual throughout of liquid (ft3) = 37,537 ft3/year

T = ambient temperature (degrees K) = 286.2 K
VP = vapor pressure of liquid at ambient temperature (mmHg)
MW = molecular weight of liquid
VT = tank capacity (ft^3) = 802.1 ft^3 based on 6,000 gallons
N = QW/VT = 46.8
K_N = annual turnover factor (dimensionless) = (180 + N)/6N = 0.81
K_P = working loss product factor (dimensionless) = 1

Conversions:
1 gallon = 0.1337 ft^3
1 kilopascal = 7.5 mmHg

Annual throughput, QW, was calculated as the volume of liquid that is used to fill the storage tank each year and was calculated by multiplying the tank size of 6,000 gallons by an assumed 90 percent capacity factor and an estimated refill rate of once per week.

The annual throughput was calculated to be 37,537 ft^3/year. The number of turnovers per year, N, was then calculated to be 46.8, and the annual turnover factor, KN, was calculated to be 0.81.

The ambient temperature was estimated by averaging the annual average high (73.8 °F) and the annual average low (38.9 °F) for Belen, NM. This resulted in 56.4 °F, or 286.2 K. The molecular weight of aqueous ammonia was calculated using the molecular weights of ammonia and water in combination with their weight percentages per Equation 10.

Equation 11

$$\frac{1}{MW} = \left(\frac{w_A}{MW_A}\right) + \left(\frac{w_W}{MW_W}\right)$$

Where:
w_A = weight percent of ammonia = 0.195
MW_A = molecular weight of ammonia = 17.03 lb/lb-mole
w_W = weight percent of water = 0.805
MW_W = molecular weight of water = 18 lb/lb-mole

The resultant molecular weight for the aqueous ammonia is 17.80 lb/lb-mole.

The aqueous ammonia was assumed to be ideal and the vapor pressure was calculated using Raoult's Law. Published data was used to determine that the partial pressures for ammonia and water mixed in this proportion at this ambient temperature were approximately 177 mmHg and 9.34 mmHg, respectively. Thus Raoult's Law is provided as Equation 11.

Equation 12

$$VP = (P_A * X_A) + (P_W * X_W)$$

Where:
P_A = partial pressure of ammonia (mmHg) = 177
X_A = molal percent of ammonia = 0.204
P_W = partial pressure of water (mmHg) = 9.34
X_W = molal percent of water = 0.796

The resultant partial pressure for aqueous ammonia at 286 K is 97.4 mmHg.

The breathing losses were calculated using Equation 12 below.

Equation 13

$$L_B = 365 * M_{air} * \left(\frac{VP}{760}\right) * MW$$

Where:
L_B = breathing losses (lb/yr)
VP = vapor pressure of liquid at ambient temperature (mmHg) = 43.5 mmHg
MW = molecular weight of liquid = 17.8

M_{air} = air displaced from tank due to expansion (lb-mole/day) = (V_v) * (1/359) * (KE) * (273.15/T) = 0.014 lb-mole/day
V_v = vapor space in tank (scf) = 80.2 ft3 based on 600 gallons
KE = vapor space expansion factor (dimensionless) = TR/T = 0.07
TR = day-night temperature fluctuation (K) = 19.4 K
T = ambient temperature (K) = 286.2 K

The day-night temperature fluctuation was determined by subtracting the average annual low from the annual average high in Belen, NM, the resulting difference being 34.9 °F or 19.4 K. The vapor space expansion factor, KE, was then calculated to be 0.07. The vapor space of the tank was taken as the 10% that is assumed not be filled, which is 600 gallons or 80.2 scf. Using these parameters M_{air} was then calculated to be 0.014 pound moles per day.

Annual working and breathing losses of ammonia were summed and determined to be 17.0 pounds per year per tank, or 0.017 tons per year for both tanks together.

PNM - La Luz Energy Center

Emissions Summary

Emission Unit: All

Maximum Uncontrolled Emissions

Unit	NO_x		CO		VOCs		SO_x		TSP		PM_{10}		$PM_{2.5}$		Total HAPs		Ammonia		CO_2e	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
1	36.4	123.1	35.5	119.9	2.0	6.9	0.40	1.4	4.0	13.5	4.0	13.5	4.0	13.5	0.41	1.4	-	-	46,312.2	156,535.4
2	36.4	123.1	35.5	119.9	2.0	6.9	0.40	1.4	4.0	13.5	4.0	13.5	4.0	13.5	0.41	1.4	-	-	46,312.2	156,535.4
SSM 1 - Startup	36.4	18.2	35.5	17.7	2.0	1.0	0.40	0.20	4.0	2.0	4.0	2.0	4.0	2.0	0.41	0.20	-	-	46,312.2	23,156.1
SSM 2 - Startup	36.4	18.2	35.5	17.7	2.0	1.0	0.40	0.20	4.0	2.0	4.0	2.0	4.0	2.0	0.41	0.20	-	-	46,312.2	23,156.1
SSM 1 - Shutdown	36.4	18.2	35.5	17.7	2.0	1.0	0.40	0.20	4.0	2.0	4.0	2.0	4.0	2.0	0.41	0.20	-	-	46,312.2	23,156.1
SSM 2 - Shutdown	36.4	18.2	35.5	17.7	2.0	1.0	0.40	0.20	4.0	2.0	4.0	2.0	4.0	2.0	0.41	0.20	-	-	46,312.2	23,156.1
Malfunction 1	36.4	5.0	35.5	5.0	2.0	5.0	0.40	1.8	4.0	5.0	4.0	5.0	4.0	5.0	0.41	1.8	-	-	-	-
Malfunction 2	36.4	5.0	35.5	5.0	2.0	5.0	0.40	1.8	4.0	5.0	4.0	5.0	4.0	5.0	0.41	1.8	-	-	-	-
CB-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.2	9.7
CB-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.2	9.7
Total Steady State	*72.8*	*246.2*	*70.9*	*239.8*	*4.1*	*13.7*	*0.81*	*2.7*	*8.0*	*27.0*	*8.0*	*27.0*	*8.0*	*27.0*	*0.81*	*2.7*	-	-	*92,624.5*	*313,070.7*
Total Startup	*72.8*	*36.4*	*70.9*	*35.5*	*4.1*	*2.0*	*0.81*	*0.40*	*8.0*	*4.0*	*8.0*	*4.0*	*8.0*	*4.0*	*0.81*	*0.41*	-	-	*92,624.5*	*46,312.2*
Total Shutdown	*72.8*	*36.4*	*70.9*	*35.5*	*4.1*	*2.0*	*0.81*	*0.40*	*8.0*	*4.0*	*8.0*	*4.0*	*8.0*	*4.0*	*0.81*	*0.41*	-	-	*92,624.5*	*46,312.2*
Total Malfunction	*72.8*	*10.0*	*70.9*	*10.0*	*4.1*	*10.0*	*0.8*	*3.5*	*8.0*	*10.0*	*8.0*	*10.0*	*8.0*	*10.0*	*0.81*	*3.6*	-	-	*92,624.5*	*46,312.2*
Maximum Totals	***72.8***	***329.0***	***70.9***	***320.7***	***4.1***	***27.8***	***0.81***	***7.1***	***8.0***	***45.0***	***8.0***	***45.0***	***8.0***	***45.0***	***0.81***	***7.1***	-	-	***92,628.9***	***405,714.6***

Maximum Controlled Emissions

Unit	NO_x		CO		VOCs		SO_x		TSP		PM_{10}		$PM_{2.5}$		Total HAPs		Ammonia		CO_2e	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
1	3.6	12.3	5.3	18.0	1.0	3.4	0.40	1.4	4.0	13.5	4.0	13.5	4.0	13.5	0.41	1.4	5.4	18.2	46,312.2	156,535.4
2	3.6	12.3	5.3	18.0	1.0	3.4	0.40	1.4	4.0	13.5	4.0	13.5	4.0	13.5	0.41	1.4	5.4	18.2	46,312.2	156,535.4
SSM 1 - Startup	20.0	10.0	20.4	10.2	1.5	0.76	0.40	0.20	4.0	2.0	4.0	2.0	4.0	2.0	0.41	0.20	5.4	2.7	46,312.2	23,156.1
SSM 2 - Startup	20.0	10.0	20.4	10.2	1.5	0.76	0.40	0.20	4.0	2.0	4.0	2.0	4.0	2.0	0.41	0.20	5.4	2.7	46,312.2	23,156.1
SSM 1 - Shutdown	9.1	4.6	10.3	5.2	1.2	0.59	0.40	0.20	4.0	2.0	4.0	2.0	4.0	2.0	0.41	0.20	5.4	2.7	46,312.2	23,156.1
SSM 2 - Shutdown	9.1	4.6	10.3	5.2	1.2	0.59	0.40	0.20	4.0	2.0	4.0	2.0	4.0	2.0	0.41	0.20	5.4	2.7	46,312.2	23,156.1
Malfunction 1	20.0	5.0	20.4	5.0	1.5	5.0	0.40	1.8	4.0	5.0	4.0	5.0	4.0	5.0	0.41	1.8	5.4	2.7	-	-
Malfunction 2	20.0	5.0	20.4	5.0	1.5	5.0	0.40	1.8	4.0	5.0	4.0	5.0	4.0	5.0	0.41	1.8	5.4	2.7	-	-
CB-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.2	9.7
CB-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.2	9.7
Total Steady State	*7.3*	*24.6*	*10.6*	*36.0*	*2.0*	*6.9*	*0.81*	*2.7*	*8.0*	*27.0*	*8.0*	*27.0*	*8.0*	*27.0*	*0.81*	*2.7*	*10.8*	*36.4*	*92,624.5*	*313,070.7*
Total Startup	*40.1*	*20.0*	*40.8*	*20.4*	*3.0*	*1.5*	*0.81*	*0.40*	*8.0*	*4.0*	*8.0*	*4.0*	*8.0*	*4.0*	*0.81*	*0.41*	*10.8*	*5.4*	*92,624.5*	*46,312.2*
Total Shutdown	*18.2*	*9.1*	*20.7*	*10.3*	*2.4*	*1.2*	*0.81*	*0.40*	*8.0*	*4.0*	*8.0*	*4.0*	*8.0*	*4.0*	*0.81*	*0.41*	*10.8*	*5.4*	*92,624.5*	*46,312.2*
Total Malfunction	*40.1*	*10.0*	*40.8*	*10.0*	*3.0*	*10.0*	*0.81*	*3.5*	*8.0*	*10.0*	*8.0*	*10.0*	*8.0*	*10.0*	*0.81*	*3.6*	*10.8*	*5.4*	-	-
Totals	***40.1***	***63.8***	***40.8***	***76.7***	***3.0***	***19.6***	***0.81***	***7.1***	***8.0***	***45.0***	***8.0***	***45.0***	***8.0***	***45.0***	***0.81***	***7.1***	***10.8***	***52.5***	***92,628.9***	***405,714.6***

Maximum Individual HAPs Uncontrolled Emissions and Controlled Emissions

Unit	1,3-Butadiene		Acetaldehyde		Acrolein		Benzene		Ethylbenzene		Formaldehyde		Naphthalene		PAH		Propylene Oxide		Toluene		Xylenes	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy				
1	0.00017	0.00057	0.016	0.053	0.0025	0.0086	0.0047	0.016	0.013	0.043	0.28	0.95	0.00051	0.0017	0.00087	0.0029	0.011	0.039	0.051	0.17	0.025	0.086
2	0.00017	0.00057	0.016	0.053	0.0025	0.0086	0.0047	0.016	0.013	0.043	0.28	0.95	0.00051	0.0017	0.00087	0.0029	0.011	0.039	0.051	0.17	0.025	0.086
SSM 1 - Startup	0.00017	0.000085	0.016	0.0079	0.0025	0.0013	0.0047	0.0024	0.013	0.0063	0.28	0.14	0.00051	0.00026	0.00087	0.00044	0.011	0.0057	0.051	0.026	0.025	0.013
SSM 1 - Shutdown	0.00017	0.000085	0.016	0.0079	0.0025	0.0013	0.0047	0.0024	0.013	0.0063	0.28	0.14	0.00051	0.00026	0.00087	0.00044	0.011	0.0057	0.051	0.026	0.025	0.013
SSM 2 - Startup	0.00017	0.000085	0.016	0.0079	0.0025	0.0013	0.0047	0.0024	0.013	0.0063	0.28	0.14	0.00051	0.00026	0.00087	0.00044	0.011	0.0057	0.051	0.026	0.025	0.013
SSM 2 - Shutdown	0.00017	0.000085	0.016	0.0079	0.0025	0.0013	0.0047	0.0024	0.013	0.0063	0.28	0.14	0.00051	0.00026	0.00087	0.00044	0.011	0.0057	0.051	0.026	0.025	0.013
Total Steady State	*0.00034*	*0.0011*	*0.032*	*0.11*	*0.0051*	*0.017*	*0.0095*	*0.032*	*0.025*	*0.086*	*0.56*	*1.9*	*0.0010*	*0.0035*	*0.0017*	*0.0059*	*0.023*	*0.078*	*0.10*	*0.35*	*0.051*	*0.17*
Total Startup	*0.00034*	*0.00017*	*0.032*	*0.016*	*0.0051*	*0.0025*	*0.0095*	*0.0047*	*0.025*	*0.013*	*0.56*	*0.28*	*0.0010*	*0.00051*	*0.0017*	*0.00087*	*0.023*	*0.011*	*0.10*	*0.051*	*0.051*	*0.025*
Total Shutdown	*0.00034*	*0.00017*	*0.032*	*0.016*	*0.0051*	*0.0025*	*0.0095*	*0.0047*	*0.025*	*0.013*	*0.56*	*0.28*	*0.0010*	*0.00051*	*0.0017*	*0.00087*	*0.023*	*0.011*	*0.10*	*0.051*	*0.051*	*0.025*
Totals	***0.00034***	***0.0015***	***0.032***	***0.14***	***0.0051***	***0.022***	***0.0095***	***0.042***	***0.025***	***0.11***	***0.56***	***2.5***	***0.0010***	***0.0045***	***0.0017***	***0.0076***	***0.023***	***0.10***	***0.10***	***0.45***	***0.051***	***0.22***

"*" Indicates that an hourly limit is not appropriate for this operating situation and is not being requested.

"-" Indicates emissions of this pollutant are not expected.

PNM - La Luz Energy Center
Turbine Steady State Emission Calculations

Make/Model	General Electric LM6000 Sprint	
ID Number	1	2
Serial Number	191-770	TBD
Manufacture Date	2013	TBD
Install Date	Oct-15	TBD
Type	Natural Gas Turbine	

Turbine Parameters

Specification	Value	Units	Notes
Hours of Normal Operation	6,760	hr/yr	-
Maximum Power Rating	43,850	kW	1
Maximum Horsepower	58,802.9	hp	Calculated
Total Mass Flow of Exhaust	898,310	lb/hr	1
Fuel Heating Value	1,047	Btu/scf	Gas Analysis
Heat Input, Btu	395,500,000	Btu/hr	1
Heat Input, MMBtu	395.5	MMBtu/hr	Calculated
Hourly Fuel Usage	377.7	Mscf/hr	Calculated
Annual Fuel Usage	2,553.6	MMscf/yr	Calculated
Stack Temp	851.0	deg F	1
Stack Height	45.0	ft	Estimate
Stack Diameter	10.0	ft	Estimate
Stack Velocity	119.6	ft/s	Estimate

Steady State Uncontrolled Emissions

Pollutant	EF ppm @ 15% O_2	Emissions (lb/hr)	Emissions (tpy)	Notes
NO_x	25	36.4	123.1	1
CO	40	35.5	119.9	1
VOC	4	2.0	6.9	1
$PM/PM_{10}/PM_{2.5}$	-	4.0	13.5	2
SO_2	-	0.4	1.4	3

Steady State Controlled Emissions

Pollutant	EF ppm @ 15% O_2	Emissions (lb/hr)	Emissions (tpy)	Notes
NO_x	2.5	3.6	12.3	4
CO	6	5.3	18.0	4
VOC	2	1.0	3.4	4
$PM/PM_{10}/PM_{2.5}$	-	4.0	13.5	2
SO_2	-	0.4	1.4	3

F factor @ 60° F	8578	dscf/MMBtu
Standard Volume @ 60° F	379.5	scf/lb-mol
MW of NOx	46	lb/lb-mol
MW of CO	28	lb/lb-mol
MW of VOC	16	lb/lb-mol
Correction factor to 15% oxygen	3.5	dimensionless
Sulfur limit of natural gas	0.0075	grains/dscf

HAP Emissions

Pollutant	EF lb/MMBtu	Emissions (lb/hr)	Emissions (tpy)	Notes
1,3-Butadiene	4.3E-07	1.7E-04	5.7E-04	5
Acetaldehyde	4.0E-05	1.6E-02	5.3E-02	5
Acrolein	6.4E-06	2.5E-03	8.6E-03	5
Benzene	1.2E-05	4.7E-03	1.6E-02	5
Ethylbenzene	3.2E-05	1.3E-02	4.3E-02	5
Formaldehyde	7.1E-04	2.8E-01	9.5E-01	5
Naphthalene	1.3E-06	5.1E-04	1.7E-03	5
PAH	2.2E-06	8.7E-04	2.9E-03	5
Propylene Oxide	2.9E-05	1.1E-02	3.9E-02	5
Toluene	1.3E-04	5.1E-02	1.7E-01	5
Xylenes	6.4E-05	2.5E-02	8.6E-02	5
Total		4.1E-01	1.4E+00	

TAP Emissions

Pollutant	EF lb/MMBtu	Emissions (lb/hr)	Emissions (tpy)	Notes
Ammonia	0.014	5.4	18.2	6

GHG Emissions, per turbine

Pollutant	EF kg/MMBtu	Emissions (lb/hr)	Emissions (tpy)	Notes
CO_2	53.06	46,264.5	156,373.9	7
CH_4	1.0E-03	0.87	2.9	7
N_2O	1.0E-04	0.087	0.29	7
CO_2e	-	46,312.2	156,535.4	8

[1] Based on manufacturer's data sheet. CO emission factor has safety factor: it's maximum emission estimate is 34, with a 17.65% safety factor applied yields a safety factor of 40.0 ppm

[2] Based on manufacturer's guarantee for GE LM6000

[3] SO2 emissions calculated based on the max allowable gas sulfur content of 0.75 gr/100 scf and hourly emissions = EF(grains/dscf) / 7000 grains/lb * 1,000,000 * Heat input (MMBtu/hr) / Fuel Heating Value (Btu/scf)

[4] Based on SCR data

[5] AP-42 Table 3.1-3, operating at 6760 hr/yr

[6] Ammonia emission factor based on ammonia slip of 10 ppm at 15% oxygen

[7] 40 CFR Part 98, Subpart C, Tables C-1 and C-2

[8] 40 CFR Part 98, Subpart A, Table A-1: GWP for CO_2 = 1, CH_4 = 25, N_20 = 298

PNM - La Luz Energy Center
Turbine Startup Shutdown Maintenance
and Malfunction Emission Calculations

Make/Model	General Electric LM6000 Sprint	
ID Number	1	2
Serial Number	191-770	TBD
Manufacture Date	2013	TBD
Install Date	Oct-15	TBD
Type	Natural Gas Turbine	

Engine Parameters

Specification	Value	Units	Notes
Startup Hours	1,000	hr/yr	-
Shutdown Hours	1,000	hr/yr	-
Maximum Power Rating	43,850	kW	1
Maximum Horsepower	58,803	hp	Calculated
Total Mass Flow of Exhau	898,310	lb/hr	1
Fuel Heating Value	1,047	Btu/scf	Gas Analysis
Fuel Usage	395,500,000	BTU/hr	1
Hourly Fuel Usage	378	Mscf/hr	Calculated
Annual Fuel Usage	2,554	MMscf/yr	Calculated
Heat Input	395.5	MMBtu/hr	Calculated
Stack Temp	851	deg F	1
Stack Height	45	ft	Estimate
Stack Diameter	10	ft	Estimate
Stack Velocity	120	ft/s	Estimate

Uncontrolled Emissions

Startup

Pollutant	EF	Emissions		Notes
	ppm @ 15% O_2	(lb/hr)	(tpy)	
NO_x	25	36.4	18.2	1
CO	40	35.5	17.7	1
VOC	4	2.0	1.0	1
$PM/PM_{10}/PM_{2.5}$	-	4.0	2.0	2
SO_2	-	0.40	0.20	3

Shutdown

Pollutant	EF	Emissions		Notes
	ppm @ 15% O_2	(lb/hr)	(tpy)	
NO_x	25	36.4	18.2	1
CO	40	35.5	17.7	1
VOC	4	2.0	1.0	1
$PM/PM_{10}/PM_{2.5}$	-	4.0	2.0	2
SO_2	-	0.40	0.20	3

Malfunction

Pollutant	Emissions		Notes
	(lb/hr)	(tpy)	
NO_x	36.4	5.0	4
CO	35.5	5.0	4
VOC	2.0	5.0	4
$PM/PM_{10}/PM_{2.5}$	4.0	5.0	4
SO_2	0.40	1.8	4
Total HAPs	0.41	1.8	4
Ammonia	5.4	2.7	4

Controlled Emissions

Startup

Pollutant	Emissions		Notes
	(lb/hr)	(tpy)	
NO_x	20.0	10.0	5
CO	20.4	10.2	5
VOC	1.5	0.76	5
$PM/PM_{10}/PM_{2.5}$	4.0	2.0	6
SO_2	0.40	0.20	6

HAP Emissions

Pollutant	EF	Emissions		Notes
	lb/MMBtu	(lb/hr)	(tpy)	
1,3-Butadiene	4.3E-07	1.7E-04	8.5E-05	7
Acetaldehyde	4.0E-05	1.6E-02	7.9E-03	7
Acrolein	6.4E-06	2.5E-03	1.3E-03	7
Benzene	1.2E-05	4.7E-03	2.4E-03	7
Ethylbenzene	3.2E-05	1.3E-02	6.3E-03	7
Formaldehyde	7.1E-04	2.8E-01	1.4E-01	7
Naphthalene	1.3E-06	5.1E-04	2.6E-04	7
PAH	2.2E-06	8.7E-04	4.4E-04	7
Propylene Oxide	2.9E-05	1.1E-02	5.7E-03	7
Toluene	1.3E-04	5.1E-02	2.6E-02	7
Xylenes	6.4E-05	2.5E-02	1.3E-02	7
Total		4.1E-01	2.0E-01	

TAP Emissions

Pollutant	EF lb/MMBtu	Emissions (lb/hr)	Emissions (tpy)	Notes
Ammonia	0.014	5.4	2.7	8

GHG Emissions

Pollutant	EF kg/MMBtu	Emissions (lb/hr)	Emissions (tpy)	Notes
CO_2	53.06	46,264.5	23,132.2	9
CH_4	1.0E-03	0.87	0.44	9
N_2O	1.0E-04	0.087	0.044	9
CO_2e	-	46,312.2	23,156.1	10

Shutdown

Pollutant	Emissions (lb/hr)	Emissions (tpy)	Notes
NO_x	9.1	4.6	11
CO	10.3	5.2	11
VOC	1.2	0.59	11
$PM/PM_{10}/PM_{2.5}$	4.0	2.0	6
SO_2	0.40	0.20	6

HAP Emissions

Pollutant	EF lb/MMBtu	Emissions (lb/hr)	Emissions (tpy)	Notes
1,3-Butadiene	4.3E-07	1.7E-04	8.5E-05	7
Acetaldehyde	4.0E-05	1.6E-02	7.9E-03	7
Acrolein	6.4E-06	2.5E-03	1.3E-03	7
Benzene	1.2E-05	4.7E-03	2.4E-03	7
Ethylbenzene	3.2E-05	1.3E-02	6.3E-03	7
Formaldehyde	7.1E-04	2.8E-01	1.4E-01	7
Naphthalene	1.3E-06	5.1E-04	2.6E-04	7
PAH	2.2E-06	8.7E-04	4.4E-04	7
Propylene Oxide	2.9E-05	1.1E-02	5.7E-03	7
Toluene	1.3E-04	5.1E-02	2.6E-02	7
Xylenes	6.4E-05	2.5E-02	1.3E-02	7
Total		4.1E-01	2.0E-01	

TAP Emissions

Pollutant	EF lb/MMBtu	Emissions (lb/hr)	Emissions (tpy)	Notes
Ammonia	0.014	5.4	2.7	8

GHG Emissions

Pollutant	EF kg/MMBtu	Emissions (lb/hr)	Emissions (tpy)	Notes
CO_2	53.06	46,264.5	23,132.2	9
CH_4	1.0E-03	0.87	0.44	9
N_2O	1.0E-04	0.087	0.044	9
CO_2e	-	46,312.2	23,156.1	10

Malfunction

Pollutant	Emissions (lb/hr)	Emissions (tpy)	Notes
NO_x	20.0	5.0	4
CO	20.4	5.0	4
VOC	1.5	5.0	4
$PM/PM_{10}/PM_{2.5}$	4.0	5.0	4
SO_2	0.40	1.8	4
Total HAPs	0.41	1.8	4
Ammonia	5.4	2.7	4

[1] Based on manufacturer's data sheet. CO emission factor has safety factor: it's maximum emission estimate is 34, with a 17.65% safety factor applied yields a safety factor of 40.0 ppm

[2] Based on manufacturer's guarantee for GE LM6000

[3] SO2 emissions calculated based on the max allowable gas sulfur content of 0.75 gr/100 scf and hourly emissions = EF(grains/dscf) / 7000 grains/lb * 1,000,000 * Heat input (MMBtu/hr) / Fuel Heating Value (Btu/scf)

[4] Malfunction emissions (lb/hr) equal the startup emissions; and malfunction emissions (tpy) equal the hourly emissions * 8760/2000 or 5.0, whichever is less

[5] Startup emissions for NO_x, CO and VOC are: (the uncontrolled emissions) * 30/60 minutes + (the controlled emissions) * 30/60 minutes

[6] TSP, PM_{10}, $PM_{2.5}$, SO_2 startup and shutdown emission rates per hour are the same as steady state operation. The tpy rate is based on 1000 hrs/yr

[7] AP-42 Table 3.1-3, operating at 6760 hr/yr

[8] Ammonia emission factor based on ammonia slip of 10 ppm at 15% oxygen

[9] 40 CFR Part 98, Subpart C, Tables C-1 and C-2

[10] 40 CFR Part 98, Subpart A, Table A-1: GWP for CO_2 = 1, CH_4 = 25, N_20 = 298

[11] Shutdown emissions for NO_x, CO and VOC are: (the uncontrolled emissions) * 10/60 minutes + (the controlled emissions) * 50/60 minutes

PNM - La Luz Energy Center
Circuit Breaker Emission Calculations

Unit(s):	Circuit Breakers	
Description:	Fugitive emissions from circuit breakers	
Component Count	2	
Unit Number:	CB-1	CB-2

Emission Calculations

Pollutant	Quantity (lb SF6/circuit breaker)	Leak Rate (%/yr)	Emissions (lb/yr)[1]	Emissions (tons/yr)	Global Warming Potential[2]	CO_2e (tons/yr)
SF6	85	1%	0.85	0.00043	22,800	9.7
total	170	1%	1.7	0.00085	22,800	19.4

[1] Based on Siemens 120 kV Circuit Breaker leakage rate guarantee
[2] 40 CFR Part 98, Subpart A, Table A-1

PNM - La Luz Energy Center
Tanks Emission Calculations

Description:	6000 gallon ammonia storage tanks	
Unit(s):	TK-1	TK-2
Installation date:	Oct-15	TBD

Tank Parameters

Specifications	values	units
Number of Tanks:	2	tanks
Tank Volume	6000	gallons
Tank Capacity at 90%	5400	gallons
Frequency Filled	1	per week
Frequency Filled	52	per year

Uncontrolled Working and Breathing Emissions

Parameters	per tank	total	equations
Total working and breathing losses (lb/yr)	87.4	174.9	$L_W + L_B$
Emissions of ammonia (lb/yr)	17.0	34.1	$(L_W + L_B) * W_A$
Emissions of ammonia (lb/hr)	0.0019	0.0039	$((L_W + L_B) * W_A)/8760$
Emissions of ammonia (tons/yr)	0.0085	0.017	$((L_W + L_B) * W_A)/ 8760/2000$

Working Losses

Parameters	values	units	equations
Annual throughput (Q_W)	37537.5	ft^3/yr	V_T/wk = 6000, 90% capacity
Tank capacity (V_T)	802.1	ft^3	
Ambient temperature (T)	286.7	degrees K	avg high 73.8 °F, avg low 38.9 °F
Vapor pressure of liquid at ambient temperature (VP)	43.5	mmHg	$(P_A*X_A)+(P_W*X_W)$
Partial pressure of ammonia (P_A)	177	mmHg	
Molal percent of ammonia (X_A)	20.4%	%	
Partial pressure of water (P_W)	9.3	mmHg	
Molal percent of water (X_W)	79.6%	%	
Molecular weight of liquid (MW)	17.8	lb/lb-mole	$1/(W_A/MW_A+W_W/MW_W)$
Weight percent of ammonia (W_A)	19.5%	%	
Molecular weight of ammonia (MW_A)	17.0	lb/lb-mole	
Weight percent of water (W_W)	80.5%	%	
Molecular weight of water (MW_W)	18	lb/lb-mole	
N	46.8	dimensionless	$N = Q_W/V_T$
Annual turnover factor (K_N)	0.81	dimensionless	(180+N)/6N
Working loss product factor (K_P)	1	dimensionless	
Working Losses (L_W)	82.1	lb/yr	$Q_W*(1/359)*(273.15/T)*(VP/760)*(MW)*(K_N)*(K_P)$

Breathing losses

Parameters	values	units	equations
Air displaced from tank due to expansion (M_{air})	0.014	lb-mole/day	$V_V*(1/359)*K_E*(273.15/T)$
Vapor space in tank (V_V)	80.2	scf	10% of V_T
Vapor space expansion factor (K_E)	0.068	dimensionless	T_R/T
Day-night temperature fluctuation (T_R)	19.4	degrees K	avg high - avg low
Breathing losses (L_B)	5.4	lb/yr	$365*M_{air}*(VP/760)*MW$

PNM - La Luz Energy Center
Haul Road Emission Calculations

Unit(s):	Haul
Description:	Haul Road Calculations

Parameters

Mean vehicle weight	20.0	tons
Trip frequency	52	trips/yr
Surface silt content[1]	4.8	%
Annual wet days[2]	60	days/yr
VMT (Vehicle miles traveled)[3]	0.38	miles/delivery

Emission Factors and Constants

Parameter	PM_{30}	PM_{10}	$PM_{2.5}$
k, lb/VMT[4]	4.9	1.5	0.15
a, lb/VMT[4]	0.70	0.90	0.90
b, lb/VMT[4]	0.45	0.45	0.45
Annual EF, lb/VMT[5]	6.1	1.5	0.15
Annual EF, nat. mitig., lb/VMT[6]	5.1	1.3	0.13

Emission Calculations

PM_{30}	PM_{10}	$PM_{2.5}$	
1.9	0.49	0.049	lb/delivery[7]
0.050	0.013	0.0013	ton/yr[8]

[1] AP-42 Table 13.2.2-1
[2] AP-42 Figure 13.2.2-1
[3] VMT/delivery = Vehicle Miles Traveled per delivery
[4] Table 13.2.2-2, Industrial Roads
[5] AP-42 13.2.2, Equation 1a
[6] AP-42 13.2.2, Equation 2
[7] lb/delivery = Annual EF, nat. mitig. (lb/VMT) * VMT (mile/delivery)
[8] ton/yr = Annual EF, nat. mitig., (lb/VMT) * VMT (miles/delivery)* 52 (deliveries/yr) / 2000 (tons/lb)

Section 6.a

Green House Gas Emissions

(Submitting under 20.2.70, 20.2.72 20.2.74 NMAC)

Title V (20.2.70 NMAC), Minor NSR (20.2.72 NMAC), and PSD (20.2.74 NMAC) applicants must estimate and report greenhouse gas (GHG) emissions to verify the emission rates reported in the public notice, determine applicability to 40 CFR 60 Subparts, and to evaluate Prevention of Significant Deterioration (PSD) applicability. GHG emissions that are subject to air permit regulations consist of the sum of an aggregate group of these six greenhouse gases: carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).

Calculating GHG Emissions:

1. Calculate the ton per year (tpy) GHG mass emissions and GHG CO_2e emissions from your facility.
2. GHG mass emissions are the sum of the total annual tons of greenhouse gases without adjusting with the global warming potentials (GWPs). GHG CO_2e emissions are the sum of the mass emissions of each individual GHG multiplied by its GWP found in Table A-1 in 40 CFR 98 Mandatory Greenhouse Gas Reporting.
3. Emissions from routine or predictable start up, shut down, and maintenance must be included.
4. Report GHG mass and GHG CO_2e emissions in Table 2-P of this application. Emissions are reported in **short** tons per year and represent each emission unit's Potential to Emit (PTE).
5. All Title V major sources, PSD major sources, and all power plants, whether major or not, must calculate and report GHG mass and CO2e emissions for each unit in Table 2-P.
6. For minor source facilities that are not power plants, are not Title V, and are not PSD there are three options for reporting GHGs in Table 2-P: 1) report GHGs for each individual piece of equipment; 2) report all GHGs from a group of unit types, for example report all combustion source GHGs as a single unit and all venting GHGs as a second separate unit; 3) or check the following ☐ By checking this box, the applicant acknowledges the total CO2e emissions are less than 75,000 tons per year.

Sources for Calculating GHG Emissions:

- Manufacturer's Data
- AP-42 Compilation of Air Pollutant Emission Factors at http://www.epa.gov/ttn/chief/ap42/index.html
- EPA's Internet emission factor database WebFIRE at http://cfpub.epa.gov/webfire/
- 40 CFR 98 Mandatory Green House Gas Reporting except that tons should be reported in short tons rather than in metric tons for the purpose of PSD applicability.
- API Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Natural Gas Industry. August 2009 or most recent version.
- Sources listed on EPA's NSR Resources for Estimating GHG Emissions at http://www.epa.gov/nsr/clean-air-act-permitting-greenhouse-gases:

Global Warming Potentials (GWP):
Applicants must use the Global Warming Potentials codified in Table A-1 of the most recent version of 40 CFR 98 Mandatory Greenhouse Gas Reporting. The GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to that of one unit mass of CO_2 over a specified time period.

"Greenhouse gas" for the purpose of air permit regulations is defined as the aggregate group of the following six gases: carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. **(20.2.70.7 NMAC, 20.2.74.7 NMAC).** You may also find GHGs defined in 40 CFR 86.1818-12(a).

Metric to Short Ton Conversion:
Short tons for GHGs and other regulated pollutants are the standard unit of measure for PSD and title V permitting programs. 40 CFR 98 Mandatory Greenhouse Reporting requires metric tons.
1 metric ton = 1.10231 short tons (per Table A-2 to Subpart A of Part 98 – Units of Measure Conversions)

See Section 6, Turbine 1 and 2 and Circuit Breakers for GHG Emissions.

Section 7

Information Used To Determine Emissions

Information Used to Determine Emissions shall include the following:

- ☑ If manufacturer data are used, include specifications for emissions units and control equipment, including control efficiencies specifications and sufficient engineering data for verification of control equipment operation, including design drawings, test reports, and design parameters that affect normal operation.
- ☐ If test data are used, include a copy of the complete test report. If the test data are for an emissions unit other than the one being permitted, the emission units must be identical. Test data may not be used if any difference in operating conditions of the unit being permitted and the unit represented in the test report significantly effect emission rates.
- ☑ If the most current copy of AP-42 is used, reference the section and date located at the bottom of the page. Include a copy of the page containing the emissions factors, and clearly mark the factors used in the calculations.
- ☐ If an older version of AP-42 is used, include a complete copy of the section.
- ☑ If an EPA document or other material is referenced, include a complete copy.
- ☐ Fuel specifications sheet.
- ☐ If computer models are used to estimate emissions, include an input summary (if available) and a detailed report, and a disk containing the input file(s) used to run the model. For tank-flashing emissions, include a discussion of the method used to estimate tank-flashing emissions, relative thresholds (i.e., permit or major source (NSPS, PSD or Title V)), accuracy of the model, the input and output from simulation models and software, all calculations, documentation of any assumptions used, descriptions of sampling methods and conditions, copies of any lab sample analysis.

The following information used to determine emissions is attached:

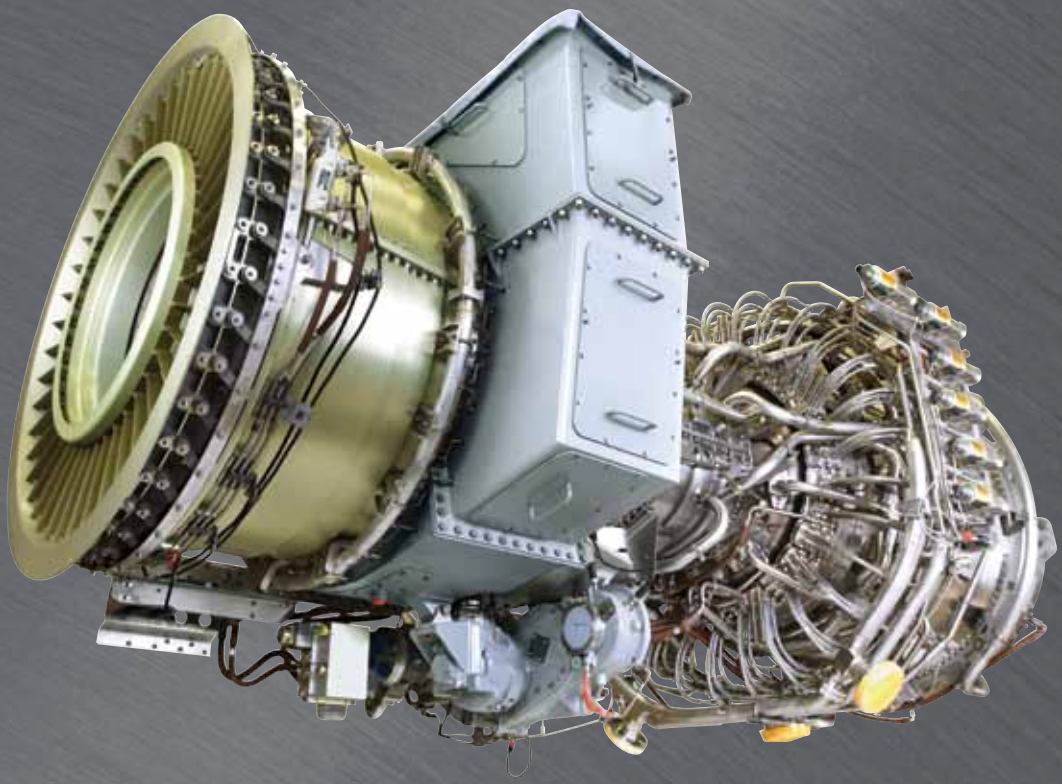
- **Turbine 1 and 2 (Unit 1 and Unit 2)**
  - Manufacturer's data
  - AP-42 Table 3.1-3
  - 40 CFR Part 98, Subpart A, Table A-1
  - 40 CFR Part 98, Subpart C, Tables C-1 and C-2
- **Haul Roads (Unit Haul)**
  - AP-42 13.2.2: Tables 13.2.2-1 and 13.2.2-2, Figure 13.2.2-1, and Equations 1a and 2
- **Circuit Breakers (Units CB-1 and CB-2)**
  - Siemens 120 kV Circuit Breaker leakage guarantee
  - 40 CFR Part 98, Subpart A, Table A-1

GE Oil & Gas

A STRUCTURED PRODUCT

LM6000 Aeroderivative Gas Turbine

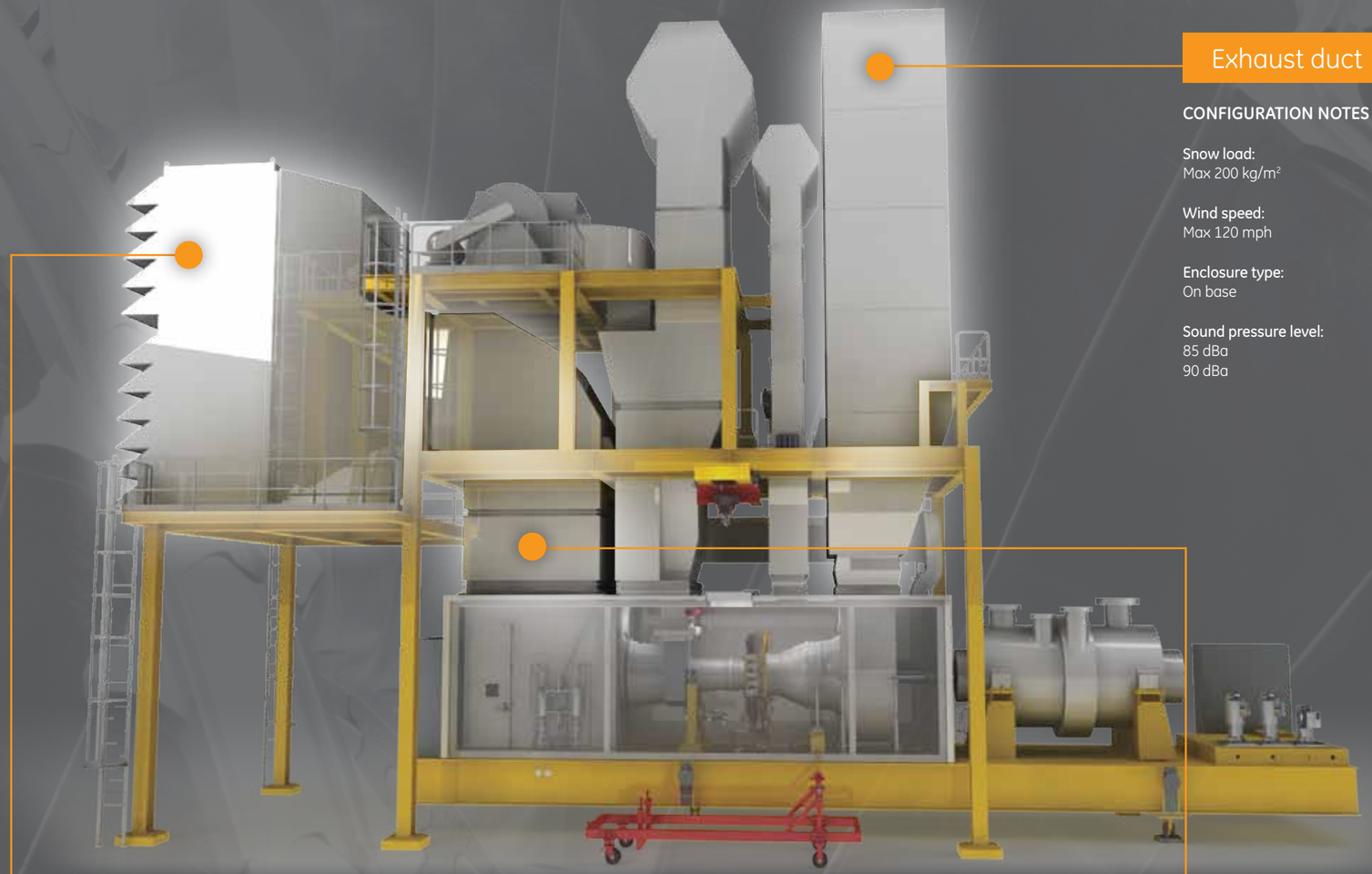
More than 1,000 of our LM6000 dual-rotor, direct-drive gas turbines have accumulated over 21 million operating hours worldwide. The model is well known for high reliability and availability in power generation for combined cycle or peak power, as well as combined heat and power for industrial and independent power producers. It offers up to 42% thermal efficiency in simple cycle (over 52% in combined cycle) with high part-power efficiency.



The perfect mix of
Standardization & customization

General Performance Data

	50/60 Hz Power generation
Output	43,850 KW
Heat rate	8,468 Kj/kwh (5,985 Btu/hph)
Pressure ratio	28.5:1
Mass flow	275 lb/sec (125 kg/sec)
Turbine speed	3,600 rpm
Exhaust temperature	851°F (455°C)
Model designation	LM6000



Exhaust duct

CONFIGURATION NOTES

Snow load:
Max 200 kg/m²

Wind speed:
Max 120 mph

Enclosure type:
On base

Sound pressure level:
85 dBa
90 dBa

TECHNICAL OPTIONS

Exhaust plenum arrangement:
VERTICAL

Exhaust system height:
VERTICAL 15 m

Exhaust system material:
C.S. OUTER + AISI409 INNER

Bolts and nuts:
ANSI B1.1
ISO std

Exhaust system stack insulation:
Internal

Filter house

CONFIGURATION NOTES

Inlet duct UP and FRONT
Ventilation system pressurized
Ventilation take-off segregated
ON BASE enclosure

Altitude and max ambient temperature:
Desert and seaside environment:
300 m @ 50°C
1,000 m @ 47°C
1,500 m @ 45°C

Snow load:
Max 200 kg/m²

Wind speed:
Max 120 mph

TECHNICAL OPTIONS

Static multistage:
Prefilter stage F5/interm. stage F9 (not required for ventilation air)/final stage H12 (F9 for ventilation air)
Prefilter stage F5/interm. stage not required/final stage F9
Prefilter stage F6/interm. stage not required/final stage F9

Environment:
Offshore, onshore coastal, tropical

Chiller:
Yes
No

Pre-assembly:
Yes
No

Transmitters:
Rosemount
Honeywell

Painting/surface treatment:
SS painted
SS not painted

Material:
Carbon steel
AISI316L

Tubing fittings:
Parker
Swagelock

Welding:
ASME IX
AWS

Inlet duct

CONFIGURATION NOTES

Inlet duct UP and FRONT
Ventilation system pressurized
Ventilation take-off segregated
ON BASE enclosure

Snow load:
Max 200 kg/m²

Wind speed:
Max 120 mph

TECHNICAL OPTIONS

Material:
Carbon steel
AISI316L

Silencer material:
AISI304
AISI316L

Enclosure type:
On base

Sound pressure level:
85 dBa

Insulation:
Internal
External

Bolts and nuts:
ANSI B1.1
ISO std

Rugged & Reliable

Our latest generation LM6000 offers a 25% simple-cycle power increase and an 18% boost in exhaust energy for cogeneration applications.

The lightweight LM6000 has a small footprint with a modular package designed for easy maintenance to further improve availability. Inlet and exhaust designs can be optimized for sand, salt, and noise requirements at the site.

Capabilities include fast start to 100% load in just 10 minutes; cycling without impact on maintenance intervals; and compatibility with a wide range of fuels, both gas and liquid, including low Modified Wobbe Index (MWI).

Two configurations are available: the LM6000-PG with single annular combustor (SAC), and the LM6000-PH with dry low emissions (DLE) technology capable of dual fuel operation to 15 ppm NOx for gas fuels.

GE Oil & Gas

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For complete contact information,
please refer to our website.

ge.com/oilandgas

GE imagination at work

GE_ProductStructuring_LM6000_FS_012512

GUARANTEE

PROJECT: PNM FALL 2011 RFP
LOCATION: NEW MEXICO, USA

KW AT GEN TERMS	39191
BTU/KW-HR, LHV	8775
(KJ/KW-HR, LHV)	9258

Adesoji Dairo
Performance Engineer
Date: 11/13/12

EMISSIONS ARE VALID FOR T2 WITHIN 0°F-100°F AND A GTG LOAD DOWN TO 50% AS DEFINED IN STEADY STATE CONDITIONS FOR EMISSIONS GUARANTEE

NOX: 25 PPMVD AT 15% O2
(51 mg/Nm3)
CO: 110 PPMVD AT 15% O2
(138 mg/Nm3)
VOC: 6.3 PPMVD AT 15% O2
(5 mg/Nm3)
PM10: 4 LB/HR
(2 kg/hr)

Start Up Time to Base Load, 10 Minutes
(See conditions for 10-minute start)

NOT VALID WITHOUT SIGNATURE

VALID UNTIL 02/11/13

BASIS OF GUARANTEE:	BASE LOAD, GAS FUEL NOZZLE SYSTEM NO BLEED OR EXTRACTED POWER
ENGINE:	(1) GE LM6000PC-SPRINT W/ FIGV AT -5 DEGREES GAS TURBINE
FUEL:	19000Btu/lb / (44194 kJ/kg) LHV, GAS FUEL (#10-1)
FUEL SPEC:	MID-TD-0000-1 LATEST REVISION
FUEL TEMP:	SITE FUEL TEMPERATURE OF 77.0°F(25.0°C)
FUEL PRESS:	675 PSIG+/-20 PSIG (4654 KPAG+/-138 KPAG)
GENERATOR:	BDAX 7-290ERJT
GENERATOR OUTPUT	13.8kV, 60 Hz
POWER FACTOR:	0.85
AMBIENT TEMP:	90.0°F / (32.2°C)
AMBIENT RH:	18.0%
INLET CONDITIONING:	EVAP TO 64.5°F / (18.1°C) AT 78.8% RH
ALTITUDE:	5100.0ft / (1554.5m)
INLET FILTER LOSS:	5.00 inH_2O / (127.0 mmH_2O)
EXHAUST LOSS:	12.00 inH_2O / (304.8 mmH_2O)
SPRINT WATER FLOW:	NOT TO EXCEED 10505 lb/hr
NOX CONTROL:	WATER
INJECTION RATE:	13398 lb/hr / (6077kg/hr) ±20% FLOW
INJECTION TEMP:	100 °F/(37.8 °C)
ENGINE CONDITION:	NEW AND CLEAN ≤ 200 SITE FIRED HOURS
FIELD TEST METHODS	
PERFORMANCE:	GE POWER & WATER SGTGPTM
NOX:	EPA METHOD 20
CO:	EPA METHOD 10
VOC:	EPA METHOD 25A/18
PM10:	EPA METHOD 5 / 202

BASIS OF GUARANTEE IS NOT FOR DESIGN, REFER TO PROJECT DRAWINGS FOR DESIGN REQUIREMENTS.
SI VALUES ARE FOR REFERENCE PURPOSES ONLY.

THIS GUARANTEE SUPERSEDES ANY
PREVIOUS GUARANTEES PRESENTED

GUARANTEE

PROJECT: PNM FALL 2011 RFP
LOCATION: NEW MEXICO, USA

KW AT GEN TERMS	39191
BTU/KW-HR, LHV	8775
(KJ/KW-HR, LHV)	9258

Adesoji Dairo
Performance Engineer
Date: 11/13/12

NEAR FIELD NOISE:

85 DB(A) ARITHMETIC AVERAGE SOUND PRESSURE LEVEL (dB REF 20 MICROPASCALS, RMS) OF LOCATIONS AROUND THE PACKAGE (VERTICAL DISTANCE OF 5FT. (1.5M) ABOVE PACKAGE BASE AT A HORIZONTAL DISTANCE OF 3FT. (1M) FROM THE EXTERIOR PLANE OF EQUIPMENT AS TESTED IN A FREE-FIELD CONDITION OVER A HARD REFLECTING GROUND PLANE, OPERATING AT BASE LOAD)

Start Up Time to Base Load, 10 Minutes
(See conditions for 10-minute start)

NOT VALID WITHOUT SIGNATURE

VALID UNTIL 02/11/13

BASIS OF GUARANTEE:	BASE LOAD, GAS FUEL NOZZLE SYSTEM NO BLEED OR EXTRACTED POWER
ENGINE:	(1) GE LM6000PC-SPRINT W/ FIGV AT -5 DEGREES GAS TURBINE
FUEL:	19000Btu/lb / (44194 kJ/kg) LHV, GAS FUEL (#10-1)
FUEL SPEC:	MID-TD-0000-1 LATEST REVISION
FUEL TEMP:	SITE FUEL TEMPERATURE OF 77.0°F(25.0°C)
FUEL PRESS:	675 PSIG+/-20 PSIG (4654 KPAG+/-138 KPAG)
GENERATOR:	BDAX 7-290ERJT
GENERATOR OUTPUT	13.8kV, 60 Hz
POWER FACTOR:	0.85
AMBIENT TEMP:	90.0°F / (32.2°C)
AMBIENT RH:	18.0%
INLET CONDITIONING:	EVAP TO 64.5°F / (18.1°C) AT 78.8% RH
ALTITUDE:	5100.0ft / (1554.5m)
INLET FILTER LOSS:	5.00 inH_2O / (127.0 mmH_2O)
EXHAUST LOSS:	12.00 inH_2O / (304.8 mmH_2O)
SPRINT WATER FLOW:	NOT TO EXCEED 10505 lb/hr
NOX CONTROL:	WATER
INJECTION RATE:	13398 lb/hr / (6077kg/hr) ±20% FLOW
INJECTION TEMP:	100 °F/(37.8 °C)
ENGINE CONDITION:	NEW AND CLEAN ≤ 200 SITE FIRED HOURS
NEAR FIELD NOISE:	GE ACOUSTIC TESTING PROCEDURE AND ASME PTC-36-2004

BASIS OF GUARANTEE IS NOT FOR DESIGN, REFER TO PROJECT DRAWINGS FOR DESIGN REQUIREMENTS.
SI VALUES ARE FOR REFERENCE PURPOSES ONLY.

THIS GUARANTEE SUPERSEDES ANY
PREVIOUS GUARANTEES PRESENTED

Conditions for Near Field Noise Guarantee

1. Based on arithmetic average of sound pressure levels at locations around the package.
2. Water Injection Skid, Sprint Skid, and Liquid Fuel Boost Pump Skid shall be supplied with full-weather enclosures.
3. Ancillary skids of the package must be located less than 6-ft of each other, and less than 6-ft of the main unit, measuring nearest edge-to-edge. If the package configuration requires the ancillary skids to be placed 6-ft or more from each other, then the ancillary skids must be located at least 10-ft apart.
4. If Fin Fan Cooler is to be located broadside to the main unit, then its location must be at least 25-ft away from the main unit, measuring nearest edge-to-edge. GE Power & Water is to advise best location.
5. If Fin Fan Cooler is to be located behind the generator end of the main unit, then its location must be at least 10-ft behind the generator end of the package, and off to one side, measuring nearest edge-to-edge, to avoid infringement on the rotor removal area. GE Power & Water is to advise best location.
6. Ancillary skids of the package must be located at least 10-ft away from Fin Fan Cooler, measuring nearest edge-to-edge.
7. Per unit basis.
8. Base-load operation only.
9. GE Power & Water GTG package scope of supply only, customer supplied equipment is not included.
10. GE Power & Water GTG package scope of supply only, GE Power & Water supplied BOP equipment is not included.
11. If GE Power & Water supplies BOP equipment, then GE Power & Water is to advise best location.

Conditions for VOC Emissions Guarantee

1. Fuel must meet GE specification MID-TD-000-01.
2. The timing of test to coincide with lowest site ambient VOCs levels.
3. Gas turbine must run for a minimum of 300 total fired hours at base load prior to testing.
4. Gas turbine inlet and exhaust system must be free of any dirt,sand,mud,rust,oil or any other contaminates.
5. Re-testing (at purchaser's expense) must be allowed, if required.
6. GE receives a copy of the final test results.
7. A compressor wash prior to testing is highly recommended.

Conditions for PM10 Emissions Guarantee

1. Fuel must meet GE specification MID-TD-000-01.
2. The timing of test to coincide with lowest site ambient particulate levels.
3. Gas turbine must run for a minimum of 300 total fired hours at base load prior to testing.
4. Combustion turbine must be run for a minimum of 300 total fired hours prior to any particulate testing; combustion turbine must be operating a minimum of 3 - 4 hours at base load prior to PM / PM10 test run.
5. Gas turbine inlet and exhaust system must be free of any dirt,sand,mud,rust,oil or any other contaminates.
6. Sampling probe internal surfaces must be made of chemically inert and non-catalytic material such as quartz.
7. The filter material shall be quartz.
8. Probe wash shall be high purity acetone per EPA Method 5.
9. Re-testing (at purchaser's expense) must be allowed, if required.
10. GE receives a copy of the final test results.
11. A compressor wash prior to testing is highly recommended.
12. The area around the turbine is to be treated (e.g.sprayed down with water) to minimize airborne dust.

GE POWER & WATER

Conditions for 10-Minute Start Up Guarantee

1. The conditions in GE Position Papers PP08, PP07, and PP17 apply and must be satisfied. Any deviations will require an adjustment to the 10-minute start evaluation.
2. The engine/stack purge times in the 10-minute start apply to exhaust systems that terminate with a standard exhaust stack of 9' diameter and 60' length, or to systems with a (SCR) Selective Catalytic Reduction Unit or Heat Recovery Steam Generator (HRSG) that is continually purged by a forced air purging system.
3. If SCR or HRSG are not continually purged, then proper purging of SCR or HRSG will be required prior to the beginning of Startup Test. **SCR or HRSG purge time is to be excluded from 10-minute start**.
4. 10-Minute Start is for Simple Cycle Operation only. If HRSG has a bypass exhaust stack, then the Damper to HRSG must be closed to allow exhaust flow through bypass stack only.
5. Generator Lube Oil Pump must be running to maintain a "Ready to Start Condition" as defined in PP08.
6. Start sequence is for 60 or 50 Hz applications.
7. Per unit basis.
8. Emission guarantee not in effect.
9. Valid over ambient temperature range of -39°F (39.4°C) to 100°F (37.8°C). However, the unit must be out of an icing condition as defined by PP17 before ramping to full load. **This "warm up period" is to be excluded from the 10-minute start.**

Steady State Conditions for Emissions Guarantee

1.	Power Output (electrical)	±10.0% / Min
2.	T2 Compressor Inlet air temperature	± 2.5°F / 5.0 Min
3.	Heat Value - gaseous fuel per unit volume	±0.25% / Min
4.	Pressure - gaseous fuel as supplied to engine	± 10 PSIG / 5.0 Min

Estimated Average Engine Performance NOT FOR GUARANTEE, REFER TO PROJECT F&ID FOR DESIGN

GE Energy

Performance By:
Project Info: **PNM LM6000 PC Sprint**

Engine: **LM6000 PC-SPRINT w/ FIGV at -5 Degrees**
Deck Info: **G0125P - 8fk.scp**
Generator: **BDAX 290ERT 60Hz, 13.8kV, 0.9PF (14839)**
Fuel: **Gas Fuel #10-1, 19000 Btu/lb,LHV**

Date: **11/15/2011**
Time: **2:24:04 PM**
Version: **3.9.0**

Case #	**100%**	**75%**	**50%**
Ambient Conditions			
Dry Bulb, °F	59.0	59.0	59.0
Wet Bulb, °F	45.5	45.5	45.5
RH, %	37.0	37.0	37.0
Altitude, ft	5100.0	5100.0	5100.0
Ambient Pressure, psia	12.182	12.182	12.182
Engine Inlet			
Comp Inlet Temp, °F	45.5	47.5	47.5
RH, %	100.0	87.2	87.2
Conditioning	EVAP	EVAP	EVAP
Tons or kBtu/hr	0	0	0
Pressure Losses			
Inlet Loss, inH20	4.50	4.50	4.50
Volute Loss, inH20	4.00	4.00	4.00
Exhaust Loss, inH20	6.00	6.00	6.00
Partload %	**100**	**75**	**50**
kW, Gen Terms	**42286**	**31721**	**21156**
Est. Btu/kW-hr, LHV	**8488**	**8964**	**10094**
Fuel Flow			
MMBtu/hr, LHV	358.9	284.4	213.6
lb/hr	18891	14966	11240
NOx Control	**Water**	**Water**	**Water**
Water Injection			
lb/hr	15608	10016	8019
Temperature, °F	100.0	100.0	100.0
SPRINT	**LPC**	**LPC**	**OFF**
lb/hr	6932	7099	0
Control Parameters			
HP Speed, RPM	10419	10003	9742
LP Speed, RPM	3600	3600	3600
PS3 - CDP, psia	384.2	334.8	281.3
T25 - HPC Inlet Temp, °F	189.4	194.2	224.1
T3CRF - CDT, °F	963	885	884
T48IN, °R	2038	1894	1787
T48IN, °F	1578	1434	1328
Exhaust Parameters			
Temperature, °F	838.3	769.2	735.3
lb/sec	249.5	226.6	197.0
lb/hr	898310	815597	709158
Energy, Btu/s- Ref 0 °R	83895	71265	59488
Energy, Btu/s- Ref T2 °F	52169	42551	34772
Cp, Btu/lb-R	0.2770	0.2717	0.2671
Emissions (ESTIMATED, NOT FOR GUARANTEE)			
NOx ppmvd Ref 15% O2	25	25	25
NOx as NO2, lb/hr	36	29	22
CO ppmvd Ref 15% O2	13	14	19
CO, lb/hr	11.70	9.84	9.85
CO2, lb/hr	47739.72	37868.76	28495.10
HC ppmvd Ref 15% O2	2	2	2
HC, lb/hr	1.13	0.90	0.67
SOX as SO2, lb/hr	0.00	0.00	0.00

Estimated Average Engine Performance NOT FOR GUARANTEE, REFER TO PROJECT F&ID FOR DESIGN

GE Energy

Performance By:
Project Info: **PNM LM6000 PC Sprint**

Engine: **LM6000 PC-SPRINT w/ FIGV at -5 Degrees**
Deck Info: **G0125P - 8fk.scp**
Generator: **BDAX 290ERT 60Hz, 13.8kV, 0.9PF (14839)**
Fuel: **Gas Fuel #10-1, 19000 Btu/lb,LHV**

Date: **11/15/2011**
Time: **2:24:04 PM**
Version: **3.9.0**

Case #	**100%**	**75%**	**50%**
Exh Wght % Wet (NOT FOR USE IN ENVIRONMENTAL PERMITS)			
AR	1.2187	1.2288	1.2440
N2	71.6436	72.2101	73.0780
O2	14.5256	15.6460	16.7931
CO2	5.3144	4.6431	4.0182
H20	7.2935	6.2684	4.8632
SO2	0.0000	0.0000	0.0000
CO	0.0013	0.0012	0.0014
HC	0.0001	0.0001	0.0001
NOX	0.0028	0.0024	0.0021
Exh Mole % Dry (NOT FOR USE IN ENVIRONMENTAL PERMITS)			
AR	0.9646	0.9603	0.9564
N2	80.8599	80.4759	80.1173
O2	14.3530	15.2659	16.1184
CO2	3.8181	3.2939	2.8041
H20	0.0000	0.0000	0.0000
SO2	0.0000	0.0000	0.0000
CO	0.0015	0.0013	0.0015
HC	0.0003	0.0002	0.0002
NOX	0.0028	0.0024	0.0020
Exh Mole % Wet (NOT FOR USE IN ENVIRONMENTAL PERMITS)			
AR	0.8551	0.8662	0.8831
N2	71.6839	72.5902	73.9834
O2	12.7242	13.7700	14.8844
CO2	3.3848	2.9711	2.5895
H20	11.3480	9.7989	7.6562
SO2	0.0000	0.0000	0.0000
CO	0.0013	0.0012	0.0014
HC	0.0002	0.0002	0.0002
NOX	0.0025	0.0022	0.0019
Aero Energy Fuel Number	**10-1 (GEDEF)**		
	Volume %	**Weight %**	
Hydrogen	0.0000	0.0000	
Methane	84.5000	71.8447	
Ethane	5.5800	8.8924	
Ethylene	0.0000	0.0000	
Propane	2.0500	4.7909	
Propylene	0.0000	0.0000	
Butane	0.7800	2.4027	
Butylene	0.0000	0.0000	
Butadiene	0.0000	0.0000	
Pentane	0.1800	0.6883	
Cyclopentane	0.0000	0.0000	
Hexane	0.1700	0.7764	
Heptane	0.0000	0.0000	
Carbon Monoxide	0.0000	0.0000	
Carbon Dioxide	0.6700	1.5628	
Nitrogen	5.9300	8.8044	
Water Vapor	0.0000	0.0000	
Oxygen	0.1400	0.2374	
Hydrogen Sulfide	0.0000	0.0000	
Ammonia	0.0000	0.0000	
Btu/lb, LHV	19000		
Btu/scf, LHV	946.0		
Btu/scf, HHV	1047.0		
Btu/lb, HHV	20996		
Fuel Temp, °F	77.0		
NOx Scalar	0.998		
Specific Gravity	0.65		
Wobbe	50.657	50.657	50.657

Estimated Average Engine Performance NOT FOR GUARANTEE, REFER TO PROJECT F&ID FOR DESIGN

GE Energy

Performance By:
Project Info: **PNM LM6000 PC Sprint**

Engine: **LM6000 PC-SPRINT w/ FIGV at -5 Degrees**
Deck Info: **G0125P - 8fk.scp**
Generator: **BDAX 290ERT 60Hz, 13.8kV, 0.9PF (14839)**
Fuel: **Gas Fuel #10-1, 19000 Btu/lb,LHV**

Date: **11/15/2011**
Time: **2:24:04 PM**
Version: **3.9.0**

Case #	**100%**	**75%**	**50%**
Engine Exhaust			
Exhaust Avg. Mol. Wt., Wet Basis	28.0	28.2	28.4
Inlet Flow Wet, pps	241.1	239.2	229.9
Inlet Flow Dry, pps	239.3	237.5	228.3
Shaft HP	57746	43442	29164
Generator Information			
Capacity kW	76917	64115	64115
Efficiency	0.9790	0.9792	0.9728
Inlet Temp, °F	59.0	59.0	59.0
Gear Box Loss	N/A	N/A	N/A
TRQ48, Torque Limit Cold End	103098	82463	62673
Correct Control Parameters			
PS3JQA, psia	389.397	339.329	285.105
XN25R3, rpm	6299	6210	6045
8th Stage Bleed			
Flow, pps	0.0	0.0	0.0
Pressure, psia	0.000	0.000	0.000
Temperature, °R	0	0	0
CDP Bleed			
Flow, pps	0.0	0.0	0.0
Pressure, psia	0.000	0.000	0.000
Est. Gas Pressure at Baseplate, psig	**538.6**	**450.8**	**362.5**
WAR36 - Combustor Water to Air Ratio	0.0412	0.0336	0.0232
P3, psia	388.22	338.68	284.99
WAR3	0.0163	0.0161	0.0073
CardPack	**8fk**	**8fk**	**8fk**
Exhaust CardPack	**7f5**	**7f5**	**7f5**
NSI	**304**	**0**	**439**
NSI	**0**	**0**	**0**
NSI	**0**	**0**	**0**

Estimated Average Engine Performance NOT FOR GUARANTEE, REFER TO PROJECT F&ID FOR DESIGN

GE Energy

Performance By:
Project Info: **PNM LM6000 PC Sprint**

Engine: **LM6000 PC-SPRINT w/ FIGV at -5 Degrees**
Deck Info: **G0125P - 8fk.scp**
Generator: **BDAX 290ERT 60Hz, 13.8kV, 0.9PF (14839)**
Fuel: **Gas Fuel #10-1, 19000 Btu/lb,LHV**

Date: **11/15/2011**
Time: **2:24:04 PM**
Version: **3.9.0**

Case #	**100%**	**75%**	**50%**
Ambient Conditions			
Dry Bulb, °F	38.0	38.0	38.0
Wet Bulb, °F	30.7	30.7	30.7
RH, %	46.0	46.0	46.0
Altitude, ft	5100.0	5100.0	5100.0
Ambient Pressure, psia	12.182	12.182	12.182
Engine Inlet			
Comp Inlet Temp, °F	38.0	38.0	38.0
RH, %	46.0	46.0	46.0
Conditioning	NONE	NONE	NONE
Tons or kBtu/hr	0	0	0
Pressure Losses			
Inlet Loss, inH20	4.00	4.00	4.00
Volute Loss, inH20	4.00	4.00	4.00
Exhaust Loss, inH20	6.00	6.00	6.00
Partload %	**100**	**75**	**50**
kW, Gen Terms	**42378**	**31794**	**21200**
Est. Btu/kW-hr, LHV	**8482**	**8931**	**10119**
Fuel Flow			
MMBtu/hr, LHV	359.5	284.0	214.5
lb/hr	18919	14945	11291
NOx Control	**Water**	**Water**	**Water**
Water Injection			
lb/hr	18584	13452	8401
Temperature, °F	100.0	100.0	100.0
SPRINT	**HPC**	**OFF**	**OFF**
lb/hr	3150	0	0
Control Parameters			
HP Speed, RPM	10444	10016	9660
LP Speed, RPM	3600	3600	3600
PS3 - CDP, psia	386.6	337.4	284.9
T25 - HPC Inlet Temp, °F	198.7	207.8	213.4
T3CRF - CDT, °F	988	937	866
T48IN, °R	2038	1907	1764
T48IN, °F	1578	1447	1304
Exhaust Parameters			
Temperature, °F	835.3	774.1	715.4
lb/sec	251.8	228.6	201.1
lb/hr	906394	822788	723789
Energy, Btu/s- Ref 0 °R	84007	71681	59419
Energy, Btu/s- Ref T2 °F	52630	43459	34761
Cp, Btu/lb-R	0.2753	0.2698	0.2653
Emissions (ESTIMATED, NOT FOR GUARANTEE)			
NOx ppmvd Ref 15% O2	25	25	25
NOx as NO2, lb/hr	36	29	22
CO ppmvd Ref 15% O2	27	34	30
CO, lb/hr	24.10	23.43	15.92
CO2, lb/hr	47802.09	37814.43	28621.12
HC ppmvd Ref 15% O2	3	4	3
HC, lb/hr	1.50	1.49	1.00
SOX as SO2, lb/hr	0.00	0.00	0.00

Exh Wght % Wet (NOT FOR USE IN ENVIRONMENTAL PERMITS)			
AR	1.2267	1.2403	1.2497
N2	72.1119	72.8819	73.4099
O2	14.7244	15.9162	16.9837
CO2	5.2739	4.5959	3.9543
H20	6.6575	5.3603	4.3981
SO2	0.0000	0.0000	0.0000
CO	0.0027	0.0028	0.0022
HC	0.0002	0.0002	0.0001
NOX	0.0028	0.0024	0.0021

Exh Mole % Dry (NOT FOR USE IN ENVIRONMENTAL PERMITS)			
AR	0.9641	0.9598	0.9559
N2	80.8196	80.4285	80.0747
O2	14.4478	15.3774	16.2190
CO2	3.7625	3.2284	2.7457
H20	0.0000	0.0000	0.0000
SO2	0.0000	0.0000	0.0000
CO	0.0030	0.0031	0.0024
HC	0.0003	0.0004	0.0003
NOX	0.0027	0.0023	0.0020

Exh Mole % Wet (NOT FOR USE IN ENVIRONMENTAL PERMITS)			
AR	0.8639	0.8790	0.8895
N2	72.4171	73.6535	74.5158
O2	12.9457	14.0821	15.0931
CO2	3.3713	2.9565	2.5551
H20	10.3966	8.4236	6.9422
SO2	0.0000	0.0000	0.0000
CO	0.0027	0.0029	0.0022
HC	0.0003	0.0003	0.0002
NOX	0.0024	0.0021	0.0018

Aero Energy Fuel Number	**10-1 (GEDEF)**		
	Volume %	**Weight %**	
Hydrogen	0.0000	0.0000	
Methane	84.5000	71.8447	
Ethane	5.5800	8.8924	
Ethylene	0.0000	0.0000	
Propane	2.0500	4.7909	
Propylene	0.0000	0.0000	
Butane	0.7800	2.4027	
Butylene	0.0000	0.0000	
Butadiene	0.0000	0.0000	
Pentane	0.1800	0.6883	
Cyclopentane	0.0000	0.0000	
Hexane	0.1700	0.7764	
Heptane	0.0000	0.0000	
Carbon Monoxide	0.0000	0.0000	
Carbon Dioxide	0.6700	1.5628	
Nitrogen	5.9300	8.8044	
Water Vapor	0.0000	0.0000	
Oxygen	0.1400	0.2374	
Hydrogen Sulfide	0.0000	0.0000	
Ammonia	0.0000	0.0000	
Btu/lb, LHV	19000		
Btu/scf, LHV	946.0		
Btu/scf, HHV	1047.0		
Btu/lb, HHV	20996		
Fuel Temp, °F	77.0		
NOx Scalar	0.998		
Specific Gravity	0.65		
Wobbe	50.657	50.657	50.657

Engine Exhaust			
Exhaust Avg. Mol. Wt., Wet Basis	28.1	28.3	28.4
Inlet Flow Wet, pps	243.6	240.7	237.8
Inlet Flow Dry, pps	243.0	240.1	237.2
Shaft HP	57872	43537	29224
Generator Information			
Capacity kW	76917	69366	69366
Efficiency	0.9790	0.9793	0.9728
Inlet Temp, °F	38.0	38.0	38.0
Gear Box Loss	N/A	N/A	N/A
TRQ48, Torque Limit Cold End	103913	83665	63231
Correct Control Parameters			
PS3JQA, psia	391.241	341.451	288.320
XN25R3, rpm	6264	6113	6032
8th Stage Bleed			
Flow, pps	0.0	0.0	0.0
Pressure, psia	0.000	0.000	0.000
Temperature, °R	0	0	0
CDP Bleed			
Flow, pps	0.0	0.0	0.0
Pressure, psia	0.000	0.000	0.000
Est. Gas Pressure at Baseplate, psig	**540.9**	**452.8**	**366.3**
WAR36 - Combustor Water to Air Ratio	0.0357	0.0257	0.0189
P3, psia	390.83	341.66	288.70
WAR3	0.0065	0.0026	0.0026
CardPack	**8fk**	**8fk**	**8fk**
Exhaust CardPack	**7f5**	**7f5**	**7f5**
NSI	**304**	**439**	**439**
NSI	**0**	**0**	**0**
NSI	**0**	**0**	**0**

Estimated Average Engine Performance NOT FOR GUARANTEE, REFER TO PROJECT F&ID FOR DESIGN

GE Energy

Performance By:
Project Info: **PNM LM6000 PC Sprint**

Engine: **LM6000 PC-SPRINT w/ FIGV at -5 Degrees**
Deck Info: **G0125P - 8fk.scp**
Generator: **BDAX 290ERT 60Hz, 13.8kV, 0.9PF (14839)**
Fuel: **Gas Fuel #10-1, 19000 Btu/lb,LHV**

Date: **11/15/2011**
Time: **2:24:04 PM**
Version: **3.9.0**

Case #	**100%**	**75%**	**50%**
Ambient Conditions			
Dry Bulb, °F	90.0	90.0	90.0
Wet Bulb, °F	60.0	60.0	60.0
RH, %	18.0	18.0	18.0
Altitude, ft	5100.0	5100.0	5100.0
Ambient Pressure, psia	12.182	12.182	12.182
Engine Inlet			
Comp Inlet Temp, °F	60.0	64.5	64.5
RH, %	100.0	78.8	78.8
Conditioning	EVAP	EVAP	EVAP
Tons or kBtu/hr	0	0	0
Pressure Losses			
Inlet Loss, inH20	4.50	4.50	4.50
Volute Loss, inH20	4.00	4.00	4.00
Exhaust Loss, inH20	6.00	6.00	6.00
Partload %	**100**	**75**	**50**
kW, Gen Terms	**40219**	**30173**	**20124**
Est. Btu/kW-hr, LHV	**8538**	**9075**	**10289**
Fuel Flow			
MMBtu/hr, LHV	343.4	273.8	207.1
lb/hr	18074	14411	10897
NOx Control	**Water**	**Water**	**Water**
Water Injection			
lb/hr	13253	8672	7399
Temperature, °F	100.0	100.0	100.0
SPRINT	**LPC**	**LPC**	**OFF**
lb/hr	7942	7846	0
Control Parameters			
HP Speed, RPM	10471	10091	9841
LP Speed, RPM	3600	3600	3600
PS3 - CDP, psia	370.2	322.0	268.8
T25 - HPC Inlet Temp, °F	201.0	208.8	236.1
T3CRF - CDT, °F	968	901	908
T48IN, °R	2038	1910	1822
T48IN, °F	1578	1450	1363
Exhaust Parameters			
Temperature, °F	848.0	791.4	771.2
lb/sec	240.0	216.6	186.2
lb/hr	864144	779780	670437
Energy, Btu/s- Ref 0 °R	81650	69737	58287
Energy, Btu/s- Ref T2 °F	50134	41243	34032
Cp, Btu/lb-R	0.2784	0.2737	0.2697
Emissions (ESTIMATED, NOT FOR GUARANTEE)			
NOx ppmvd Ref 15% O2	25	25	25
NOx as NO2, lb/hr	35	28	21
CO ppmvd Ref 15% O2	7	7	11
CO, lb/hr	5.70	4.81	5.38
CO2, lb/hr	45681.03	36465.95	27624.72
HC ppmvd Ref 15% O2	2	2	2
HC, lb/hr	1.08	0.86	0.65
SOX as SO2, lb/hr	0.00	0.00	0.00

Exh Wght % Wet (NOT FOR USE IN ENVIRONMENTAL PERMITS)			
AR	1.2128	1.2224	1.2376
N2	71.2939	71.8342	72.7112
O2	14.4588	15.4844	16.5372
CO2	5.2863	4.6764	4.1204
H20	7.7447	6.7794	5.3905
SO2	0.0000	0.0000	0.0000
CO	0.0007	0.0006	0.0008
HC	0.0001	0.0001	0.0001
NOX	0.0028	0.0024	0.0021

Exh Mole % Dry (NOT FOR USE IN ENVIRONMENTAL PERMITS)			
AR	0.9646	0.9607	0.9571
N2	80.8584	80.5067	80.1817
O2	14.3568	15.1931	15.9657
CO2	3.8164	3.3362	2.8923
H20	0.0000	0.0000	0.0000
SO2	0.0000	0.0000	0.0000
CO	0.0007	0.0007	0.0009
HC	0.0003	0.0002	0.0002
NOX	0.0028	0.0024	0.0021

Exh Mole % Wet (NOT FOR USE IN ENVIRONMENTAL PERMITS)			
AR	0.8486	0.8592	0.8761
N2	71.1412	71.9999	73.3971
O2	12.6315	13.5877	14.6148
CO2	3.3578	2.9837	2.6476
H20	12.0175	10.5666	8.4616
SO2	0.0000	0.0000	0.0000
CO	0.0007	0.0006	0.0008
HC	0.0002	0.0002	0.0002
NOX	0.0024	0.0022	0.0019

Aero Energy Fuel Number	**10-1 (GEDEF)**	
	Volume %	**Weight %**
Hydrogen	0.0000	0.0000
Methane	84.5000	71.8447
Ethane	5.5800	8.8924
Ethylene	0.0000	0.0000
Propane	2.0500	4.7909
Propylene	0.0000	0.0000
Butane	0.7800	2.4027
Butylene	0.0000	0.0000
Butadiene	0.0000	0.0000
Pentane	0.1800	0.6883
Cyclopentane	0.0000	0.0000
Hexane	0.1700	0.7764
Heptane	0.0000	0.0000
Carbon Monoxide	0.0000	0.0000
Carbon Dioxide	0.6700	1.5628
Nitrogen	5.9300	8.8044
Water Vapor	0.0000	0.0000
Oxygen	0.1400	0.2374
Hydrogen Sulfide	0.0000	0.0000
Ammonia	0.0000	0.0000
Btu/lb, LHV	19000	
Btu/scf, LHV	946.0	
Btu/scf, HHV	1047.0	
Btu/lb, HHV	20996	
Fuel Temp, °F	77.0	
NOx Scalar	0.998	
Specific Gravity	0.65	
Wobbe	50.657	50.657

Engine Exhaust			
Exhaust Avg. Mol. Wt., Wet Basis	28.0	28.1	28.3
Inlet Flow Wet, pps	232.1	228.9	221.7
Inlet Flow Dry, pps	229.0	226.0	218.9
Shaft HP	54946	41348	27770
Generator Information			
Capacity kW	76917	55225	55225
Efficiency	0.9783	0.9786	0.9718
Inlet Temp, °F	90.0	90.0	90.0
Gear Box Loss	N/A	N/A	N/A
TRQ48, Torque Limit Cold End	98254	78569	59461
Correct Control Parameters			
PS3JQA, psia	375.208	326.356	272.436
XN25R3, rpm	6327	6235	6059
8th Stage Bleed			
Flow, pps	0.0	0.0	0.0
Pressure, psia	0.000	0.000	0.000
Temperature, °R	0	0	0
CDP Bleed			
Flow, pps	0.0	0.0	0.0
Pressure, psia	0.000	0.000	0.000
Est. Gas Pressure at Baseplate, psig	**517.1**	**433.5**	**347.7**
WAR36 - Combustor Water to Air Ratio	0.0456	0.0384	0.0279
P3, psia	374.08	325.66	272.15
WAR3	0.0235	0.0225	0.0123
CardPack	**8fk**	**8fk**	**8fk**
Exhaust CardPack	**7f5**	**7f5**	**7f5**
NSI	**304**	**0**	**439**
NSI	**0**	**0**	**0**
NSI	**0**	**0**	**0**

Table 3.1-3. EMISSION FACTORS FOR HAZARDOUS AIR POLLUTANTS FROM NATURAL GAS-FIRED STATIONARY GAS TURBINES[a]

Emission Factors[b] - Uncontrolled		
Pollutant	Emission Factor (lb/MMBtu)[c]	Emission Factor Rating
1,3-Butadiene[d]	< 4.3 E-07	D
Acetaldehyde	4.0 E-05	C
Acrolein	6.4 E-06	C
Benzene[e]	1.2 E-05	A
Ethylbenzene	3.2 E-05	C
Formaldehyde[f]	7.1 E-04	A
Naphthalene	1.3 E-06	C
PAH	2.2 E-06	C
Propylene Oxide[d]	< 2.9 E-05	D
Toluene	1.3 E-04	C
Xylenes	6.4 E-05	C

[a] SCC for natural gas-fired turbines include 2-01-002-01, 2-02-002-01, 2-02-002-03, 2-03-002-02, and 2-03-002-03. Hazardous Air Pollutants as defined in Section 112 (b) of the *Clean Air Act*.

[b] Factors are derived from units operating at high loads (≥ 80 percent load) only. For information on units operating at other loads, consult the background report for this chapter (Reference 16), available at "www.epa.gov/ttn/chief".

[c] Emission factors based on an average natural gas heating value (HHV) of 1020 Btu/scf at 60°F. To convert from (lb/MMBtu) to (lb/10^6 scf), multiply by 1020. These emission factors can be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this heating value.

[d] Compound was not detected. The presented emission value is based on one-half of the detection limit.

[e] Benzene with SCONOX catalyst is 9.1 E-07, rating of D.

[f] Formaldehyde with SCONOX catalyst is 2.0 E-05, rating of D.

Federal Environment and Safety Codified Regulations
TITLE 40—Protection of Environment
PART 98—MANDATORY GREENHOUSE GAS REPORTING
SUBPART A—General Provision

Table A-1 to Subpart A of Part 98 —Global Warming Potentials

[100-Year Time Horizon]

Name	CAS No.	Chemical formula	Global warming potential (100 yr.)
Chemical-Specific GWPs			
Carbon dioxide	124-38-9	CO_2	1
Methane	74-82-8	CH_4	[a] 25
Nitrous oxide	10024-97-2	N_2O	[a] 298
Fully Fluorinated GHGs			
Sulfur hexafluoride	2551-62-4	SF_6	[a] 22,800
Trifluoromethyl sulphur pentafluoride	373-80-8	$SF_5\ CF_3$	17,700
Nitrogen trifluoride	7783-54-2	NF_3	17,200
PFC-14 (Perfluoromethane)	75-73-0	CF_4	[a] 7,390
PFC-116 (Perfluoroethane)	76-16-4	C_2F_6	[a] 12,200
PFC-218 (Perfluoropropane)	76-19-7	C_3F_8	[a] 8,830
Perfluorocyclopropane	931-91-9	$C\text{-}C_3F_6$	17,340
PFC-3-1-10 (Perfluorobutane)	355-25-9	C_4F_{10}	[a] 8,860
PFC-318 (Perfluorocyclobutane)	115-25-3	$C\text{-}C_4F_8$	[a] 10,300
PFC-4-1-12 (Perfluoropentane)	678-26-2	C_5F_{12}	[a] 9,160
PFC-5-1-14 (Perfluorohexane, FC-72)	355-42-0	C_6F_{14}	[a] 9,300
PFC-6-1-12	335-57-9	C_7F_{16}; $CF_3(CF_2)_5CF_3$	[b] 7,820
PFC-7-1-18	307-34-6	C_8F_{18}; $CF_3(CF_2)_6CF_3$	[b] 7,620
PFC-9-1-18	306-94-5	$C_{10}F_{18}$	7,500
PFPMIE (HT-70)	NA	$CF_3OCF(CF_3)CF_2OCF_2OCF_3$	10,300
Perfluorodecalin (cis)	60433-11-6	$Z\text{-}C_{10}F_{18}$	[b] 7,236
Perfluorodecalin (trans)	60433-12-7	$E\text{-}C_{10}F_{18}$	[b] 6,288
Saturated Hydrofluorocarbons (HFCs) With Two or Fewer Carbon-Hydrogen Bonds			
HFC-23	75-46-7	CHF_3	[a] 14,800
HFC-32	75-10-5	CH_2F_2	[a] 675
HFC-125	354-33-6	C_2HF_5	[a] 3,500
HFC-134	359-35-3	$C_2H_2F_4$	[a] 1,100
HFC-134a	811-97-2	CH_2FCF_3	[a] 1,430
HFC-227ca	2252-84-8	$CF_3CF_2CHF_2$	[b] 2640
HFC-227ea	431-89-0	C_3HF_7	[a] 3,220
HFC-236cb	677-56-5	$CH_2FCF_2CF_3$	1,340
HFC-236ea	431-63-0	CHF_2CHFCF_3	1,370
HFC-236fa	690-39-1		

		$C_3H_2F_6$	[a] 9,810
HFC-329p	375-17-7	$CHF_2CF_2CF_2CF_3$	[b] 2360
HFC-43-10mee	138495-42-8	$CF_3CFHCFHCF_2CF_3$	[a] 1,640
Saturated Hydrofluorocarbons (HFCs) With Three or More Carbon-Hydrogen Bonds			
HFC-41	593-53-3	CH_3F	[a] 92
HFC-143	430-66-0	$C_2H_3F_3$	[a] 353
HFC-143a	420-46-2	$C_2H_3F_3$	[a] 4,470
HFC-152	624-72-6	CH_2FCH_2F	53
HFC-152a	75-37-6	CH_3CHF_2	[a] 124
HFC-161	353-36-6	CH_3CH_2F	12
HFC-245ca	679-86-7	$C_3H_3F_5$	[a] 693
HFC-245cb	1814-88-6	$CF_3CF_2CH_3$	[b] 4620
HFC-245ea	24270-66-4	$CHF_2CHFCHF_2$	[b] 235
HFC-245eb	431-31-2	$CH_2FCHFCF_3$	[b] 290
HFC-245fa	460-73-1	$CHF_2CH_2CF_3$	1,030
HFC-263fb	421-07-8	$CH_3CH_2CF_3$	[b] 76
HFC-272ca	420-45-1	$CH_3CF_2CH_3$	[b] 144
HFC-365mfc	406-58-6	$CH_3CF_2CH_2CF_3$	794
Saturated Hydrofluoroethers (HFEs) and Hydrochlorofluoroethers (HCFEs) With One Carbon-Hydrogen Bond			
HFE-125	3822-68-2	CHF_2OCF_3	14,900
HFE-227ea	2356-62-9	$CF_3CHFOCF_3$	1,540
HFE-329mcc2	134769-21-4	$CF_3CF_2OCF_2CHF_2$	919
HFE-329me3	428454-68-6	$CF_3CFHCF_2OCF_3$	[b] 4,550
1,1,1,2,2,3,3-Heptafluoro-3-(1,2,2,2-tetrafluoroethoxy)-propane	3330-15-2	$CF_3CF_2CF_2OCHFCF_3$	[b] 6,490
Saturated HFEs and HCFEs With Two Carbon-Hydrogen Bonds			
HFE-134 (HG-00)	1691-17-4	CHF_2OCHF_2	6,320
HFE-236ca	32778-11-3	$CHF_2OCF_2CHF_2$	[b] 4,240
HFE-236ca12 (HG-10)	78522-47-1	$CHF_2OCF_2OCHF_2$	2,800
HFE-236ea2 (Desflurane)	57041-67-5	$CHF_2OCHFCF_3$	989
HFE-236fa	20193-67-3	$CF_3CH_2OCF_3$	487
HFE-338mcf2	156053-88-2	$CF_3CF_2OCH_2CF_3$	552
HFE-338mmz1	26103-08-2	$CHF_2OCH(CF_3)_2$	380
HFE-338pcc13 (HG-01)	188690-78-0	$CHF_2OCF_2CF_2OCHF_2$	1,500
HFE-43-10pccc (H-Galden 1040x, HG-11)	E1730133	$CHF_2OCF_2OC_2F_4OCHF_2$	1,870
HCFE-235ca2 (Enflurane)	13838-16-9	CHF_2OCF_2CHFCl	[b] 583
HCFE-235da2 (Isoflurane)	26675-46-7	$CHF_2OCHClCF_3$	350
HG-02	205367-61-9	$HF_2C-(OCF_2CF_2)$	[b] 3,825
HG-03	173350-37-3	$HF_2C-(OCF_2CF_2)$	[b] 3,670
HG-20	249932-25-0	$HF_2C-(OCF_2)$	[b] 5,300
HG-21	249932-26-1	$HF_2C-OCF_2CF_2OCF_2OCF_2O-CF_2H$	[b] 3,890
HG-30	188690-77-9	$HF_2C-(OCF_2)$	[b] 7,330
1,1,3,3,4,4,6,6,7,7,9,9,10,10,12,12,13,13,15,15-eicosafluoro-2,5,8,11,14-Pentaoxapentadecane	173350-38-4	$HCF_2O(CF_2CF_2O)_4CF_2H$	[b] 3,630
1,1,2-Trifluoro-2-(trifluoromethoxy)-ethane	84011-06-3	$CHF_2CHFOCF_3$	[b] 1,240
Trifluoro(fluoromethoxy)methane	2261-01-0	CH_2FOCF_3	[b] 751
Saturated HFEs and HCFEs With Three or More Carbon-Hydrogen Bonds			

HFE-143a	421-14-7	CH_3OCF_3	756
HFE-245cb2	22410-44-2	$CH_3OCF_2CF_3$	708
HFE-245fa1	84011-15-4	$CHF_2CH_2OCF_3$	286
HFE-245fa2	1885-48-9	$CHF_2OCH_2CF_3$	659
HFE-254cb2	425-88-7	$CH_3OCF_2CHF_2$	359
HFE-263fb2	460-43-5	$CF_3CH_2OCH_3$	11
HFE-263m1; R-E-143a	690-22-2	$CF_3OCH_2CH_3$	[b] 29
HFE-347mcc3 (HFE-7000)	375-03-1	$CH_3OCF_2CF_2CF_3$	575
HFE-347mcf2	171182-95-9	$CF_3CF_2OCH_2CHF_2$	374
HFE-347mmy1	22052-84-2	$CH_3OCF(CF_3)_2$	343
HFE-347mmz1 (Sevoflurane)	28523-86-6	$(CF_3)_2CHOCH_2F$	[c] 216
HFE-347pcf2	406-78-0	$CHF_2CF_2OCH_2CF_3$	580
HFE-356mec3	382-34-3	$CH_3OCF_2CHFCF_3$	101
HFE-356mff2	333-36-8	$CF_3CH_2OCH_2CF_3$	[b] 17
HFE-356mmz1	13171-18-1	(CF_3)	27
HFE-356pcc3	160620-20-2	$CH_3OCF_2CF_2CHF_2$	110
HFE-356pcf2	50807-77-7	$CHF_2CH_2OCF_2CHF_2$	265
HFE-356pcf3	35042-99-0	CHF_2OCH	502
HFE-365mcf2	22052-81-9	$CF_3CF_2OCH_2CH_3$	[b] 58
HFE-365mcf3	378-16-5	$CF_3CF_2CH_2OCH_3$	11
HFE-374pc2	512-51-6	$CH_3CH_2OCF_2CHF_2$	557
HFE-449s1 (HFE-7100) Chemical blend	163702-07-6	C_4F	297
	163702-08-7	(CF_3)	
HFE-569sf2 (HFE-7200) Chemical blend	163702-05-4	$C_4F_9OC_2H_5$	59
	163702-06-5	$(CF_3)_2CFCF_2OC_2H_5$	
HG'-01	73287-23-7	$CH_3OCF_2CF_2OCH_3$	[b] 222
HG'-02	485399-46-0	$CH_3O(CF_2CF_2O)_2CH_3$	[b] 236
HG'-03	485399-48-2	$CH_3O(CF_2CF_2O)$	[b] 221
Difluoro(methoxy)methane	359-15-9	CH_3OCHF_2	[b] 144
2-Chloro-1,1,2-trifluoro-1-methoxyethane	425-87-6	CH_3OCF_2CHFCl	[b] 122
1-Ethoxy-1,1,2,2,3,3,3-heptafluoropropane	22052-86-4	$CF_3CF_2CF_2OCH_2CH_3$	[b] 61
2-Ethoxy-3,3,4,4,5-pentafluorotetrahydro-2,5-bis[1,2,2,2-tetrafluoro-1-(trifluoromethyl) ethyl]-furan	920979-28-8	$C_{12}H_5F_{19}O_2$	[b] 56
1-Ethoxy-1,1,2,3,3,3-hexafluoropropane	380-34-7	CF_3CHFCF	[b] 23
Fluoro(methoxy)methane	460-22-0	CH_3OCH_2F	[b] 13
1,1,2,2-Tetrafluoro-3-methoxy-propane; Methyl 2,2,3,3-tetrafluoropropyl ether	60598-17-6	$CHF_2CF_2CH_2OCH_3$	[b] 0.5
1,1,2,2-Tetrafluoro-1-(fluoromethoxy)ethane	37031-31-5	$CH_2FOCF_2CF_2H$	[b] 871
Difluoro(fluoromethoxy)methane	461-63-2	CH_2FOCHF_2	[b] 617
Fluoro(fluoromethoxy)methane	462-51-1	CH_2FOCH_2F	[b] 130
Fluorinated Formates			
Trifluoromethyl formate	85358-65-2	$HCOOCF_3$	[b] 588
Perfluoroethyl formate	313064-40-3	$HCOOCF_2CF_3$	[b] 580
1,2,2,2-Tetrafluoroethyl formate	481631-19-0	$HCOOCHFCF_3$	[b] 470
Perfluorobutyl formate	197218-56-7	$HCOOCF_2CF_2CF_2CF_3$	[b] 392
Perfluoropropyl formate	271257-42-2	$HCOOCF_2CF_2CF_3$	[b] 376
1,1,1,3,3,3-Hexafluoropropan-2-yl formate	856766-70-6	$HCOOCH(CF_3)$	[b] 333
2,2,2-Trifluoroethyl formate	32042-38-9	$HCOOCH_2CF_3$	[b] 33

3,3,3-Trifluoropropyl formate	1344118-09-7	$HCOOCH_2CH_2CF_3$	[b] 17
Fluorinated Acetates			
Methyl 2,2,2-trifluoroacetate	431-47-0	CF_3COOCH_3	[b] 52
1,1-Difluoroethyl 2,2,2-trifluoroacetate	1344118-13-3	$CF_3COOCF_2CH_3$	[b] 31
Difluoromethyl 2,2,2-trifluoroacetate	2024-86-4	$CF_3COOCHF_2$	[b] 27
2,2,2-Trifluoroethyl 2,2,2-trifluoroacetate	407-38-5	$CF_3COOCH_2CF_3$	[b] 7
Methyl 2,2-difluoroacetate	433-53-4	HCF_2COOCH_3	[b] 3
Perfluoroethyl acetate	343269-97-6	$CH_3COOCF_2CF_3$	[b] 2.1
Trifluoromethyl acetate	74123-20-9	CH_3COOCF_3	[b] 2.0
Perfluoropropyl acetate	1344118-10-0	$CH_3COOCF_2CF_2CF_3$	[b] 1.8
Perfluorobutyl acetate	209597-28-4	$CH_3COOCF_2CF_2CF_2$ CF_3	[b] 1.6
Ethyl 2,2,2-trifluoroacetate	383-63-1	$CF_3COOCH_2CH_3$	[b] 1.3
Carbonofluoridates			
Methyl carbonofluoridate	1538-06-3	$FCOOCH_3$	[b] 95
1,1-Difluoroethyl carbonofluoridate	1344118-11-1	$FCOOCF_2CH_3$	[b] 27
Fluorinated Alcohols Other Than Fluorotelomer Alcohols			
Bis(trifluoromethyl)-methanol	920-66-1	$(CF_3)_2CHOH$	195
(Octafluorotetramethy-lene) hydroxymethyl group	NA	X-$(CF_2)_4CH(OH)$-X	73
2,2,3,3,3-Pentafluoropropanol	422-05-9	$CF_3CF_2CH_2OH$	42
2,2,3,3,4,4,4-Heptafluorobutan-1-ol	375-01-9	C_3F_7CH2OH	[b] 25
2,2,2-Trifluoroethanol	75-89-8	CF_3CH_2OH	[b] 20
2,2,3,4,4,4-Hexafluoro-1-butanol	382-31-0	$CF_3CHFCF_2CH_2OH$	[b] 17
2,2,3,3-Tetrafluoro-1-propanol	76-37-9	$CHF_2CF_2CH_2OH$	[b] 13
2,2-Difluoroethanol	359-13-7	CHF_2CH2OH	[b] 3
2-Fluoroethanol	371-62-0	CH_2FCH_2OH	[b] 1.1
4,4,4-Trifluorobutan-1-ol	461-18-7	$CF_3(CH_2)$	[b] 0.05
Unsaturated Perfluorocarbons (PFCs)			
PFC-1114; TFE	116-14-3	$CF_2=CF_2$; C_2F_4	[b] 0.004
PFC-1216; Dyneon HFP	116-15-4	C_3F_6; $CF_3CF=CF_2$	[b] 0.05
PFC C-1418	559-40-0	c-C_5F_8	[b] 1.97
Perfluorobut-2-ene	360-89-4	$CF_3CF=CFCF_3$	[b] 1.82
Perfluorobut-1-ene	357-26-6	$CF_3CF_2CF=CF_2$	[b] 0.10
Perfluorobuta-1,3-diene	685-63-2	$CF_2=CFCF=CF_2$	[b] 0.003
Unsaturated Hydrofluorocarbons (HFCs) and Hydrochlorofluorocarbons (HCFCs)			
HFC-1132a; VF2	75-38-7	C_2H	[b] 0.04
HFC-1141; VF	75-02-5	C_2H	[b] 0.02
(E)-HFC-1225ye	5595-10-8	$CF_3CF=CHF(E)$	[b] 0.06
(Z)-HFC-1225ye	5528-43-8	$CF_3CF=CHF(Z)$	[b] 0.22
Solstice 1233zd(E)	102687-65-0	$C_3H_2ClF_3$; $CHCl=CHCF_3$	[b] 1.34
HFC-1234yf; HFO-1234yf	754-12-1	$C_3H_2F_4$; $CF_3CF=CH_2$	[b] 0.31
HFC-1234ze(E)	1645-83-6	$C_3H_2F_4$; trans-$CF_3CH=CHF$	[b] 0.97
HFC-1234ze(Z)	29118-25-0	$C_3H_2F_4$cis-$CF_3CH=CHF$; $CF_3CH=CHF$	[b] 0.29
HFC-1243zf; TFP	677-21-4	$C_3H_3F_3$, $CF_3CH=CH_2$	[b] 0.12
(Z)-HFC-1336	692-49-9	$CF_3CH=CHCF_3(Z)$	[b] 1.58
HFC-1345zfc	374-27-6		

		$C_2F_5CH=CH_2$	[b] 0.09
Capstone 42-U	19430-93-4	$C_6H_3F_9$, $CF_3(CF_2)$	[b] 0.16
Capstone 62-U	25291-17-2	$C_8H_3F_{13}$, $CF_3(CF_2)_5CH=CH_2$	[b] 0.11
Capstone 82-U	21652-58-4	$C_{10}H_3F_{17}$, $CF_3(CF_2)_7CH=CH_2$	[b] 0.09
Unsaturated Halogenated Ethers			
PMVE; HFE-216	1187-93-5	$CF_3OCF=CF_2$	[b] 0.17
Fluoroxene	406-90-6	$CF_3CH_2OCH=CH_2$	[b] 0.05
Fluorinated Aldehydes			
3,3,3-Trifluoro-propanal	460-40-2	CF_3CH_2CHO	[b] 0.01
Fluorinated Ketones			
Novec 1230 (perfluoro (2-methyl-3-pentanone))	756-13-8	$CF_3CF_2C(O)CF$ $(CF3)_2$	[b] 0.1
Fluorotelomer Alcohols			
3,3,4,4,5,5,6,6,7,7,7-Undecafluoroheptan-1-ol	185689-57-0	CF	[b] 0.43
3,3,3-Trifluoropropan-1-ol	2240-88-2	$CF_3CH_2CH_2OH$	[b] 0.35
3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-Pentadecafluorononan-1-ol	755-02-2	$CF_3(CF_2)_6CH_2CH_2OH$	[b] 0.33
3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,11,11,11-Nonadecafluoroundecan-1-ol	87017-97-8	$CF_3(CF_2)_8CH_2CH_2OH$	[b] 0.19
Fluorinated GHGs With Carbon-Iodine Bond(s)			
Trifluoroiodomethane	2314-97-8	CF_3I	[b] 0.4
Other Fluorinated Compounds			
Dibromodifluoromethane (Halon 1202)	75-61-6	CBR_2F_2	[b] 231
2-Bromo-2-chloro-1,1,1-trifluoroethane (Halon-2311/Halothane)	151-67-7	$CHBrClCF_3$	[b] 41

Fluorinated GHG Group [d]	**Global warming potential (100 yr.)**
Default GWPs for Compounds for Which Chemical-Specific GWPs Are Not Listed Above	
Fully fluorinated GHGs	10,000
Saturated hydrofluorocarbons (HFCs) with 2 or fewer carbon-hydrogen bonds	3,700
Saturated HFCs with 3 or more carbon-hydrogen bonds	930
Saturated hydrofluoroethers (HFEs) and hydrochlorofluoroethers (HCFEs) with 1 carbon-hydrogen bond	5,700
Saturated HFEs and HCFEs with 2 carbon-hydrogen bonds	2,600
Saturated HFEs and HCFEs with 3 or more carbon-hydrogen bonds	270
Fluorinated formates	350
Fluorinated acetates, carbonofluoridates, and fluorinated alcohols other than fluorotelomer alcohols	30
Unsaturated perfluorocarbons (PFCs), unsaturated HFCs, unsaturated hydrochlorofluorocarbons (HCFCs), unsaturated halogenated ethers, unsaturated halogenated esters, fluorinated aldehydes, and fluorinated ketones	1
Fluorotelomer alcohols	1
Fluorinated GHGs with carbon-iodine bond(s)	1
Other fluorinated GHGs	2,000

[a] The GWP for this compound was updated in the final rule published on November 29, 2013 [78 FR 71904] and effective on January 1, 2014.

[b] This compound was added to Table A-1 in the final rule published on December 11, 2014, and effective on January 1, 2015.

[c] The GWP for this compound was updated in the final rule published on December 11, 2014, and effective on January 1, 2015 .

[d] For electronics manufacturing (as defined in § 98.90), the term "fluorinated GHGs" in the definition of each fluorinated GHG group in § 98.6 shall include fluorinated heat transfer fluids (as defined in § 98.98), whether or not they are also fluorinated GHGs.

[78 FR page 71948, Nov. 29, 2013; 79 FR page 73779, Dec. 11, 2014]

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Federal Environment and Safety Codified Regulations
TITLE 40—Protection of Environment
PART 98—MANDATORY GREENHOUSE GAS REPORTING
SUBPART C—General Stationary Fuel Combustion Sources

Table C-1 to Subpart C of Part 98 —Default CO_2 Emission Factors and High Heat Values for Various Types of Fuel

Fuel type	Default high heat value	Default CO_2 emission factor
Coal and coke	mmBtu/short ton	kg CO_2/mmBtu
Anthracite	25.09	103.69
Bituminous	24.93	93.28
Subbituminous	17.25	97.17
Lignite	14.21	97.72
Coal Coke	24.80	113.67
Mixed (Commercial sector)	21.39	94.27
Mixed (Industrial coking)	26.28	93.90
Mixed (Industrial sector)	22.35	94.67
Mixed (Electric Power sector)	19.73	95.52
Natural gas	mmBtu/scf	kg CO_2/mmBtu
(Weighted U.S. Average)	1.026×10^{-3}	53.06
Petroleum products	mmBtu/gallon	kg CO_2/mmBtu
Distillate Fuel Oil No. 1	0.139	73.25
Distillate Fuel Oil No. 2	0.138	73.96
Distillate Fuel Oil No. 4	0.146	75.04
Residual Fuel Oil No. 5	0.140	72.93
Residual Fuel Oil No. 6	0.150	75.10
Used Oil	0.138	74.00
Kerosene	0.135	75.20
Liquefied petroleum gases (LPG) [1]	0.092	61.71
Propane [1]	0.091	62.87
Propylene [2]	0.091	67.77
Ethane [1]	0.068	59.60
Ethanol	0.084	68.44
Ethylene [2]	0.058	65.96
Isobutane [1]	0.099	64.94
Isobutylene [1]	0.103	68.86
Butane [1]	0.103	64.77
Butylene [1]	0.105	68.72
Naphtha (<401 deg F)	0.125	68.02
Natural Gasoline	0.110	66.88
Other Oil (>401 deg F)	0.139	76.22
Pentanes Plus	0.110	70.02
Petrochemical Feedstocks	0.125	71.02
Petroleum Coke	0.143	102.41
Special Naphtha	0.125	72.34

Unfinished Oils	0.139	74.54
Heavy Gas Oils	0.148	74.92
Lubricants	0.144	74.27
Motor Gasoline	0.125	70.22
Aviation Gasoline	0.120	69.25
Kerosene-Type Jet Fuel	0.135	72.22
Asphalt and Road Oil	0.158	75.36
Crude Oil	0.138	74.54
Other fuels—solid	mmBtu/short ton	kg CO_2/mmBtu
Municipal Solid Waste	9.95 [3]	90.7
Tires	28.00	85.97
Plastics	38.00	75.00
Petroleum Coke	30.00	102.41
Other fuels—gaseous	mmBtu/scf	kg CO_2/mmBtu
Blast Furnace Gas	0.092×10^{-3}	274.32
Coke Oven Gas	0.599×10^{-3}	46.85
Propane Gas	2.516×10^{-3}	61.46
Fuel Gas [4]	1.388×10^{-3}	59.00
Biomass fuels—solid	mmBtu/short ton	kg CO_2/mmBtu
Wood and Wood Residuals (dry basis) [5]	17.48	93.80
Agricultural Byproducts	8.25	118.17
Peat	8.00	111.84
Solid Byproducts	10.39	105.51
Biomass fuels—gaseous	mmBtu/scf	kg CO_2/mmBtu
Landfill Gas	0.485×10^{-3}	52.07
Other Biomass Gases	0.655×10^{-3}	52.07
Biomass Fuels—Liquid	mmBtu/gallon	kg CO_2/mmBtu
Ethanol	0.084	68.44
Biodiesel (100%)	0.128	73.84
Rendered Animal Fat	0.125	71.06
Vegetable Oil	0.120	81.55

[1] The HHV for components of LPG determined at 60 °F and saturation pressure with the exception of ethylene.

[2] Ethylene HHV determined at 41 °F (5 °C) and saturation pressure.

[3] Use of this default HHV is allowed only for: (a) Units that combust MSW, do not generate steam, and are allowed to use Tier 1; (b) units that derive no more than 10 percent of their annual heat input from MSW and/or tires; and (c) small batch incinerators that combust no more than 1,000 tons of MSW per year.

[4] Reporters subject to subpart X of this part that are complying with § 98.243(d) or subpart Y of this part may only use the default HHV and the default CO_2 emission factor for fuel gas combustion under the conditions prescribed in § 98.243(d)(2)(i) and (d)(2)(ii) and § 98.252(a)(1) and (a)(2), respectively. Otherwise, reporters subject to subpart X or subpart Y shall use either Tier 3 (Equation C-5) or Tier 4.

[5] Use the following formula to calculate a wet basis HHV for use in Equation C-1: $HHV_w = ((100 - M)/100)*HHV_d$ where HHV_w = wet basis HHV, M = moisture content (percent) and HHV_d = dry basis HHV from Table C-1.

[78 FR page 71950, Nov. 29, 2013]

Federal Environment and Safety Codified Regulations
TITLE 40—Protection of Environment
PART 98—MANDATORY GREENHOUSE GAS REPORTING
SUBPART C—General Stationary Fuel Combustion Sources

Table C-2 to Subpart C of Part 98 —Default CH_4 and N_2O Emission Factors for Various Types of Fuel

Fuel type	Default CH_4 emission factor (kg CH_4/mmBtu)	Default N_2O emission factor (kg N_2O/mmBtu)
Coal and Coke (All fuel types in Table C-1)	1.1×10^{-02}	1.6×10^{-03}
Natural Gas	1.0×10^{-03}	1.0×10^{-04}
Petroleum (All fuel types in Table C-1)	3.0×10^{-03}	6.0×10^{-04}
Fuel Gas	3.0×10^{-03}	6.0×10^{-04}
Municipal Solid Waste	3.2×10^{-02}	4.2×10^{-03}
Tires	3.2×10^{-02}	4.2×10^{-03}
Blast Furnace Gas	2.2×10^{-05}	1.0×10^{-04}
Coke Oven Gas	4.8×10^{-04}	1.0×10^{-04}
Biomass Fuels—Solid (All fuel types in Table C-1, except wood and wood residuals)	3.2×10^{-02}	4.2×10^{-03}
Wood and wood residuals	7.2×10^{-03}	3.6×10^{-03}
Biomass Fuels—Gaseous (All fuel types in Table C-1)	3.2×10^{-03}	6.3×10^{-04}
Biomass Fuels—Liquid (All fuel types in Table C-1)	1.1×10^{-03}	1.1×10^{-04}

Note: Those employing this table are assumed to fall under the IPCC definitions of the "Energy Industry" or "Manufacturing Industries and Construction". In all fuels except for coal the values for these two categories are identical. For coal combustion, those who fall within the IPCC "Energy Industry" category may employ a value of 1g of CH_4/mmBtu.

[75 FR page 79154, Dec. 17, 2010; 78 FR page 71952, Nov. 29, 2013]

ISSN 2167-8065

Table 13.2.2-1. TYPICAL SILT CONTENT VALUES OF SURFACE MATERIAL ON INDUSTRIAL UNPAVED ROADS[a]

Industry	Road Use Or Surface Material	Plant Sites	No. Of Samples	Silt Content (%)	
				Range	Mean
Copper smelting	Plant road	1	3	16 - 19	17
Iron and steel production	Plant road	19	135	0.2 - 19	6.0
Sand and gravel processing	Plant road	1	3	4.1 - 6.0	4.8
	Material storage area	1	1	-	7.1
Stone quarrying and processing	Plant road	2	10	2.4 - 16	10
	Haul road to/from pit	4	20	5.0-15	8.3
Taconite mining and processing	Service road	1	8	2.4 - 7.1	4.3
	Haul road to/from pit	1	12	3.9 - 9.7	5.8
Western surface coal mining	Haul road to/from pit	3	21	2.8 - 18	8.4
	Plant road	2	2	4.9 - 5.3	5.1
	Scraper route	3	10	7.2 - 25	17
	Haul road (freshly graded)	2	5	18 - 29	24
Construction sites	Scraper routes	7	20	0.56-23	8.5
Lumber sawmills	Log yards	2	2	4.8-12	8.4
Municipal solid waste landfills	Disposal routes	4	20	2.2 - 21	6.4

[a]References 1,5-15.

The following empirical expressions may be used to estimate the quantity in pounds (lb) of size-specific particulate emissions from an unpaved road, per vehicle mile traveled (VMT):

For vehicles traveling on unpaved surfaces at industrial sites, emissions are estimated from the following equation:

$$E = k\,(s/12)^a (W/3)^b \quad (1a)$$

and, for vehicles traveling on publicly accessible roads, dominated by light duty vehicles, emissions may be estimated from the following:

$$E = \frac{k\,(s/12)^a (S/30)^d}{(M/0.5)^c} - C \quad (1b)$$

where k, a, b, c and d are empirical constants (Reference 6) given below and

E = size-specific emission factor (lb/VMT)
s = surface material silt content (%)
W = mean vehicle weight (tons)
M = surface material moisture content (%)
S = mean vehicle speed (mph)
C = emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear.

The source characteristics s, W and M are referred to as correction parameters for adjusting the emission estimates to local conditions. The metric conversion from lb/VMT to grams (g) per vehicle kilometer traveled (VKT) is as follows:

1 lb/VMT = 281.9 g/VKT

The constants for Equations 1a and 1b based on the stated aerodynamic particle sizes are shown in Tables 13.2.2-2 and 13.2.2-4. The PM-2.5 particle size multipliers (k-factors) are taken from Reference 27.

Table 13.2.2-2. CONSTANTS FOR EQUATIONS 1a AND 1b

Constant	Industrial Roads (Equation 1a)			Public Roads (Equation 1b)		
	PM-2.5	PM-10	PM-30*	PM-2.5	PM-10	PM-30*
k (lb/VMT)	0.15	1.5	4.9	0.18	1.8	6.0
a	0.9	0.9	0.7	1	1	1
b	0.45	0.45	0.45	-	-	-
c	-	-	-	0.2	0.2	0.3
d	-	-	-	0.5	0.5	0.3
Quality Rating	B	B	B	B	B	B

*Assumed equivalent to total suspended particulate matter (TSP)
"-" = not used in the emission factor equation

Table 13.2.2-2 also contains the quality ratings for the various size-specific versions of Equation 1a and 1b. The equation retains the assigned quality rating, if applied within the ranges of source conditions, shown in Table 13.2.2-3, that were tested in developing the equation:

Table 13.2.2-3. RANGE OF SOURCE CONDITIONS USED IN DEVELOPING EQUATION 1a AND 1b

Emission Factor	Surface Silt Content, %	Mean Vehicle Weight		Mean Vehicle Speed		Mean No. of Wheels	Surface Moisture Content, %
		Mg	ton	km/hr	mph		
Industrial Roads (Equation 1a)	1.8-25.2	1.8-260	2-290	8-69	5-43	4-17[a]	0.03-13
Public Roads (Equation 1b)	1.8-35	1.4-2.7	1.5-3	16-88	10-55	4-4.8	0.03-13

[a] See discussion in text.

As noted earlier, the models presented as Equations 1a and 1b were developed from tests of traffic on unpaved surfaces. Unpaved roads have a hard, generally nonporous surface that usually dries quickly after a rainfall or watering, because of traffic-enhanced natural evaporation. (Factors influencing how fast a road dries are discussed in Section 13.2.2.3, below.) The quality ratings given above pertain to the mid-range of the measured source conditions for the equation. A higher mean vehicle weight and a higher than normal traffic rate may be justified when performing a worst-case analysis of emissions from unpaved roads.

The emission factors for the exhaust, brake wear and tire wear of a 1980's vehicle fleet (*C*) was obtained from EPA's MOBILE6.2 model [23]. The emission factor also varies with aerodynamic size range

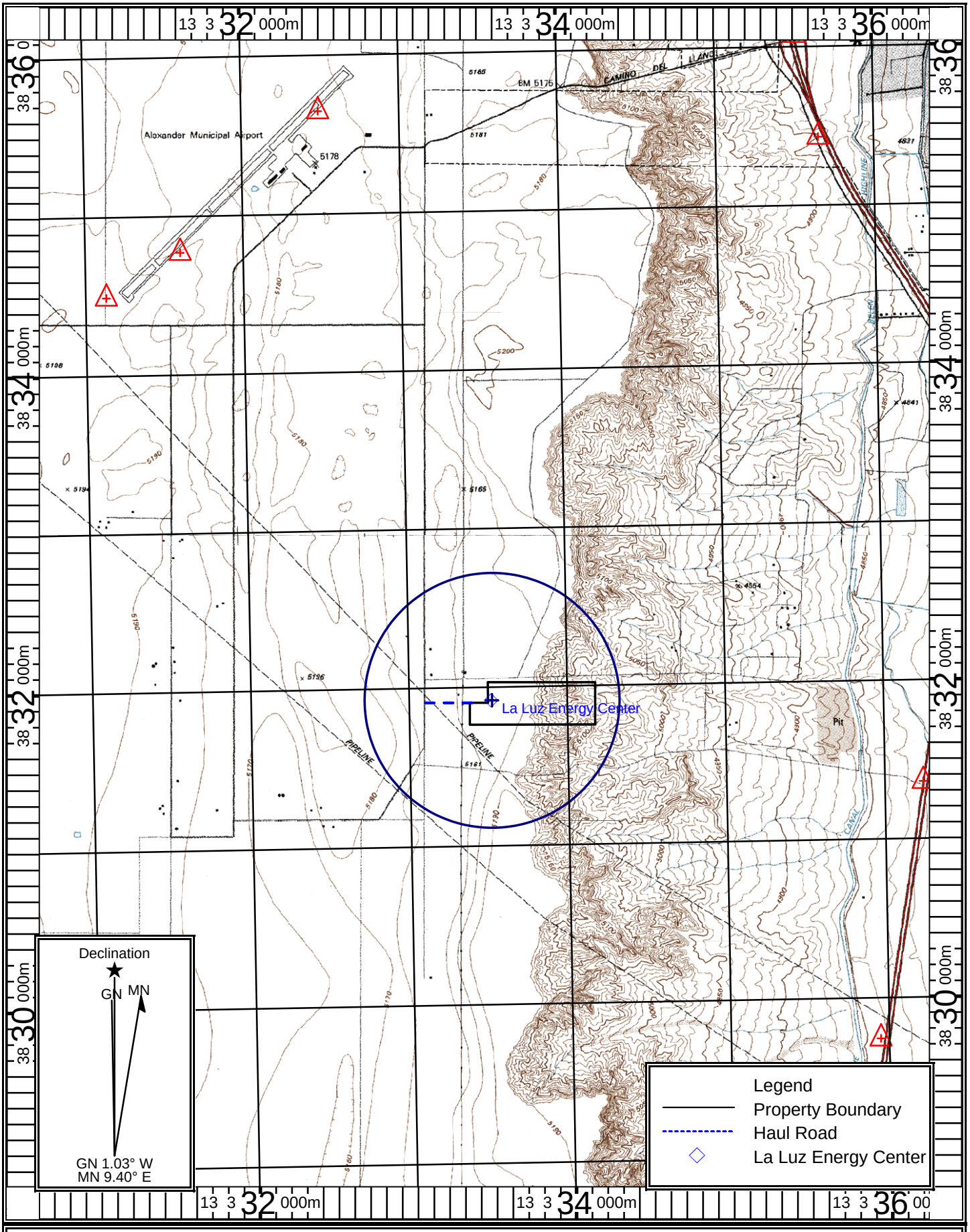
Section 8

Map(s)

A map such as a 7.5 minute topographic quadrangle showing the exact location of the source. The map shall also include the following:

The UTM or Longitudinal coordinate system on both axes	An indicator showing which direction is north
A minimum radius around the plant of 0.8km (0.5 miles)	Access and haul roads
Topographic features of the area	Facility property boundaries
The name of the map	The area which will be restricted to public access
A graphical scale	

A map is attached.



Map Name: VEGUITA
Print Date: 06/10/16

Scale: 1 inch = 2,666 ft.
Map Center: 13 0333484 E 3832466 N

Horizontal Datum: WGS84

Section 9

Proof of Public Notice

(for NSR applications submitting under 20.2.72 or 20.2.74 NMAC)
(This proof is required by: 20.2.72.203.A.14 NMAC "Documentary Proof of applicant's public notice")

☑ **I have read the AQB "Guidelines for Public Notification for Air Quality Permit Applications"**
This document provides detailed instructions about public notice requirements for various permitting actions. It also provides public notice examples and certification forms. Material mistakes in the public notice will require a re-notice before issuance of the permit.

Unless otherwise allowed elsewhere in this document, the following items document proof of the applicant's Public Notification. Please include this page in your proof of public notice submittal with checkmarks indicating which documents are being submitted with the application.

New Permit and **Significant Permit Revision** public notices must include all items in this list.

Technical Revision public notices require only items 1, 5, 9, and 10.

Per the Guidelines for Public Notification document mentioned above, include:

1. ☐ A copy of the certified letter receipts with post marks (20.2.72.203.B NMAC)
2. ☐ A list of the places where the public notice has been posted in at least four publicly accessible and conspicuous places, including the proposed or existing facility entrance. (e.g: post office, library, grocery, etc.)
3. ☐ A copy of the property tax record (20.2.72.203.B NMAC).
4. ☐ A sample of the letters sent to the owners of record.
5. ☐ A sample of the letters sent to counties, municipalities, and Indian tribes.
6. ☐ A sample of the public notice posted and a verification of the local postings.
7. ☐ A table of the noticed citizens, counties, municipalities and tribes and to whom the notices were sent in each group.
8. ☐ A copy of the public service announcement (PSA) sent to a local radio station and documentary proof of submittal.
9. ☐ A copy of the classified or legal ad including the page header (date and newspaper title) or its affidavit of publication stating the ad date, and a copy of the ad. When appropriate, this ad shall be printed in both English and Spanish.
10. ☐ A copy of the display ad including the page header (date and newspaper title) or its affidavit of publication stating the ad date, and a copy of the ad. When appropriate, this ad shall be printed in both English and Spanish.
11. ☐ A map with a graphic scale showing the facility boundary and the surrounding area in which owners of record were notified by mail. This is necessary for verification that the correct facility boundary was used in determining distance for notifying land owners of record.

N/A – This is a Title V Renewal application being submitted pursuant 20.2.70 NMAC. Public notice is not required.

Section 10

Written Description of the Routine Operations of the Facility

---

A written description of the routine operations of the facility. Include a description of how each piece of equipment will be operated, how controls will be used, and the fate of both the products and waste generated. For modifications and/or revisions, explain how the changes will affect the existing process. In a separate paragraph describe the major process bottlenecks that limit production. The purpose of this description is to provide sufficient information about plant operations for the permit writer to determine appropriate emission sources.

The facility is comprised of two GE LM6000 PC Sprint simple-cycle gas turbines fired on Federal Energy Regulatory Commission (FERC) regulated natural gas and producing a nominal 42 megawatts of electricity each, as well as emission control equipment and ancillary equipment. Each turbine is permitted to operate up to 8,760 hours per year including up to 1,000 startups and 1,000 shutdowns per year.

It is conservatively estimated that each turbine needs to startup and shutdown 1,000 times per year. This number of startups and shutdowns is needed to provide morning and afternoon peak power, supplemental power during inclement weather events and to provide quick start capability to support variable electrical output from wind and solar generating stations. Use of these turbines allows decreased usage of other higher emitting resources such as coal-fired facilities.

Unlike most gas turbines, the GE LM6000 is primarily controlled by the compressor discharge temperature in lieu of the turbine inlet temperature. Some of the compressor discharge air is then used to cool high-pressure turbine components. Sprint — which stands for "Spray Inter-cooled Turbine" — reduces compressor discharge temperature, thereby allowing advancement of the throttle to significantly enhance power and improve thermal efficiency.

The GE LM6000 Sprint water injection system is composed of atomized water injection at both low-pressure compressor (LPC) and high-pressure compressor (HPC) inlet plenums. This is accomplished by using a high-pressure compressor, eighth stage bleed air to feed two air manifolds, water-injection manifolds and sets of spray nozzles, where the water droplets are sufficiently atomized before injection at both LPC and HPC inlet plenums.

The control technology for each turbine includes water injection and selective catalytic reduction (SCR) for NO_x emissions. This control technology achieves a 90 percent reduction in NO_x emissions. SCR is a means of converting NO_x, with the aid of a catalyst into diatomic nitrogen (N_2) and water. A gaseous reductant, in this case aqueous ammonia, is added to a stream of flue or exhaust gas and absorbed onto a catalyst. The minimum operating temperature is selected such that no ammonium salts can deposit on the catalyst surface and the maximum temperature is selected to prevent sintering, a process that destroys the pore structure of ceramic catalysts. Typically SCR operating temperatures are in the 800 degrees Fahrenheit (°F) to 1,000 °F range. Each SCR is operated using 19.5 percent aqueous ammonia supplied from a 6,000-gallon storage tank.

The control technology for each turbine also includes an oxidation catalyst for controlling carbon monoxide (CO) and volatile organic carbon (VOC) emissions. The oxidation catalyst promotes the oxidation of CO and hydrocarbon compounds to carbon dioxide and water as the exhaust stream passes through the catalyst bed. The oxidation process takes place spontaneously, so no reactants are required. The catalyst is usually made of a precious metal such as platinum, palladium, or rhodium. This control technology achieves an 85 percent reduction in CO emissions and a 50 percent reduction in VOC emissions.

Inlet air filters are used to clean the air that enters the combustion turbine generator (CTG) to provide the CTG with protection against the effects of contaminated air. Different types of contaminants in the air can cause several types of problems that negatively impact the reliability, availability, and time between overhauls of gas turbine internal components. Some of the consequences of poor inlet filtration are fouling, erosion, and corrosion. Therefore, an inlet air filtration system is used. As a conservative assumption, no reduction in PM emissions is applied as a result of the operation of the inlet air filter.

Aqueous ammonia is stored in two tanks which are supplied by weekly truck deliveries. The ancillary equipment includes pumps, water tanks, wastewater tanks, air compressors, and fin fan coolers. The equipment at the facility described in this application is considered a single stationary source.

Section 11
Source Determination

Source submitting under 20.2.70, 20.2.72, 20.2.73, and 20.2.74 NMAC

Sources applying for a construction permit, PSD permit, or operating permit shall evaluate surrounding and/or associated sources (including those sources directly connected to this source for business reasons) and complete this section. Responses to the following questions shall be consistent with the Air Quality Bureau's permitting guidance, Single Source Determination Guidance, which may be found on the Applications Page in the Permitting Section of the Air Quality Bureau website.

Typically, buildings, structures, installations, or facilities that have the same SIC code, that are under common ownership or control, and that are contiguous or adjacent constitute a single stationary source for 20.2.70, 20.2.72, 20.2.73, and 20.2.74 NMAC applicability purposes. Submission of your analysis of these factors in support of the responses below is optional, unless requested by NMED.

A. Identify the emission sources evaluated in this section (list and describe)**:**

B. Apply the 3 criteria for determining a single source:

SIC Code: Surrounding or associated sources belong to the same 2-digit industrial grouping (2-digit SIC code) as this facility, OR surrounding or associated sources that belong to different 2-digit SIC codes are support facilities for this source.

☑ **Yes** ☐ **No**

Common Ownership or Control: Surrounding or associated sources are under common ownership or control as this source.

☑ **Yes** ☐ **No**

Contiguous or Adjacent: Surrounding or associated sources are contiguous or adjacent with this source.

☑ **Yes** ☐ **No**

C. Make a determination:

☑ The source, as described in this application, constitutes the entire source for 20.2.70, 20.2.72, 20.2.73, or 20.2.74 NMAC applicability purposes. If in "A" above you evaluated only the source that is the subject of this application, all "**YES**" boxes should be checked. If in "A" above you evaluated other sources as well, you must check **AT LEAST ONE** of the boxes "**NO**" to conclude that the source, as described in the application, is the entire source for 20.2.70, 20.2.72, 20.2.73, and 20.2.74 NMAC applicability purposes.

☐ The source, as described in this application, **does not** constitute the entire source for 20.2.70, 20.2.72, 20.2.73, or 20.2.74 NMAC applicability purposes (A permit may be issued for a portion of a source). The entire source consists of the following facilities or emissions sources (list and describe):

Section 12

Section 12.A
PSD Applicability Determination for All Sources

(Submitting under 20.2.72, 20.2.74 NMAC)

A PSD applicability determination for all sources. For sources applying for a significant permit revision, apply the applicable requirements of 20.2.74.AG and 20.2.74.200 NMAC and to determine whether this facility is a major or minor PSD source, and whether this modification is a major or a minor PSD modification. It may be helpful to refer to the procedures for Determining the Net Emissions Change at a Source as specified by Table A-5 (Page A.45) of the EPA New Source Review Workshop Manual to determine if the revision is subject to PSD review.

A. This facility is:

- ☑ **a minor PSD source before and after this modification (if so, delete C and D below).**
- ☐ **a major PSD source before this modification. This modification will make this a PSD minor source.**
- ☐ **an existing PSD Major Source that has never had a major modification requiring a BACT analysis.**
- ☐ **an existing PSD Major Source that has had a major modification requiring a BACT analysis**
- ☐ **a new PSD Major Source after this modification.**

B. **This facility is not one of the listed 20.2.74.501 Table I – PSD Source Categories.**

La Luz was initially permitted as a PSD major source (PSD-5041R1) based on the facility's calculated GHG emission rates, however, the Supreme Court has vacated the GHG Tailoring rule and ordered the Environmental Protection Agency (EPA) to take steps to rescind previously applicable GHG provisions. EPA followed the court order with a direct final action that delegated federal authority to the state level to rescind PSD permits within their jurisdiction under 40 CFR §52.21 (u). Therefore, La Luz is a minor source for PSD purposes and is currently permitted under NSR Permit 5041-M1.

Section 13

Determination of State & Federal Air Quality Regulations

This section lists each state and federal air quality regulation that may apply to your facility and/or equipment that are stationary sources of regulated air pollutants.

Not all state and federal air quality regulations are included in this list. Go to the Code of Federal Regulations (CFR) or to the Air Quality Bureau's regulation page to see the full set of air quality regulations.

Required Information for Specific Equipment:
For regulations that apply to specific source types, in the 'Justification' column **provide any information needed to determine if the regulation does or does not apply**. **For example**, to determine if emissions standards at 40 CFR 60, Subpart IIII apply to your three identical stationary engines, we need to know the construction date as defined in that regulation; the manufacturer date; the date of reconstruction or modification, if any; if they are or are not fire pump engines; if they are or are not emergency engines as defined in that regulation; their site ratings; and the cylinder displacement.

Required Information for Regulations that Apply to the Entire Facility:
See instructions in the 'Justification' column for the information that is needed to determine if an 'Entire Facility' type of regulation applies (e.g. 20.2.70 or 20.2.73 NMAC).

Regulatory Citations for Regulations That Do Not, but Could Apply:
If there is a state or federal air quality regulation that does not apply, but you have a piece of equipment in a source category for which a regulation has been promulgated, you must **provide the low level regulatory citation showing why your piece of equipment is not subject to or exempt from the regulation. For example** if you have a stationary internal combustion engine that is not subject to 40 CFR 63, Subpart ZZZZ because it is an existing 2 stroke lean burn stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, your citation would be 40 CFR 63.6590(b)(3)(i). **We don't want a discussion of every non-applicable regulation, but if it is possible a regulation could apply, explain why it does not. For example,** if your facility is a power plant, you do not need to include a citation to show that 40 CFR 60, Subpart OOO does not apply to your non-existent rock crusher.

Regulatory Citations for Emission Standards:
For each unit that is subject to an emission standard in a source specific regulation, such as 40 CFR 60, Subpart OOO or 40 CFR 63, Subpart HH, include the low level regulatory citation of that emission standard. Emission standards can be numerical emission limits, work practice standards, or other requirements such as maintenance. **Here are examples:** a glycol dehydrator is subject to the general standards at 63.764C(1)(i) through (iii); an engine is subject to 63.6601, Tables 2a and 2b; a crusher is subject to 60.672(b), Table 3 and all transfer points are subject to 60.672(e)(1)

Federally Enforceable Conditions:
All federal regulations are federally enforceable. All Air Quality Bureau State regulations are federally enforceable except for the following: affirmative defense portions at 20.2.7.6.B, 20.2.7.110(B)(15), 20.2.7.11 through 20.2.7.113, 20.2.7.115, and 20.2.7.116; 20.2.37; 20.2.42; 20.2.43; 20.2.62; 20.2.63; 20.2.86; 20.2.89; and 20.2.90 NMAC. Federally enforceable means that EPA can enforce the regulation as well as the Air Quality Bureau and federally enforceable regulations can count toward determining a facility's potential to emit (PTE) for the Title V, PSD, and nonattainment permit regulations.

INCLUDE ANY OTHER INFORMATION NEEDED TO COMPLETE AN APPLICABILITY DETERMINATION OR THAT IS RELEVENT TO YOUR FACILITY'S NOTICE OF INTENT OR PERMIT.

EPA Applicability Determination Index for 40 CFR 60, 61, 63, etc: http://cfpub.epa.gov/adi/

Table for STATE REGULATIONS:

STATE REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
20.2.1 NMAC	General Provisions	Yes	Facility	General Provisions apply to Notice of Intent, Construction, and Title V permit applications.
20.2.3 NMAC	Ambient Air Quality Standards NMAAQS	Yes	Facility	20.2.3 NMAC is a State Implementation Plan (SIP) approved regulation that limits the maximum allowable concentration of, Sulfur Compounds, Carbon Monoxide and Nitrogen Dioxide. The facility meets maximum allowable concentrations of SO_2, H_2S, NOx, and CO under this regulation.
20.2.7 NMAC	Excess Emissions	Yes	Facility	This regulation establishes requirements for the facility if operations at the facility result in any excess emissions. The owner or operator will operate the source at the facility having an excess emission, to the extent practicable, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions. The facility will also notify the NMED of any excess emission per 20.2.7.110 NMAC.
20.2.23 NMAC	Fugitive Dust Control	No	N/A	This part regulates fugitive dust sources located in an area subject to a mitigation plan pursuant 40 CFR 51.930. This facility is not a fugitive dust source and is not located in an area subject to a mitigation plan; therefore, this regulation does not apply.
20.2.33 NMAC	Gas Burning Equipment - Nitrogen Dioxide	No	N/A	This part regulates external combustion sources. This facility does not have an external combustion source, and therefore 20.2.33 NMAC does not apply.
20.2.34 NMAC	Oil Burning Equipment: NO_2	No	N/A	This regulation does not apply to internal combustion equipment such as engines. It only applies to external combustion equipment such as heaters or boilers. The facility does not have any oil burning external combustion equipment therefore this regulation does not apply.
20.2.35 NMAC	Natural Gas Processing Plant – Sulfur	No	N/A	This part regulates existing and new natural gas processing plants that use a Sulfur Recovery Unit to reduce sulfur emissions. This facility is not an existing or new natural gas processing plant; therefore, this regulation does not apply.
20.2.38 NMAC	Hydrocarbon Storage Facility	No	N/A	This regulation could apply to storage tanks at petroleum production facilities, processing facilities, tanks batteries, or hydrocarbon storage facilities. This facility does not have any storage tanks and is not considered a petroleum production facility, processing facility, tanks battery, or hydrocarbon storage facility; therefore, this regulation does not apply.
20.2.39 NMAC	Sulfur Recovery Plant - Sulfur	No	N/A	This regulation could apply to sulfur recovery plants that are not part of petroleum or natural gas processing facilities. This facility is not a sulfur recovery plant; therefore, this regulation does not apply.
20.2.61.109 NMAC	Smoke & Visible Emissions	Yes	Unit 1, Unit 2	The objective of this part is to establish controls on smoke and visible emissions from certain sources. Units 1 and 2 are stationary combustion equipment and subject to this regulation, specifically a 20% opacity limit for emissions.
20.2.70 NMAC	Operating Permits	Yes	Facility	This regulation establishes requirements for obtaining an operating permit. This facility is not a Title V major source for criteria pollutants or hazardous air pollutants. This regulation applies because Units 1 and 2 are acid rain sources under 40 CFR 72. PNM is submitting this Title V application in compliance with this regulation.
20.2.71 NMAC	Operating Permit Fees	Yes	Facility	This regulation establishes a schedule of operating permit emission fees. This facility is subject to 20.2.70 NMAC and is in turn subject to 20.2.71 NMAC. PNM will comply with the operating fees associated with a Title V operating permit.
20.2.72 NMAC	Construction Permits	Yes	Facility	The objective of this part is to establish the requirements for obtaining a construction permit. The facility is subject as emissions are greater than 10 lb/hr and 25 tpy of regulated air contaminants for which there are National or New Mexico Ambient Air Quality Standards. The facility is currently permitted under NSR Permit No. 5041M1.

STATE REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
20.2.73 NMAC	NOI & Emissions Inventory Requirements	Yes	Facility	This regulation establishes emission inventory requirements. The facility meets the applicability requirements of 20.2.73.300 NMAC. The facility will meet any applicable reporting requirements under 20.2.73 NMAC.
20.2.74 NMAC	Permits – Prevention of Significant Deterioration (PSD)	No	N/A	This regulation establishes requirements for obtaining a prevention of significant deterioration permit. This facility does not have emissions greater than the PSD major source thresholds; therefore, this regulation does not apply.
20.2.75 NMAC	Construction Permit Fees	Yes	Facility	This regulation establishes a schedule of operating permit emission fees. The facility is subject to 20.2.72 NMAC and is therefore subject to requirements of this regulation.
20.2.77 NMAC	New Source Performance	Yes	Unit 1, Unit 2	The purpose of this regulation is to establish state authority to implement new source performance standards for stationary sources in New Mexico subject to 40 CFR Part 60. Units 1 and 2 are subject to subparts A, KKKK, and TTTT under 40 CFR Part 60 and are therefore subject to this regulation.
20.2.78 NMAC	Emission Standards for HAPS	No	N/A	The purpose of this regulation is to establish state authority to implement emission standards for hazardous air pollutants in New Mexico subject to 40 CFR Part 61. The facility is not subject to any subparts under 40 CFR Part 61, therefore this regulation does not apply.
20.2.79 NMAC	Permits – Nonattainment Areas	No	N/A	This regulation establishes the requirements for obtaining a nonattainment area permit. The facility is not located in a non-attainment area and therefore is not subject to this regulation.
20.2.80 NMAC	Stack Heights	No	N/A	This regulation establishes requirements for the evaluation of stack heights and other dispersion techniques. This regulation does not apply as all stacks at the facility follow good engineering practice.
20.2.82 NMAC	MACT Standards for source categories of HAPS	No	N/A	This regulation applies to all sources emitting hazardous air pollutants, which are subject to the requirements of 40 CFR Part 63. The facility is not a major source of HAPs according to the requirements of 40 CFR Part 63 and is not subject to any subparts under 40 CFR Part 63.

Table for Applicable FEDERAL REGULATIONS:

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
40 CFR 50	NAAQS	Yes	Facility	This regulation defines national ambient air quality standards. The facility meets all applicable national ambient air quality standards for NOx, CO, SO2, H2S, PM10, and PM2.5 under this regulation.
NSPS 40 CFR 60, Subpart A	General Provisions	Yes	Unit 1, Unit 2	Applies if any other NSPS subpart applies. Units 1 and 2 are subject to Subparts KKKK and TTTT, therefore Subpart A applies to these units.

FEDERAL REGU-LATIONS CITATION	Title	Applies? Enter Yes or No	Unit(s) or Facility	JUSTIFICATION:
NSPS 40 CFR 60, Subpart KKKK	Standards of Performance for Stationary Gas Turbines	Yes	Units 1, Unit 2	This subpart establishes emission standards for stationary sources. It supersedes Subpart GG and applies to the facility because the units are greater than 10 MMBtu per hour. The facility will be in compliance with the applicable NOx) and SOx limits, as well as the monitoring and reporting requirements.
NSPS 40 CFR 60 Subpart TTTT	Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units	Yes	Units 1, Unit 2	This subpart establishes emission standards for GHG for a stationary combustion turbine. The facility will be permitted to burn only uniform fuel that results in a consistent emission rate of less than 160 lb CO2/MMBtu and will maintain purchase records for permitted fuel.
MACT 40 CFR 63, Subpart A	General Provisions	No	N/A	Applies if any other subpart applies. No other Subpart applies, therefore Subpart A does not apply.
MACT 40 CFR 63 Subpart YYYY	National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines	No	N/A	This Subpart establishes emission and operating limitations for HAPs for stationary combustion turbines. These standards apply to stationary combustion turbines that are at a major source of any HAP. The facility is not a major source of any HAP and therefore Subpart YYYY does not apply per 40 Subpart §63.6085.
40 CFR 64	**Compliance Assurance Monitoring**	No	N/A	This part regulates a pollutant-specific emissions unit at a major source. The facility is not a major source, therefore these provisions do not apply.
40 CFR 68	**Chemical Accident Prevention**	No	N/A	This part sets forth the requirements concerning the prevention of accidental releases of regulated substances. The facility does not have more than a threshold quantity of a regulated substance in a process, as determined under §68.115, 40 CFR 68, therefore this part does not apply.
Title IV – Acid Rain 40 CFR 72	**Acid Rain**	Yes	Units 1, Unit 2	This part establishes general provisions and operating permit program requirements for affected sources. The facility is an affected source, therefore 40 CFR 72 applies and will be addressed in conjunction with the Title V application.
Title IV – Acid Rain 40 CFR 73	**Sulfur Dioxide** Allowance Emissions	Yes	Units 1, Unit 2	This part establishes requirements and procedures for allocation of SOx emissions allowances. SOx allowance provisions apply to the facility and will be addressed in conjunction with the this application.
Title IV-Acid Rain 40 CFR 75	**Continuous Emissions Monitoring**	Yes	Units 1, Unit 2	This part establishes requirements for monitoring, recordkeeping, and reporting of SO2, NOx, and CO2 emissions, volumetric flow, and opacity data from affected units under the Acid Rain Program. Acid rain provisions apply to the facility, therefore the facility will follow the monitoring, recordkeeping and reporting requirements.

Section 14

Operational Plan to Mitigate Emissions

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

☑ **Title V Sources** (20.2.70 NMAC)**:** By checking this box and certifying this application the permittee certifies that it has developed an **Operational Plan to Mitigate Emissions During Startups, Shutdowns, and Emergencies** defining the measures to be taken to mitigate source emissions during startups, shutdowns, and emergencies as required by 20.2.70.300.D.5(f) and (g) NMAC. This plan shall be kept on site to be made available to the Department upon request. This plan should not be submitted with this application.

☐ **NSR** (20.2.72 NMAC)**, PSD** (20.2.74 NMAC) **& Nonattainment** (20.2.79 NMAC) **Sources:** By checking this box and certifying this application the permittee certifies that it has developed an **Operational Plan to Mitigate Source Emissions During Malfunction, Startup, or Shutdown** defining the measures to be taken to mitigate source emissions during malfunction, startup, or shutdown as required by 20.2.72.203.A.5 NMAC. This plan shall be kept on site to be made available to the Department upon request. This plan should not be submitted with this application.

☑ **Title V** (20.2.70 NMAC)**, NSR** (20.2.72 NMAC)**, PSD** (20.2.74 NMAC) **& Nonattainment** (20.2.79 NMAC) **Sources:** By checking this box and certifying this application the permittee certifies that it has established and implemented a Plan to Minimize Emissions During Routine or Predictable Startup, Shutdown, and Scheduled Maintenance through work practice standards and good air pollution control practices as required by 20.2.7.14.A and B NMAC. This plan shall be kept on site or at the nearest field office to be made available to the Department upon request. This plan should not be submitted with this application.

The operational plan to mitigate emissions during malfunction, startup, or shutdown, as well as the plan to minimize emissions during routine or predictable startup, shutdown, and scheduled maintenance, has been completed and is available to the Department upon request.

Section 15

Alternative Operating Scenarios

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

Alternative Operating Scenarios: Provide all information required by the department to define alternative operating scenarios. This includes process, material and product changes; facility emissions information; air pollution control equipment requirements; any applicable requirements; monitoring, recordkeeping, and reporting requirements; and compliance certification requirements. Please ensure applicable Tables in this application are clearly marked to show alternative operating scenario.

Construction Scenarios: When a permit is modified authorizing new construction to an existing facility, NMED includes a condition to clearly address which permit condition(s) (from the previous permit and the new permit) govern during the interval between the date of issuance of the modification permit and the completion of construction of the modification(s). There are many possible variables that need to be addressed such as: Is simultaneous operation of the old and new units permitted and, if so for example, for how long and under what restraints? In general, these types of requirements will be addressed in Section A100 of the permit, but additional requirements may be added elsewhere. Look in A100 of our NSR and/or TV permit template for sample language dealing with these requirements. Find these permit templates at: https://www.env.nm.gov/aqb/permit/aqb_pol.html. Compliance with standards must be maintained during construction, which should not usually be a problem unless simultaneous operation of old and new equipment is requested.

In this section, under the bolded title "Construction Scenarios", specify any information necessary to write these conditions, such as: conservative-realistic estimated time for completion of construction of the various units, whether simultaneous operation of old and new units is being requested (and, if so, modeled), whether the old units will be removed or decommissioned, any PSD ramifications, any temporary limits requested during phased construction, whether any increase in emissions is being requested as SSM emissions or will instead be handled as a separate Construction Scenario (with corresponding emission limits and conditions, etc.

No alternate operating scenarios are proposed at this time.

Section 16

Air Dispersion Modeling

1) Minor Source Construction (20.2.72 NMAC) and Prevention of Significant Deterioration (PSD) (20.2.74 NMAC) ambient impact analysis (modeling): Provide an ambient impact analysis as required at 20.2.72.203.A(4) and/or 20.2.74.303 NMAC and as outlined in the Air Quality Bureau's Dispersion Modeling Guidelines found on the Planning Section's modeling website. If air dispersion modeling has been waived for one or more pollutants, attach the AQB Modeling Section modeling waiver approval documentation.
2) SSM Modeling: Applicants must conduct dispersion modeling for the total short term emissions during routine or predictable startup, shutdown, or maintenance (SSM) using realistic worst case scenarios following guidance from the Air Quality Bureau's dispersion modeling section. Refer to "Guidance for Submittal of Startup, Shutdown, Maintenance Emissions in Permit Applications (http://www.env.nm.gov/aqb/permit/app_form.html) for more detailed instructions on SSM emissions modeling requirements.
3) Title V (20.2.70 NMAC) ambient impact analysis: Title V applications must specify the construction permit and/or Title V Permit number(s) for which air quality dispersion modeling was last approved. Facilities that have only a Title V permit, such as landfills and air curtain incinerators, are subject to the same modeling required for preconstruction permits required by 20.2.72 and 20.2.74 NMAC.

What is the purpose of this application?	Enter an X for each purpose that applies
New PSD major source or PSD major modification (20.2.74 NMAC). See #1 above.	
New Minor Source or significant permit revision under 20.2.72 NMAC (20.2.72.219.D NMAC). See #1 above. **Note:** Neither modeling nor a modeling waiver is required for VOC emissions.	
Reporting existing pollutants that were not previously reported.	
Reporting existing pollutants where the ambient impact is being addressed for the first time.	
Title V application (new, renewal, significant, or minor modification. 20.2.70 NMAC). See #3 above.	X
Relocation (20.2.72.202.B.4 or 72.202.D.3.c NMAC)	
Minor Source Technical Permit Revision 20.2.72.219.B.1.d.vi NMAC for like-kind unit replacements.	
Other: i.e. SSM modeling. See #2 above.	
This application does not require modeling since this is a No Permit Required (NPR) application.	
This application does not require modeling since this is a Notice of Intent (NOI) application (20.2.73 NMAC).	
This application does not require modeling according to 20.2.70.7.E(11), 20.2.72.203.A(4), 20.2.74.303, 20.2.79.109.D NMAC and in accordance with the Air Quality Bureau's Modeling Guidelines.	

Check each box that applies:

☐ See attached, approved modeling **waiver for all** pollutants from the facility.
☐ See attached, approved modeling **waiver for some** pollutants from the facility.
☐ Attached in Universal Application Form 4 (UA4) is a **modeling report for all** pollutants from the facility.
☐ Attached in UA4 is a **modeling report for some** pollutants from the facility.
☑ No modeling is required.

Modeling was submitted with the initial NSR permit application (Permit No. PSD 5041) and a modeling waiver was approved with the application for NSR Permit 5041-M1 on 7/20/2016.

Section 17

Compliance Test History

(Submitting under 20.2.70, 20.2.72, 20.2.74 NMAC)

To show compliance with existing NSR permits conditions, you must submit a compliance test history. The table below provides an example.

Compliance Test History Table

Unit No.	Test Description	Test Date
1	Tested in accordance with EPA test method 7E for NO_x, EPA test method 10 for CO, and EPA test method 320 for NH_3 as required by NSR permit PSD5041.	11/10/2015
1	RATA Testing - Tested in accordance with EPA test method 1 for sample point determination, EPA test method 3a for O_2, EPA test method 7E for NO_x, EPA test method 10 for CO, and EPA test method 19 for mass emission factors.	07/30/2021

Section 19

Requirements for Title V Program

Who Must Use this Attachment:

* Any major source as defined in 20.2.70 NMAC.
* Any source, including an area source, subject to a standard or other requirement promulgated under Section 111 - Standards of Performance for New Stationary Sources, or Section 112 Hazardous Air Pollutants, of the 1990 federal Clean Air Act ("federal Act"). Non-major sources subject to Sections 111 or 112 of the federal Act are exempt from the obligation to obtain an 20.2.70 NMAC operating permit until such time that the EPA Administrator completes rulemakings that require such sources to obtain operating permits. In addition, sources that would be required to obtain an operating permit solely because they are subject to regulations or requirements under Section 112(r) of the federal Act are exempt from the requirement to obtain an Operating Permit.
* Any Acid Rain source as defined under title IV of the federal Act. The Acid Rain program has additional forms. See http://www.env.nm.gov/aqb/index.html. Sources that are subject to both the Title V and Acid Rain regulations are encouraged to submit both applications simultaneously.
* Any source in a source category designated by the EPA Administrator ("Administrator"), in whole or in part, by regulation, after notice and comment.

19.1 - 40 CFR 64, Compliance Assurance Monitoring (CAM) (20.2.70.300.D.10.e NMAC)

Any source subject to 40CFR, Part 64 (Compliance Assurance Monitoring) must submit all the information required by section 64.7 with the operating permit application. The applicant must prepare a separate section of the application package for this purpose; if the information is already listed elsewhere in the application package, make reference to that location. Facilities not subject to Part 64 are invited to submit periodic monitoring protocols with the application to help the AQB to comply with 20.2.70 NMAC. Sources subject to 40 CFR Part 64, must submit a statement indicating your source's compliance status with any enhanced monitoring and compliance certification requirements of the federal Act.

This regulation defines compliance assurance monitoring. There are no units at this facility that are subject to 40 CFR 64, therefore compliance assurance monitoring is not required.

19.2 - Compliance Status (20.2.70.300.D.10.a & 10.b NMAC)

Describe the facility's compliance status with each applicable requirement at the time this permit application is submitted. This statement should include descriptions of or references to all methods used for determining compliance. This statement should include descriptions of monitoring, recordkeeping and reporting requirements and test methods used to determine compliance with all applicable requirements. Refer to Section 2, Tables 2-N and 2-O of the Application Form as necessary. (20.2.70.300.D.11 NMAC) For facilities with existing Title V permits, refer to most recent Compliance Certification for existing requirements. Address new requirements such as CAM, here, including steps being taken to achieve compliance.

Based on the information and belief formed after reasonable inquiry, PNM believes that the La Luz Energy Center is compliant with each requirement applicable to the facility.

19.3 - Continued Compliance (20.2.70.300.D.10.c NMAC)

Provide a statement that your facility will continue to be in compliance with requirements for which it is in compliance at the time of permit application. This statement must also include a commitment to comply with other applicable requirements as they come into effect during the permit term. This compliance must occur in a timely manner or be consistent with such schedule expressly required by the applicable requirement.

As described in Section 19.2 and based on information and belief formed after reasonable inquiry, PNM states that La Luz Energy Center will continue to operate in compliance with applicable requirements for which it is in compliance as of the date of submittal of this application.

In addition, PNM will meet additional applicable requirements that become effective during the permit term in a timely manner or on such a time schedule as expressly required by the applicable requirement. In the event that PNM should discover new information affecting the compliance status of the La Luz Energy Center, PNM will make appropriate notifications and/or take corrective actions as appropriate.

19.4 - Schedule for Submission of Compliance (20.2.70.300.D.10.d NMAC)

You must provide a proposed schedule for submission to the department of compliance certifications during the permit term. This certification must be submitted annually unless the applicable requirement or the department specifies a more frequent period. A sample form for these certifications will be attached to the permit.

PNM is proposing a compliance certification schedule of report submittal every 12 months.

19.5 - Stratospheric Ozone and Climate Protection

In addition to completing the four (4) questions below, you must submit a statement indicating your source's compliance status with requirements of Title VI, Section 608 (National Recycling and Emissions Reduction Program) and Section 609 (Servicing of Motor Vehicle Air Conditioners).

---

1. Does your facility have any air conditioners or refrigeration equipment that uses CFCs, HCFCs or other ozone-depleting substances? ☑ **Yes** ☐ **No**

2. Does any air conditioner(s) or any piece(s) of refrigeration equipment contain a refrigeration charge greater than 50 lbs? ☐ **Yes** ☑ **No**
   (If the answer is yes, describe the type of equipment and how many units are at the facility.)

3. Do your facility personnel maintain, service, repair, or dispose of any motor vehicle air conditioners (MVACs) or appliances ("appliance" and "MVAC" as defined at 82. 152)? ☐ **Yes** ☑ **No**

4. Cite and describe which Title VI requirements are applicable to your facility (i.e. 40 CFR Part 82, Subpart A through G.)

This regulation establishes requirements for protection of the stratospheric ozone. The regulation is not applicable because the facility does not “service”, “maintain” or “repair” class I or class II appliances nor “disposes” of the appliances [40 CFR Part 82.1(a)].

19.6 - Compliance Plan and Schedule

Applications for sources, which are not in compliance with all applicable requirements at the time the permit application is submitted to the department, must include a proposed compliance plan as part of the permit application package. This plan shall include the information requested below:

A. Description of Compliance Status: (20.2.70.300.D.11.a NMAC)
A narrative description of your facility's compliance status with respect to all applicable requirements (as defined in 20.2.70 NMAC) at the time this permit application is submitted to the department.

B. Compliance plan: (20.2.70.300.D.11.B NMAC)
A narrative description of the means by which your facility will achieve compliance with applicable requirements with which it is not in compliance at the time you submit your permit application package.

C. Compliance schedule: (20.2.70.300D.11.c NMAC)
A schedule of remedial measures that you plan to take, including an enforceable sequence of actions with milestones, which will lead to compliance with all applicable requirements for your source. This schedule of compliance must be at least as stringent as that contained in any consent decree or administrative order to which your source is subject. The obligations of any consent decree or administrative order are not in any way diminished by the schedule of compliance.

D. Schedule of Certified Progress Reports: (20.2.70.300.D.11.d NMAC)
A proposed schedule for submission to the department of certified progress reports must also be included in the compliance schedule. The proposed schedule must call for these reports to be submitted at least every six (6) months.

E. Acid Rain Sources: (20.2.70.300.D.11.e NMAC)
If your source is an acid rain source as defined by EPA, the following applies to you. For the portion of your acid rain source subject to the acid rain provisions of title IV of the federal Act, the compliance plan must also include any additional requirements under the acid rain provisions of title IV of the federal Act. Some requirements of title IV regarding the schedule and methods the source will use to achieve compliance with the acid rain emissions limitations may supersede the requirements of title V and 20.2.70 NMAC. You will need to consult with the Air Quality Bureau permitting staff concerning how to properly meet this requirement.

NOTE: The Acid Rain program has additional forms. See http://www.env.nm.gov/aqb/index.html. Sources that are subject to both the Title V and Acid Rain regulations are **encouraged** to submit both applications **simultaneously**.

Based on information and belief formed after reasonable inquiry and as described in Section 19.2, and with this filing, PNM states that the La Luz Energy Center with applicable requirements. No compliance plan, compliance schedule, or compliance reports are required.

19.7 - 112(r) Risk Management Plan (RMP)

Any major sources subject to section 112(r) of the Clean Air Act must list all substances that cause the source to be subject to section 112(r) in the application. The permittee must state when the RMP was submitted to and approved by EPA.

Based on information and belief formed after reasonable inquiry, PNM states that La Luz Energy Center is not subject to 40 CFR 68, Chemical Accident Prevention Provisions. A risk management plan is therefore not required for La Luz Energy Center.

19.8 - Distance to Other States, Bernalillo, Indian Tribes and Pueblos

Will the property on which the facility is proposed to be constructed or operated be closer than 80 km (50 miles) from other states, local pollution control programs, and Indian tribes and pueblos (20.2.70.402.A.2 and 20.2.70.7.B NMAC)?

(If the answer is yes, state which apply and provide the distances.)

Other States: > 80 km
Indian Tribes: 25.5 km - Laguna Indian Reservation, 26 km - Isleta Indian Reservation, 66.8 km - Acoma Indian Reservation, 47.9 km – Canoncito Indian Reservation, 68.3 km – Sandia Indian Reservation, 53.5 km – Alamo Indian Reservation
Class I Areas: 79 km – Bosque del Apache Wilderness Area
Bernalillo County: 28.2 km

19.9 - Responsible Official

Provide the Responsible Official as defined in 20.2.70.7.AD NMAC:

The responsible official is:
Responsible Official: Heath Lee
R.O. Title: Director, Plant Management I
R. O. Address: 4400 Paseo Del Norte NE, Albuquerque, NM 87113
Phone: (505) 241-4723
R.O. e-mail: heath.lee@pnm.com

Section 20

Other Relevant Information

Other relevant information. Use this attachment to clarify any part in the application that you think needs explaining. Reference the section, table, column, and/or field. Include any additional text, tables, calculations or clarifying information.

Additionally, the applicant may propose specific permit language for AQB consideration. In the case of a revision to an existing permit, the applicant should provide the old language and the new language in track changes format to highlight the proposed changes. If proposing language for a new facility or language for a new unit, submit the proposed operating condition(s), along with the associated monitoring, recordkeeping, and reporting conditions. In either case, please limit the proposed language to the affected portion of the permit.

No other relevant information is being submitted with this application.

Section 22: Certification

Company Name: Public Service Company of New Mexico

I, Heath Lee, hereby certify that the information and data submitted in this application are true and as accurate as possible, to the best of my knowledge and professional expertise and experience.

Signed this 8 day of February, 2022, upon my oath or affirmation, before a notary of the State of New Mexico.

*Signature

2-8-2022
Date

Heath Lee
Printed Name

Director
Title

Scribed and sworn before me on this 8th day of February, 2022

My authorization as a notary of the State of New Mexico expires on the 4th day of May, 2025.

Notary's Signature

2/08/22
Date

Jasmin Quintana
Notary's Printed Name

STATE OF NEW MEXICO
NOTARY PUBLIC
JASMIN QUINTANA
COMMISSION NUMBER: 1133358
EXPIRATION DATE: MAY 04, 2025

Notary Public

*For Title V applications, the signature must be of the Responsible Official as defined in 20.2.70.7.AE NMAC.