



NNSA-2023-005076

Department of Energy
National Nuclear Security Administration
Sandia Field Office
P.O. Box 5400
Albuquerque, NM 87185



Ms. Angela Lopez
environmental health manager
Albuquerque Environmental Health Department
P. O. Box 1293
Albuquerque, New Mexico 87103-1293

Subject: Application for Construction Permit to Install a Natural Gas-Fired Heater

Dear Ms. Lopez:

In accordance with 20.11.41.2(A)(1) NMAC, enclosed is a Construction Permit Application to install a natural gas-fired heater, located at Sandia National Laboratories/New Mexico Building 6630, which is owned by the Department of Energy, National Nuclear Security Administration. This application is for the installation of one 40 MMBtu/hr natural gas-fired heater for research and development of more efficient energy conversion systems.

If you have any questions, or need additional information, please contact Carolyn Holloway of our staff at 845-5248 or Carolyn.Holloway@nnsa.doe.gov.

Sincerely,

Conrad S. Valencia
Digitally signed by
Conrad S. Valencia
Date: 2023.06.28
11:29:24 -06'00'
Conrad S. Valencia
Assistant Manager Engineering

Enclosure:

1. Application for a Construction Permit at the Sandia National Laboratories/New Mexico, Building 6630 for a 40 MMBtu/hr Natural Gas-Fired Heater

cc w/ enclosure:
Paula Schuh, SNL/NM
Penny Avery, SNL/NM
Conrad Valencia, SFO/ENG
Saj Zappitello, SFO/ENG
Carolyn Holloway, SFO/ENG

JUL 18 '23 PM 1:52

EXECUTIVE SUMMARY

In accordance with 20.11.41.2(A)(1) NMAC, the U.S. Department of Energy (DOE) is submitting this application to install a 40 MMBtu/hr natural gas-fired heater that will be located at the Sandia National Laboratories/New Mexico (SNL/NM) Building 6630 – Nuclear Energy Systems Laboratory. This will be an initial Construction permit application for the site.

The heater will be used for research and development (R&D) of Brayton cycle power conversion systems for federal agencies or private entities. This project will entail the scaling up of a power conversion system based on a Brayton cycle utilizing supercritical carbon dioxide to maximize energy conversion efficiency.

1. PRE-PERMIT APPLICATION MEETING

Attached to this section are the documents associated with the Pre-Permit Application Meeting.

- a) Pre-permit Application Meeting Request
- b) Pre-permit Application Meeting Checklist

1.a. Pre-Permit Application Meeting Request



Pre-Permit Application Meeting Request Form

Air Quality Program- Environmental Health Department

Please complete appropriate boxes and email to aqd@cabq.gov or mail to:

Environmental Health Department
 Air Quality Program
 P.O. Box 1293
 Room 3047
 Albuquerque, NM 87103

Name:	Jamie Gomez
Company/Organization:	Sandia National Laboratories/New Mexico on behalf of Carolyn Holloway of DOE/NNSA/SFO
Point of Contact: (phone number and email): Preferred form of contact (circle one): Phone E-mail	POC: Penny Avery and Jamie Gomez Email: rpavery@sandia.gov , jlomez@sandia.gov
Preferred meeting date/times:	Conference call requested on: Monday, January 20 @ 9:00 am or Tuesday, January 21 @ 10:00 am
Description of Project:	Sandia National Laboratories, New Mexico (SNL/NM) proposes to install a test cell for Research and Development (R&D) of power conversion systems. This demonstration scale R&D installation is intended to demonstrate commercial viability and qualification for grid connection as the next phase of development of the system to increase power conversion efficiencies.

City of Albuquerque- Environmental Health Department
 Air Quality Program- Permitting Section
 Phone: (505) 768-1972 Email: aqd@cabq.gov

1.b. Pre-Permit Application Meeting Checklist



City of Albuquerque

Environmental Health Department

Air Quality Program



Pre-Permit Application Meeting Checklist

Any person seeking a permit under 20.11.41 NMAC, Authority-to-Construct Permits, shall do so by filing a written application with the Department. Prior to submitting an application, the applicant shall contact the department in writing and request a pre-application meeting for information regarding the contents of the application and the application process. This checklist is provided to aid the applicant and **a copy must be submitted with the application.**

Applications that are ruled incomplete because of missing information will delay any determination or the issuance of the permit. The Department reserves the right to request additional relevant information prior to ruling the application complete in accordance with 20.11.41 NMAC.

Name: Building 6630 – Brayton Cycle Heater
Contact: Carolyn Holloway (505) 845-5248/ Penny Avery (505) 273-1047
Company/Business: Dept of Energy/Sandia Field Office (DOE/SFO) Sandia National Laboratories/New Mexico (SNL/NM)

- Fill out and submit a Pre-Permit Application Meeting Request form
⇒ Available online at <http://www.cabq.gov/airquality>
- Emission Factors and Control Efficiencies
Notes:
- Air Dispersion modeling guidelines and protocol
Notes:
- Department Policies
Notes:
- Air quality permit fees

Ver. 11/13

City of Albuquerque- Environmental Health Department
Air Quality Program- Permitting Section
Phone: (505) 768-1972 Email: aqd@cabq.gov

Notes:

Public notice requirements

- Replacement Part 41 Implementation
 - 20.11.41.13 B. Applicant's public notice requirements
 - Providing public notice to neighborhood association/coalitions
 - Neighborhood association: _____
 - Coalition: _____

Notes:

- Posting and maintaining a weather-proof sign

Notes:

Regulatory timelines

- 30 days to rule application complete
- 90 days to issue completed permit
- Additional time allotted if there is significant public interest and/or a significant air quality issue
 - Public Information Hearing
 - Complex permitting action

Notes:

2. PUBLIC NOTICE

Attached to this section are all completed public notice requirements including:

- a) Notice of Intent to Construct Form
- b) Public Sign Notice Guidelines
- c) Public Notice Sign Photograph
- d) Memo from the COA Containing Neighborhood Associations and Coalitions

2.a. Notice of Intent to Construct Form

From: [Moore, Tami L.](mailto:Moore_Tami_L)
To: info@willsonstudio.com; mandy@theremedyspa.com; dmills544@gmail.com; catburns87106@gmail.com
Cc: [Avery, Pennv](mailto:Avery_Pennv); [Romero Kotovskv, Jane Catherine](mailto:Romero_Kotovskv)
Subject: [EXTERNAL] Public Notice of Proposed Air Quality Construction Permit Application
Date: Wednesday, May 24, 2023 1:51:11 PM
Attachments: [2 - Notice of Intent 02082023.pdf](#)

Dear Neighborhood Association/Coalition Representatives,

Why did I receive this public notice?

You are receiving this notice in accordance with New Mexico Administrative Code (NMAC) 20.11.41.13.B(1) which requires any applicant seeking an Air Quality Construction Permit pursuant to 20.11.41 NMAC to provide public notice by certified mail or electronic mail to the designated representative(s) of the recognized neighborhood associations and recognized coalitions that are within one-half mile of the exterior boundaries of the property on which the source is or is proposed to be located.

What is the Air Quality Permit application review process?

The City of Albuquerque, Environmental Health Department, Air Quality Program (Program) is responsible for the review and issuance of Air Quality Permits for any stationary source of air contaminants within Bernalillo County. Once the application is received, the Program reviews each application and rules it either complete or incomplete. Complete applications will then go through a 30-day public comment period. Within 90 days after the Program has ruled the application complete, the Program shall issue the permit, issue the permit subject to conditions, or deny the requested permit or permit modification. The Program shall hold a Public Information Hearing pursuant to 20.11.41.15 NMAC if the Director determines there is significant public interest and a significant air quality issue is involved.

What do I need to know about this proposed application?

Applicant Name	United States Department of Energy (DOE)
Site or Facility Name	Sandia National Laboratories Building 6630
Site or Facility Address	Latitude: 34.98248°, Longitude: -106.53878°
New or Existing Source	New Source
Anticipated Date of Application Submittal	June 9, 2023

Summary of Proposed Source to Be Permitted

The application is being submitted to install a 40 MMBtu natural gas-fired heater that will be located at Sandia National Laboratories/New Mexico (SNL/NM). The heater will be used for research and development (R&D) of Brayton cycle power conversion systems for federal agencies or private entities. This project will entail the scaling up of a power conversion system based on a Brayton cycle utilizing supercritical carbon dioxide to maximize energy conversion efficiency.

Tami Moore
Public Affairs Director
NNSA Sandia Field Office
Office: 505-845-5264
Mobile: 505-379-2045

NOTICE FROM THE APPLICANT

Notice of Intent to Apply for Air Quality Construction Permit

You are receiving this notice because the New Mexico Air Quality Control Act (20.11.41.13B NMAC) requires any owner/operator proposing to construct or modify a facility subject to air quality regulations to provide public notice by certified mail or electronic mail to designated representatives of recognized neighborhood associations and coalitions within 0.5-mile of the property on which the source is or is proposed to be located.

This notice indicates that the owner/operator intends to apply for an Air Quality Construction Permit from the Albuquerque – Bernalillo County Joint Air Quality Program. Currently, no application for this proposed project has been submitted to the Air Quality Program. Applicants are required to include a copy of this form and documentation of mailed notices with their Air Quality Construction Permit Application.

Proposed Project Information

Applicant's name and address:

Nombre y domicilio del solicitante:

Department of Energy Sandia Field Office (SFO) P.O. Box 5400, Albuquerque, NM, 87185

Owner / operator's name and address:

Nombre y domicilio del propietario u operador:

Sandia National Laboratories P.O. Box 5800 MS 0730, Albuquerque NM, 87185-0730

Contact for comments and inquires:

Datos actuales para comentarios y preguntas:

Name (*Nombre*): Tami Moore - DOE Public Affairs Director

Address (*Domicilio*): PO Box 5400, Albuquerque NM, 87185

Phone Number (*Número Telefónico*): (505) 845-5264

E-mail Address (*Correo Electrónico*): tami.moore@nnsa.doe.gov

Actual or estimated date the application will be submitted to the department:

Fecha actual o estimada en que se entregará la solicitud al departamento: June 9, 2023

Description of the source: Natural gas-fired heater for research and development of efficient energy conversion systems
Descripción de la fuente:

Exact location of the source or proposed source:

Ubicación exacta de la fuente o fuente propuesta: Sandia National Laboratories Building 6630 (Latitude: 34.98248°, Longitude:-106.53878)

Nature of business:

Tipo de negocio: Research and Development

Process or change for which the permit is requested:

Proceso o cambio para el cuál de solicita el permiso:

Installation of a heater

Maximum operating schedule:

Horario máximo de operaciones: 260 days/yr, 8 hours a day, 5 days a week

Normal operating schedule:

Horario normal de operaciones: Weekdays 8 am to 5 pm

Preliminary estimate of the maximum quantities of each regulated air contaminant the source will emit:
Estimación preliminar de las cantidades máximas de cada contaminante de aire regulado que la fuente va a emitir:

Air Contaminant <i>Contaminante de aire</i>	Proposed Construction Permit <i>Permiso de Construcción Propuesto</i>		Net Changes <i>(for permit modification or technical revision)</i> <i>Cambio Neto de Emisiones</i> <i>(para modificación de permiso o revisión técnica)</i>	
	pounds per hour <i>libras por hora</i>	tons per year <i>toneladas por año</i>	pounds per hour <i>libras por hora</i>	tons per year <i>toneladas por año</i>
NO_x	4.00	4.16	N/A	N/A
CO	3.29	3.43	N/A	N/A
VOC	0.22	0.22	N/A	N/A
SO₂	0.08	0.09	N/A	N/A
PM₁₀	0.30	0.31	N/A	N/A
PM_{2.5}	0.30	0.31	N/A	N/A
HAP	N/A	N/A	N/A	N/A

NOTE: To add extra rows for H₂S or Pb in Word, click in a box in the last row. Click the plus (+) sign that appears on the right of the row to add a row.

Questions or comments regarding this Notice of Intent should be directed to the Applicant. Contact information is provided with the Proposed Project Information on the first page of this notice. To check the status of an Air Quality Construction Permit application, call 311 and provide the Applicant's information, or visit www.cabq.gov/airquality/air-quality-permits.

The Air Quality Program will issue a Public Notice announcing a 30-day public comment period on the permit application for the proposed project when the application is deemed complete. The Air Quality Program does not process or issue notices on applications that are deemed incomplete. More information about the air quality permitting process is attached to this notice.

Air Quality Construction Permitting Overview

This is the typical process to obtain an Air Quality Construction Permit for Synthetic Minor and Minor sources of air pollution from the Albuquerque – Bernalillo County Joint Air Quality Program.

Step 1: Pre-application Meeting: The Applicant and their consultant must request a meeting with the Air Quality Program to discuss the proposed action. If air dispersion modeling is required, Air Quality Program staff discuss the modeling protocol with the Applicant to ensure that all proposed emissions are considered.

Notice of Intent from the Applicant: Before submitting their application, the Applicant is required to notify all nearby neighborhood associations and interested parties that they intend to apply for an air quality permit or modify an existing permit. The Applicant is also required to post a notice sign at the facility location.

Step 2: Administrative Completeness Review and Preliminary Technical Review: The Air Quality Program has 30 days from the day the permit is received to review the permit application to be sure that it is administratively complete. This means that all application forms must be signed and filled out properly, and that all relevant technical information needed to evaluate any proposed impacts is included. If the application is not complete, the permit reviewer will return the application and request more information from the Applicant. Applicants have three opportunities to submit an administratively complete application with all relevant technical information.

Public Notice from the Department: When the application is deemed complete, the Department will issue a Public Notice announcing a 30-day public comment period on the permit application. This notice is distributed to the same nearby neighborhood associations and interested parties that the Applicant sent notices to, and published on the Air Quality Program's website.

During this 30-day comment period, individuals have the opportunity to submit written comments expressing their concerns or support for the proposed project, and/or to request a Public Information Hearing. If approved by the Environmental Health Department Director, Public Information Hearings are held after the technical analysis is complete and the permit has been drafted.

Step 3: Technical Analysis and Draft Permit: Air Quality Program staff review all elements of the proposed operation related to air quality, and review outputs from advanced air dispersion modeling software that considers existing emission levels in the area surrounding the proposed project, emission levels from the proposed project, and meteorological data. The total calculated level of emissions is compared to state and federal air quality standards and informs the decision on whether to approve or deny the Applicant's permit.

Draft Permit: The permit will establish emission limits, standards, monitoring, recordkeeping, and reporting requirements. The draft permit undergoes an internal peer review process to determine if the emissions were properly evaluated, permit limits are appropriate and enforceable, and the permit is clear, concise, and consistent.

Public Notice from the Department: When the technical analysis is complete and the permit has been drafted, the Department will issue a second Public Notice announcing a 30-day public comment period on the technical analysis and draft permit. This second Public Notice, along with the technical analysis documentation and draft permit, will be published on the Air Quality Program's website, and the public notice for availability of the technical analysis and draft permit will only be directly sent to those who requested further information during the first comment period.

Air Quality Construction Permitting Overview

During this second 30-day comment period, residents have another opportunity to submit written comments expressing their concerns or support for the proposed project, and/or to request a Public Information Hearing.

Possible Public Information Hearing: The Environmental Health Department Director may decide to hold a Public Information Hearing for a permit application if there is significant public interest and a significant air quality issue. If a Public Information Hearing is held, it will occur after the technical analysis is complete and the permit has been drafted.

Step 4: Public Comment Evaluation and Response: The Air Quality Program evaluates all public comments received during the two 30-day public comment periods and Public Information Hearing, if held, and updates the technical analysis and draft permit as appropriate. The Air Quality Program prepares a response document to address the public comments received, and when a final decision is made on the permit application, the comment response document is published on the Air Quality Program's website and distributed to the individuals who participated in the permit process. If no comments are received, a response document is not prepared.

Step 5: Final Decision on the Application: After public comments are addressed and the final technical review is completed, the Environmental Health Department makes a final decision on the application. If the permit application meets all applicable requirements set forth by the New Mexico Air Quality Control Act and the federal Clean Air Act, the permit is approved. If the permit application does not meet all applicable requirements, it is denied.

Notifications of the final decision on the permit application and the availability of the comment response document is published on the Air Quality Program's website and distributed to the individuals who participated in the permit process.

The Department must approve a permit application if the proposed action will meet all applicable requirements and if it demonstrates that it will not result in an exceedance of ambient air quality standards. Permit writers are very careful to ensure that estimated emissions have been appropriately identified or quantified and that the emission data used are acceptable.

The Department must deny a permit application if it is deemed incomplete three times, if the proposed action will not meet applicable requirements, if estimated emissions have not been appropriately identified or quantified, or if the emission data are not acceptable for technical reasons.

For more information about air quality permitting, visit www.cabq.gov/airquality/air-quality-permits

2.b. Public Sign Notice Guidelines



City of Albuquerque

Environmental Health Department

Air Quality Program



Public Notice Sign Guidelines

Any person seeking a permit under 20.11.41 NMAC, Authority-to-Construct Permits, shall do so by filing a written application with the Department. *Prior to submitting an application, the applicant shall post and maintain a weather-proof sign provided by the department. The applicant shall keep the sign posted until the department takes final action on the permit application; if an applicant can establish to the department's satisfaction that the applicant is prohibited by law from posting, at either location required, the department may waive the posting requirement and may impose different notification requirements. A copy of this form must be submitted with your application.*

Applications that are ruled incomplete because of missing information will delay any determination or the issuance of the permit. The Department reserves the right to request additional relevant information prior to ruling the application complete in accordance with 20.11.41 NMAC.



Name: Department of Energy
 Contact: Tami Moore (DOE)
 Company/Business: Address: PO Box 5400, Albuquerque NM, 87185
Phone Number: (505) 845-5264
Email Address: tami.moore@nnsa.doe.gov

- The sign must be posted at the more visible of either the proposed or existing facility entrance (or, if approved in advance and in writing by the department, at another location on the property that is accessible to the public)
- The sign shall be installed and maintained in a condition such that members of the public can easily view, access, and read the sign at all times.
- The lower edge of the sign board should be mounted a minimum of 2' above the existing ground surface to facilitate ease of viewing
- Attach a picture of the completed, properly posted sign to this document
- Check here if the department has waived the sign posting requirement.**
 Alternative public notice details:

2.c. Public Notice Sign Photograph



Proposed Air Quality Construction Permit
Permiso de Construcción de Calidad del Aire Propuesto

1. Applicant's Name: Department of Energy Sandia Field Office (SFO)
 Nombre de solicitante: P.O. Box 5400, ALBUQUERQUE, NM 87185

Owner or Operator's Name: Sandia National Laboratories
 Nombre del Propietario u Operador: P.O. Box 9300, MS 0730, ALBUQUERQUE, NM 87185-0730

2. Actual or Estimated Date the Application will be Submitted to the Department: June 9, 2023
 Fecha Actual o Estimada en que se Entregará la Solicitud al Departamento:

3. Exact Location of the Source or Proposed Source: Sandia National Laboratories Building 4630
 Ubicación Exacta de la Fuente o Fuente Propuesta: (Latitude: 39.93748°, Longitude: -106.53378°)

4. Description of the Source: Natural Gas-Fired heater for Research & Development of Efficient
 Descripción de la Fuente: Energy Conversion System

Nature of Business: Research & Development
 Tipo de Negocio:

Process or change for which a permit is requested: Installation of A Heater
 Proceso o cambio para el cual se solicita el permiso:

Preliminary estimate of the maximum quantities of each regulated air contaminant the source will emit:
 Estimación preliminar de las cantidades máximas de cada contaminante de aire regulado que la fuente va a emitir:

Air Contaminant Contaminante de Aire	Proposed Construction Permit Permiso de Construcción Propuesta		Net Change Emissions (for permit modification) Cambio Neto de Emisiones (para modificación de permiso)	
	Pounds per hour libras por hora	Tons per year toneladas por año	Pounds per hour libras por hora	Tons per year toneladas por año
NO _x	4.00	9.16	N/A	N/A
CO	3.29	3.43	N/A	N/A
VOC	0.22	0.22	N/A	N/A
SO ₂	0.03	0.04	N/A	N/A
PM ₁₀	0.30	0.31	N/A	N/A
PM _{2.5}	0.30	0.31	N/A	N/A
HAP	N/A	N/A	N/A	N/A

5. Maximum Operating Schedule: 260 Days/yr, 8 hours a day, 5 days a week
 Horario Máximo de Operaciones:

Normal Operation Schedule: Weekdays 8am to 5pm
 Horario Normal de Operaciones:

6. Current Contact Information for Comments and Inquiries
 Datos actuales para Comentarios y Preguntas

Name (Nombre): Tami Moore - DOE Public Affairs Director
 Address (Dirección): P.O. Box 5400, Albuquerque, nm 87185
 Phone Number (Número Telefónico): (505) 845-5264
 Email Address (Correo Electrónico): tami.moore@nsl.doe.gov

Call 311 for additional information concerning this project, the Air Quality Program, or to file a complaint.
 Llame al 311 para obtener información adicional sobre este proyecto, del Programa de Calidad del Aire, o para presentar una queja.
 Gọi 311 để biết thêm thông tin hoặc để khiếu nại về dự án này, Chương Trình Chất Lượng Không Khí

City of Albuquerque, Environmental Health Department, Air Quality Program - Stationary Source Permitting
 Ciudad de Albuquerque, Departamento de Salud Ambiental, Programa de Calidad del Aire - Permisos para Fuentes fijas/city
 (505) 748-1972, eqd@cah.gov

THIS SIGN SHALL REMAIN POSTED UNTIL THE DEPARTMENT TAKES FINAL ACTION ON THE PERMIT APPLICATION
 ESTE AVISO DEBERÁ DE MANTENERSE PUESTO HASTA QUE EL DEPARTAMENTO TOMA UNA DECISIÓN SOBRE LA SOLICITUD DE PERMISO

2.d. Memo from the COA Containing
Neighborhood Associations and Coalitions



Tim Keller
Mayor

Public Participation

List of Neighborhood Associations, Neighborhood Coalitions and Interested Parties MEMORANDUM

To: Sandia National Labs Building 6630
From: Angela Lopez, Environmental Health Supervisor
Subject: Determination of Neighborhood Associations and Coalitions
within 0.5 miles of Sandia National Labs Building 6630
Date: May 12, 2023

DETERMINATION:

On May 12, 2023 I used the City of Albuquerque Zoning Advanced Map Viewer (<http://sharepoint.cabq.gov/gis>) to review which City of Albuquerque (COA) Neighborhood Associations (NAs) and Neighborhood Coalitions (NCs) and which Bernalillo County (BC) NAs and NCs are located within 0.5 miles of Sandia National Labs Building 6630 in Bernalillo County, NM.

I then used the City of Albuquerque Office of Neighborhood Coordination's Monthly Master NA List dated May 2023 and the Bernalillo County Monthly Neighborhood Association March 2023 Excel file to determine the contact information for each NA and NC located within 0.5 miles of Sandia National Labs Building 6630 in Bernalillo County, NM.

The table below contains the contact information, which will be used in the City of Albuquerque Environmental Health Department's public notice.

City of Albuquerque and/or BC Association or Coalition	Name	Email or Mailing Address
District 6 Coalition of Neighborhood Associations	Patricia Willson Mandy Warr	info@willsonstudio.com ; mandy@theremedyspa.com ;
Mesa Del Sol Neighborhood Association	Cathy Burns David Mills	catburns87106@gmail.com dmills544@gmail.com

3. AIR PERMIT APPLICATION

Attached to this section are as follows:

- a) Required Permit Application Forms:
 - Permit Application Checklist
 - Permit Application Review Fee Checklist
 - Application for Air Pollutant Sources in Bernalillo County
- b) Plot Plan identifying the location of the facility emission source
 - USGS 7.5'- Quadrangle Map
 - Google Map
- c) Process flow diagram
- d) Emission calculations and supporting information used to calculate emissions
- e) Operational and Maintenance Strategy
- f) Zoning Requirement
- g) Air Dispersion Modeling Ambient Impact Analysis
 - Protocol
 - Report

3.a. Required Permit Application Forms



City of Albuquerque Environmental Health Department Air Quality Program



Construction Permit (20.11.41 NMAC) Application Checklist

This checklist must be returned with the application

Any person seeking a new air quality permit, a permit modification, or an emergency permit under 20.11.41 NMAC (Construction Permits) shall do so by filing a written application with the Albuquerque-Bernalillo County Joint Air Quality Program, which administers and enforces local air quality laws for the City of Albuquerque ("City") and Bernalillo County ("County"), on behalf of the City Environmental Health Department ("Department").

The Department will rule an application administratively incomplete if it is missing or has incorrect information. The Department may require additional information that is necessary to make a thorough review of an application, including but not limited to technical clarifications, emission calculations, emission factor usage, additional application review fees if any are required by 20.11.2 NMAC, and new or additional air dispersion modeling.

If the Department has ruled an application administratively incomplete three (3) times, the Department will deny the permit application. Any fees submitted for processing an application that has been denied will not be refunded. If the Department denies an application, a person may submit a new application and the fee required for a new application. The applicant has the burden of demonstrating that a permit should be issued.

The following are the minimum elements that shall be included in the permit application before the Department can determine whether an application is administratively complete and ready for technical review. It is not necessary to include an element if the Department has issued a written waiver regarding the element and the waiver accompanies the application. However, the Department shall not waive any federal requirements.

At all times before the Department has made a final decision regarding the application, an applicant has a duty to promptly supplement and correct information the applicant has submitted in an application to the Department. The applicant's duty to supplement and correct the application includes but is not limited to relevant information acquired after the applicant has submitted the application and additional information the applicant otherwise determines is relevant to the application and the Department's review and decision. While the Department is processing an application, regardless of whether the Department has determined the application is administratively complete, if the Department determines that additional information is necessary to evaluate or make a final decision regarding the application, the Department may request additional information and the applicant shall provide the requested additional information.

NOTICE REGARDING PERMIT APPEALS: A person who has applied for or has been issued an air quality permit by the Department shall be an obligatory party to a permit appeal filed pursuant to 20.11.81 NMAC.

NOTICE REGARDING SCOPE OF A PERMIT: The Department's issuance of an air quality permit only authorizes the use of the specified equipment pursuant to the air quality control laws, regulations and conditions. Permits relate to air quality control only and are issued for the sole purpose of regulating the emission of air contaminants from said equipment. Air quality permits are not a general authorization for the location, construction and/or operation of a facility, nor does a permit authorize any particular land use or other form of land entitlement. It is the applicant's/permittee's responsibility to obtain all other necessary permits from the appropriate agencies, such as the City Planning Department or County Department of Planning and Development Services, including but not limited to site plan approvals, building permits, fire department approvals and the like, as may be required by law for the location, construction and/or operation of a facility. For more information, please visit the City Planning Department website at <https://www.cabq.gov/planning> and the County Department of Planning and Development Services website at <https://www.bernco.gov/planning>.

The Applicant shall:

20.11.41.13(A) NMAC – Pre-Application Requirements:

Item	Completed	NA ¹	Waived ²
(1) Request a pre-application meeting with the Department using the pre-application meeting request form.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(2) Attend the pre-application meeting. Date of Pre-application meeting: 5/4/20	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1. Not Applicable
2. It is not necessary to include an element if the Department has issued a written waiver regarding the element and the waiver accompanies the application. However, the Department shall not waive any federal requirements.

20.11.41.13(B) NMAC – Applicant’s Public Notice Requirements:

Item	Included in Application	NA ¹	Waived ²
(1) Provide public notice in accordance with the regulation, including by certified mail or electronic copy to the designated representative(s) of the recognized neighborhood associations and recognized coalitions that are within one-half mile of the exterior boundaries of the property on which the source is or is proposed to be located.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Contact list of representative(s) of neighborhood associations and recognized coalitions cannot be more than three months old from the application submittal date.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Provide notice using the Notice of Intent to Construct form.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(2) In accordance with the regulation, post and maintain in a visible location a weather proof sign provided by the Department.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1. Not Applicable; For emergency permits, the public notice requirements in 20.11.41.24 NMAC shall apply instead.
2. It is not necessary to include an element if the Department has issued a written waiver regarding the element and the waiver accompanies the application. However, the Department shall not waive any federal requirements.

The Permit Application shall include:

20.11.41.13(E) NMAC – Application Contents

Item	Included In Application	NA ¹	Waived ²
(1) A complete permit application on the most recent form provided by the Department.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(2) The application form includes:			
a. The owner’s name, street and post office address, and contact information;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. The facility/ operator’s name, street address and mailing address, if different from the owner;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. The consultant’s name, and contact information, if applicable;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. All information requested on the application form is included (i.e., the form is complete).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(3) Date application is submitted.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(4) Sufficient attachments for the following:			
a. Ambient impact analysis using an atmospheric dispersion model approved by the U.S. Environmental Protection Agency, and the Department to demonstrate compliance with the applicable ambient air quality standards. See 20.11.01 NMAC. If you are modifying an existing source, the modeling must include the	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Item	Included In Application	NA ¹	Waived ²
emissions of the entire source to demonstrate the impact the new or modified source(s) will have on existing plant emissions.			
b. The air dispersion model has been executed pursuant to a protocol that was approved in advance by the Department.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Air dispersion modeling approved protocol date: N/A	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Basis or source for each emission rate (including manufacturer's specification sheet, AP-42 section sheets, test data, or corresponding supporting documentation for any other source used).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. All calculations used to estimate potential emission rates and controlled/proposed emissions.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Basis for the estimated control efficiencies and sufficient engineering data for verification of the control equipment operation, including if necessary, design, drawing, test report and factors which affect the normal operation.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g. Fuel data for each existing and/or proposed piece of fuel burning equipment.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Anticipated maximum production capacity of the entire facility and the requested production capacity after construction and/or modification.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Stack and exhaust gas parameters for all existing and proposed emission stacks.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(5) An operational and maintenance strategy detailing:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
a. steps the applicant will take if a malfunction occurs that may cause emission of a regulated air contaminant to exceed a limit that is included in the permit;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. the nature of emission during routine startup or shutdown of the source and the source's air pollution control equipment; and	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. the steps the application will take to minimize emissions during routine startup or shutdown.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(6) A map, such as a 7.5'-topographic quadrangle map published by the U.S. Geological Survey or a map of equivalent or greater scale, detail, and precision, including a City or County zone atlas map that shows the proposed location of each process equipment unit involved in the proposed construction, modification, or operation of the source, as applicable.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(7) An aerial photograph showing the proposed location of each process equipment unit involved in the proposed construction, modification, relocation or technical revision of the source except for federal agencies or departments involved in national defense or national security as confirmed and agreed by the Department in writing.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(8) A complete description of all sources of regulated air contaminants and a process flow diagram depicting the process equipment unit or units at the facility, both existing and proposed, that are proposed to be involved in routine operations and from which regulated air contaminant emissions are expected to be emitted.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(9) A full description of air pollution control equipment, including all calculations and the basis for all control efficiencies presented, manufacturer's specifications sheets, and site layout and assembly drawings; UTM (universal transverse mercator) coordinates shall be used to identify the location of each emission unit.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(10) A description of the equipment or methods proposed by the applicant to be used for emission measurement.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(11) The maximum and normal operating time schedules of the source after completion of construction or modification, as applicable.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(12) Any other relevant information as the Department may reasonably require, including without limitation:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
a. Applicants shall provide documentary proof that the proposed air quality permitted use of the facility's subject property is allowed by the zoning designation of the City or County zoning laws, as applicable. Sufficient documentation includes: (i) a zoning certification from the City Planning Department or County Department of Planning and Development Services, as applicable, if the property is subject to City or County zoning jurisdiction; or (ii) a zoning verification from both planning	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Item	Included In Application	NA ¹	Waived ²
departments if the property is not subject to City or County zoning jurisdiction. ³ A zone atlas map shall not be sufficient.			
(13) The signature of the applicant, operator, owner or an authorized representative, certifying to the accuracy of all information as represented in the application and attachments, if any.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(14) A check or money order for the appropriate application fee or fees required by 20.11.2 NMAC (Fees).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1. *Not Applicable – If checked, applicant is required to provide a waiver from the Department for that specific element*
2. *It is not necessary to include an element if the Department has issued a written waiver regarding the element and the waiver accompanies the application. However, the Department shall not waive any federal requirements.*
3. *For emergency permit applications, applicants are not required to submit documentation for the subject property's zoning designation.*



City of Albuquerque

Environmental Health Department

Air Quality Program



Permit Application Review Fee Instructions

All source registration, authority-to-construct, and operating permit applications for stationary or portable sources shall be charged an application review fee according to the fee schedule in 20.11.2 NMAC. These filing fees are required for both new construction, reconstruction, and permit modifications applications. Qualified small businesses as defined in 20.11.2 NMAC may be eligible to pay one-half of the application review fees and 100% of all applicable federal program review fees.

Please fill out the permit application review fee checklist and submit with a check or money order payable to the "City of Albuquerque Fund 242" and either:

1. be delivered in person to the Albuquerque Environmental Health Department, 3rd floor, Suite 3023 or Suite 3027, Albuquerque-Bernalillo County Government Center, south building, One Civic Plaza NW, Albuquerque, NM or,
2. mailed to Attn: Air Quality Program, Albuquerque Environmental Health Department, P.O. Box 1293, Albuquerque, NM 87103.

The department will provide a receipt of payment to the applicant. The person delivering or filing a submittal shall attach a copy of the receipt of payment to the submittal as proof of payment. Application review fees shall not be refunded without the written approval of the manager. If a refund is requested, a reasonable professional service fee to cover the costs of staff time involved in processing such requests shall be assessed. Please refer to 20.11.2 NMAC (effective January 10, 2011) for more detail concerning the "Fees" regulation as this checklist does not relieve the applicant from any applicable requirement of the regulation.



City of Albuquerque

Environmental Health Department Air Quality Program



Permit Application Review Fee Checklist Effective January 1, 2023 – December 31, 2023

Please completely fill out the information in each section. Incompleteness of this checklist may result in the Albuquerque Environmental Health Department not accepting the application review fees. If you should have any questions concerning this checklist, please call 768-1972.

I. COMPANY INFORMATION:

Company Name	United States Department of Energy (DOE)		
Company Address	1515 Wyoming Boulevard SE, Albuquerque NM, 87123		
Facility Name	Sandia National Laboratories/New Mexico		
Facility Address	SNL/NM – Building 6630 (Latitude: 34.982480° Longitude:-106.538780)		
Contact Person	Carolyn Holloway (SFO)/ Penny Avery (SNL/NM)		
Contact Person Phone Number	(505) 845-5248/ (505) 273-1047		
Are these application review fees for an existing permitted source located within the City of Albuquerque or Bernalillo County?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
If yes, what is the permit number associated with this modification?	Permit #		
Is this application review fee for a Qualified Small Business as defined in 20.11.2 NMAC? (See Definition of Qualified Small Business on Page 4)	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	

II. STATIONARY SOURCE APPLICATION REVIEW FEES:

If the application is for a new stationary source facility, please check all that apply. If this application is for a modification to an existing permit please see Section III.

Check All That Apply	Stationary Sources	Review Fee	Program Element
Air Quality Notifications			
<input type="checkbox"/>	AQN New Application	\$645.00	2801
<input type="checkbox"/>	AQN Technical Amendment	\$352.00	2802
<input type="checkbox"/>	AQN Transfer of a Prior Authorization	\$352.00	2803
<input checked="" type="checkbox"/>	<i>Not Applicable</i>	<i>See Sections Below</i>	
Stationary Source Review Fees (Not Based on Proposed Allowable Emission Rate)			
<input type="checkbox"/>	Source Registration required by 20.11.40 NMAC	\$ 657.00	2401
<input type="checkbox"/>	A Stationary Source that requires a permit pursuant to 20.11.41 NMAC or other board regulations and are not subject to the below proposed allowable emission rates	\$1,314.00	2301
<input checked="" type="checkbox"/>	<i>Not Applicable</i>	<i>See Sections Below</i>	
Stationary Source Review Fees (Based on the Proposed Allowable Emission Rate for the single highest fee pollutant)			
<input checked="" type="checkbox"/>	Proposed Allowable Emission Rate Equal to or greater than 1 tpy and less than 5 tpy	\$986.00	2302
<input type="checkbox"/>	Proposed Allowable Emission Rate Equal to or greater than 5 tpy and less than 25 tpy	\$1,971.00	2303
<input type="checkbox"/>	Proposed Allowable Emission Rate Equal to or greater than 25 tpy and less than 50 tpy	\$3,942.00	2304
<input type="checkbox"/>	Proposed Allowable Emission Rate Equal to or greater than 50 tpy and less than 75 tpy	\$5,913.00	2305
<input type="checkbox"/>	Proposed Allowable Emission Rate Equal to or greater than 75 tpy and less than 100 tpy	\$7,884.00	2306
<input type="checkbox"/>	Proposed Allowable Emission Rate Equal to or greater than 100 tpy	\$9,855.00	2307
<input type="checkbox"/>	<i>Not Applicable</i>	<i>See Section Above</i>	

Federal Program Review Fees for each subpart (In addition to the Stationary Source Application Review Fees above)			
<input checked="" type="checkbox"/>	40 CFR 60 - "New Source Performance Standards" (NSPS)	\$1,314.00	2308
<input type="checkbox"/>	40 CFR 61 - "Emission Standards for Hazardous Air Pollutants (NESHAPs)	\$1,314.00	2309
<input type="checkbox"/>	40 CFR 63 - (NESHAPs) Promulgated Standards	\$1,314.00	2310
<input type="checkbox"/>	40 CFR 63 - (NESHAPs) Case-by-Case MACT Review	\$13,140.00	2311
<input type="checkbox"/>	20.11.61 NMAC, Prevention of Significant Deterioration (PSD) Permit	\$6,570.00	2312
<input type="checkbox"/>	20.11.60 NMAC, Non-Attainment Area Permit	\$6,570.00	2313
<input type="checkbox"/>	<i>Not Applicable</i>	<i>Not Applicable</i>	

III. MODIFICATION TO EXISTING PERMIT APPLICATION REVIEW FEES:

If the permit application is for a modification to an existing permit, please check all that apply. If this application is for a new stationary source facility, please see Section II.

Check All That Apply	Modifications	Review Fee	Program Element
Modification Application Review Fees (Not Based on Proposed Allowable Emission Rate)			
<input type="checkbox"/>	Proposed modification to an existing stationary source that requires a permit pursuant to 20.11.41 NMAC or other board regulations and are not subject to the below proposed allowable emission rates	\$1,314	2321
<input checked="" type="checkbox"/>	<i>Not Applicable</i>	<i>See Sections Below</i>	
Modification Application Review Fees (Based on the Proposed Allowable Emission Rate for the single highest fee pollutant)			
<input type="checkbox"/>	Proposed Allowable Emission Rate Equal to or greater than 1 tpy and less than 5 tpy	\$986.00	2322
<input type="checkbox"/>	Proposed Allowable Emission Rate Equal to or greater than 5 tpy and less than 25 tpy	\$1,971.00	2323
<input type="checkbox"/>	Proposed Allowable Emission Rate Equal to or greater than 25 tpy and less than 50 tpy	\$3,942.00	2324
<input type="checkbox"/>	Proposed Allowable Emission Rate Equal to or greater than 50 tpy and less than 75 tpy	\$5,913.00	2325
<input type="checkbox"/>	Proposed Allowable Emission Rate Equal to or greater than 75 tpy and less than 100 tpy	\$7,884.00	2326
<input type="checkbox"/>	Proposed Allowable Emission Rate Equal to or greater than 100 tpy	\$9,855.00	2327
<input checked="" type="checkbox"/>	<i>Not Applicable</i>	<i>See Section Above</i>	
Major Modifications Review Fees (In addition to the Modification Application Review Fees above)			
<input type="checkbox"/>	20.11.60 NMAC, Permitting in Non-Attainment Areas	\$6,570	2333
<input type="checkbox"/>	20.11.61 NMAC, Prevention of Significant Deterioration	\$6,570	2334
<input checked="" type="checkbox"/>	<i>Not Applicable</i>	<i>Not Applicable</i>	
Federal Program Review Fees for each subpart (This section applies only if a Federal Program Review is triggered by the proposed modification) (These fees are in addition to the Modification and Major Modification Application Review Fees above)			
<input type="checkbox"/>	40 CFR 60 - "New Source Performance Standards" (NSPS)	\$1,314.00	2328
<input type="checkbox"/>	40 CFR 61 - "Emission Standards for Hazardous Air Pollutants (NESHAPs)	\$1,314.00	2329
<input type="checkbox"/>	40 CFR 63 - (NESHAPs) Promulgated Standards	\$1,314.00	2330
<input type="checkbox"/>	40 CFR 63 - (NESHAPs) Case-by-Case MACT Review	\$13,140.00	2331
<input type="checkbox"/>	20.11.61 NMAC, Prevention of Significant Deterioration (PSD) Permit	\$6,570.00	2332
<input type="checkbox"/>	20.11.60 NMAC, Non-Attainment Area Permit	\$6,570.00	2333
<input checked="" type="checkbox"/>	<i>Not Applicable</i>	<i>Not Applicable</i>	

IV. ADMINISTRATIVE AND TECHNICAL REVISION APPLICATION REVIEW FEES:
 If the permit application is for an administrative or technical revision of an existing permit issued pursuant to 20.11.41 NMAC, please check one that applies.

Check One	Revision Type	Review Fee	Program Element
<input type="checkbox"/>	Administrative Revisions	\$ 250.00	2340
<input type="checkbox"/>	Technical Revisions	\$ 500.00	2341
<input checked="" type="checkbox"/>	<i>Not Applicable</i>	<i>See Sections II, III or V</i>	

V. PORTABLE STATIONARY SOURCE RELOCATION FEES:
 If the permit application is for a portable stationary source relocation of an existing permit, please check one that applies.

Check One	Portable Stationary Source Relocation Type	Review Fee	Program Element
<input type="checkbox"/>	No New Air Dispersion Modeling Required	\$ 500.00	2501
<input type="checkbox"/>	New Air Dispersion Modeling Required	\$ 750.00	2502
<input checked="" type="checkbox"/>	<i>Not Applicable</i>	<i>See Sections II, III or V</i>	

VI. Please submit a check or money order in the amount shown for the total application review fee.

Section Totals	Review Fee Amount
Section II Total	\$2300
Section III Total	\$
Section IV Total	\$
Section V Total	\$
Total Application Review Fee	\$2300

I, the undersigned, a responsible official of the applicant company, certify that to the best of my knowledge, the information stated on this checklist, give a true and complete representation of the permit application review fees which are being submitted. I also understand that an incorrect submittal of permit application reviews may cause an incompleteness determination of the submitted permit application and that the balance of the appropriate permit application review fees shall be paid in full prior to further processing of the application.

Signed this _____ day of _____ 20____

Print Name
 Conrad S.
 Valencia
 Signature

Digitally signed by Conrad S.
 Valencia
 Date: 2023.06.29 22:04:31
 -06'00'

Print Title _____

Definition of Qualified Small Business as defined in 20.11.2 NMAC:

“Qualified small business” means a business that meets all of the following requirements:

- (1) a business that has 100 or fewer employees;
- (2) a small business concern as defined by the federal Small Business Act;
- (3) a source that emits less than 50 tons per year of any individual regulated air pollutant, or less than 75 tons per year of all regulated air pollutants combined; and
- (4) a source that is not a major source or major stationary source.

Note: Beginning January 1, 2011, and every January 1 thereafter, an increase based on the consumer price index shall be added to the application review fees. The application review fees established in Subsection A through D of 20.11.2.18 NMAC shall be adjusted by an amount equal to the increase in the consumer price index for the immediately-preceding year. Application review fee adjustments equal to or greater than fifty cents (\$0.50) shall be rounded up to the next highest whole dollar. Application review fee adjustments totaling less than fifty cents (\$0.50) shall be rounded down to the next lowest whole dollar. The department shall post the application review fees on the city of Albuquerque environmental health department air quality program website.



**City of Albuquerque – Environmental Health Department
Air Quality Program**

Please mail this application to P.O. Box 1293, Albuquerque, NM 87103
or hand deliver between 8:00 am – 5:00 pm Monday – Friday to:
3rd Floor, Suite 3023 – One Civic Plaza NW, Albuquerque, NM 87102
(505) 768-1972 aqd@cabq.gov



**Application for Air Pollutant Sources in Bernalillo County
Source Registration (20.11.40 NMAC) and Construction Permits (20.11.41 NMAC)**

Submittal Date: Refer to Date on the Cover Letter

Owner/Corporate Information Check here and leave this section blank if information is exactly the same as Facility Information below.

Company Name: United States Department of Energy (DOE)			
Mailing Address: Sandia Field Office (SFO) P.O. Box 5400	City: Albuquerque	State: NM	Zip: 87185
Company Phone: (505) 845-5248	Company Contact: Conrad S. Valencia		
Company Contact Title: Assistant Manager, Engineering	Phone: (505) 845-4776	E-mail: conrad.valencia@nnsa.doe.gov	

Stationary Source (Facility) Information: Provide a plot plan (legal description/drawing of the facility property) with overlay sketch of facility processes, location of emission points, pollutant type, and distances to property boundaries.

Facility Name: SNL/NM - Building 6630			
Facility Physical Address: Latitude: 34.9824° Longitude:-106.5378	City: Albuquerque	State: NM	Zip: 87185
Facility Mailing Address (if different): SNL/NM P.O. Box 5800 MS 0730	City: Albuquerque	State: NM	Zip: 87185-0730
Facility Contact: Carolyn Holloway/Penny Avery	Title: SFO General Engineer/SNL AQC Program Lead		
Phone: (505) 845-5248/ (505) 273-1047	E-mail: carolyn.holloway@nnsa.doe.gov/rpavery@sandia.gov		
Authorized Representative Name ¹ : Conrad S. Valencia	Authorized Representative Title: Assistant Manager, Engineering		

Billing Information Check here if same contact and mailing address as corporate Check here if same as facility

Billing Company Name: Sandia National Laboratories			
Mailing Address: SNL/NM P.O. Box 5800 MS 0730	City: Albuquerque	State: NM	Zip: 87185-0730
Billing Contact: Penny Avery	Title: SNL Air Quality Compliance, Program Lead		
Phone: (505) 273-1047	E-mail: rpavery@sandia.gov		

Preparer/Consultant(s) Information Check here and leave section blank if no Consultant used or Preparer is same as Facility Contact.

Name:	Title:		
Mailing Address:	City:	State:	Zip:
Phone:	Email:		

1. See 20.11.41.13(E)(13) NMAC.

**Application for Air Pollutant Sources in Bernalillo County
Source Registration (20.11.40 NMAC) and Construction Permits (20.11.41 NMAC)**

General Operation Information (if any question does not pertain to your facility, type N/A on the line or in the box)

Permitting action being requested (please refer to the definitions in 20.11.40 NMAC or 20.11.41 NMAC):				
<input checked="" type="checkbox"/> New Permit	<input type="checkbox"/> Permit Modification Current Permit #:	<input type="checkbox"/> Technical Permit Revision Current Permit #:	<input type="checkbox"/> Administrative Permit Revision Current Permit #:	
<input type="checkbox"/> New Registration Certificate	<input type="checkbox"/> Modification Current Reg. #:	<input type="checkbox"/> Technical Revision Current Reg. #:	<input type="checkbox"/> Administrative Revision Current Reg. #:	
UTM coordinates of facility (Zone 13, NAD 83): 359548.00 m E, 3872182.00 m N				
Facility type (<i>i.e.</i> , a description of your facility operations): Research and Development				
Standard Industrial Classification (SIC Code #): 8733		North American Industry Classification System (NAICS Code #): 541712		
Is this facility currently operating in Bernalillo County? No		If YES , list date of original construction: If NO , list date of planned startup: Upon Receipt of Permit		
Is the facility permanent? Yes		If NO , list dates for requested temporary operation: From Through		
Is the facility a portable stationary source? No		If YES , is the facility address listed above the main permitted location for this source?		
Is the application for a physical or operational change, expansion, or reconstruction (<i>e.g.</i> , altering process, or adding, or replacing process or control equipment, etc.) to an existing facility? No				
Provide a description of the requested changes: N/A				
What is the facility's operation? <input type="checkbox"/> Continuous <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Batch				
Estimated percent of production/operation:	Jan-Mar: 25%	Apr-Jun: 25%	Jul-Sep: 25%	Oct-Dec: 25%
Requested operating times of facility:	8 hours/day	5 days/week	4 weeks/month	12 months/year
Will there be special or seasonal operating times other than shown above? This includes monthly- or seasonally-varying hours. No				
If YES , please explain: N/A				
List raw materials processed: N/A				
List saleable item(s) produced: N/A				

USE INSTRUCTIONS: For the forms on the following pages, please do not alter or delete the existing footnotes or page breaks. If additional footnotes are needed then add them to the end of the existing footnote list for a given table. Only update the rows and cells within tables as necessary for your project. Unused rows can be deleted from tables. If multiple scenarios will be represented then the Uncontrolled and Controlled Emission Tables, and other tables as needed, can be duplicated and adjusted to indicate the different scenarios.

**Application for Air Pollutant Sources in Bernalillo County
Source Registration (20.11.40 NMAC) and Construction Permits (20.11.41 NMAC)**

Regulated Emission Sources Table

(E.g., Generator-Crusher-Screen-Conveyor-Boiler-Mixer-Spray Guns-Saws-Sander-Oven-Dryer-Furnace-Incinerator-Haul Road-Storage Pile, etc.) Match the Units listed on this Table to the same numbered line if also listed on Emissions Tables & Stack Table.

Unit Number and Description ¹	Manufacturer	Model #	Serial #	Manufacture Date	Installation Date	Modification Date ²	Process Rate or Capacity (Hp, kW, Btu, ft ³ , lbs, tons, yd ³ , etc.) ³	Fuel Type
Ex. 1. Generator	Unigen	B-2500	A567321C	7/1996	7/1997	11/2020	250 Hp/HR	Diesel
Ex. 2. Spray Gun	HVLP Systems	Spra-N-Stay 1100	K26-56-95	01/2017	11/2017	N/A	0.25 gal./HR	Electric Compressor
1 Heater	TBD	TBD	TBD	TBD	TBD	TBD	40 MMBtu/hr	Natural Gas
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NOTE: To add extra rows in Word, click anywhere in the last row. A plus (+) sign should appear on the bottom right corner of the row. Click the plus (+) sign to add a row. Repeat as needed.

- 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.
- To determine whether a unit has been modified, evaluate if changes have been made to the unit that impact emissions or that trigger modification as defined in 20.11.41.7(U) NMAC. If not, put N/A.
- Basis for Equipment Process Rate or Capacity (e.g., Manufacturer’s Data, Field Observation/Test, etc.) _____
Submit information for each unit as an attachment.

**Application for Air Pollutant Sources in Bernalillo County
Source Registration (20.11.40 NMAC) and Construction Permits (20.11.41 NMAC)**

Emissions Control Equipment Table

Control Equipment Units listed on this Table should either match up to the same Unit number as listed on the Regulated Emission Sources, Controlled Emissions and Stack Parameters Tables (if the control equipment is integrated with the emission unit) or should have a distinct Control Equipment Unit Number and that number should then also be listed on the Stack Parameters Table.

Control Equipment Unit Number and Description	Controlling Emissions for Unit Number(s)	Manufacturer	Model # Serial #	Date Installed	Controlled Pollutant(s)	% Control Efficiency ¹	Method Used to Estimate Efficiency	Rated Process Rate or Capacity or Flow
Ex. 8b Baghouse	3,4,5	Best Baghouses	C-12010 A16925	11/12/2019	PM ₁₀ , PM _{2.5}	99%	Manufacturer's Data	1,500 ACFM
Not Applicable								

NOTE: To add extra rows in Word, click anywhere in the last row. A plus (+) sign should appear on the bottom right corner of the row. Click the plus (+) sign to add a row. Repeat as needed.

1. Basis for Control Equipment % Efficiency (e.g., Manufacturer's Data, Field Observation/Test, AP-42, etc.). _____
Submit information for each unit as an attachment.

**Application for Air Pollutant Sources in Bernalillo County
Source Registration (20.11.40 NMAC) and Construction Permits (20.11.41 NMAC)**

Exempted Sources and Exempted Activities Table

See 20.11.41 NMAC for exemptions.

Unit Number and Description	Manufacturer	Model #	Serial #	Manufacture Date	Installation Date	Modification Date ¹	Process Rate or Capacity (Hp, kW, Btu, ft ³ , lbs, tons, yd ³ , etc.) ²	Fuel Type
Ex. 1. Boiler	Unigen	B-2500	A567321C	7/1996	7/1997	11/2020	3.5 MMBtu/HR	Natural Gas
Ex. 2. Hot Water Heater	HVLP Systems	6500A	K26-56-95	01/2017	11/2017	N/A	80 gal./HR	Natural Gas
Not Applicable								
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NOTE: To add extra rows in Word, click anywhere in the last row. A plus (+) sign should appear on the bottom right corner of the row. Click the plus (+) sign to add a row. Repeat as needed.

- To determine whether a unit has been modified, evaluate if changes have been made to the unit that impact emissions or that trigger modification as defined in 20.11.41.7(U) NMAC. Also, consider if any changes that were made alter the status from exempt to non-exempt. If not, put N/A.
- Basis for Equipment Process Rate or Capacity (e.g., Manufacturer's Data, Field Observation/Test, etc.) _____
Submit information for each unit as an attachment.

**Application for Air Pollutant Sources in Bernalillo County
Source Registration (20.11.40 NMAC) and Construction Permits (20.11.41 NMAC)**

Uncontrolled Emissions Table

(Process potential under physical/operational limitations during a 24 hr/day and 365 day/year = 8760 hrs)

Regulated Emission Units listed on this Table should match up to the same numbered line and Unit as listed on the Regulated Emissions and Controlled Tables. List total HAP values per Emission Unit if overall HAP total for the facility is ≥ 1 ton/yr.

Unit Number*	Nitrogen Oxides (NO _x)		Carbon Monoxide (CO)		Nonmethane Hydrocarbons/Volatile Organic Compounds (NMHC/VOCs)		Sulfur Dioxide (SO ₂)		Particulate Matter ≤ 10 Microns (PM ₁₀)		Particulate Matter ≤ 2.5 Microns (PM _{2.5})		Hazardous Air Pollutants (HAPs)		Method(s) used for Determination of Emissions (AP-42, Material Balance, Field Tests, etc.)
	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	
Example 1.	27.7	121.3	9.1	39.9	1.3	5.7	0.5	2.2	2.0	8.8	0.2	0.4	0.2	0.4	AP-42 Section 3.3
1	4.0	17.5	3.29	14.43	0.22	0.94	0.084	0.37	0.30	1.31	0.30	1.31	-	-	AP-42 Section 1.4; Manufactures Guarantee; Mass Balance;
Totals of Uncontrolled Emissions															

NOTE: To add extra rows in Word, click anywhere in the second-to-last row. A plus (+) sign should appear on the bottom right corner of the row. Click the plus (+) sign to add a row. Repeat as needed.

* A permit is required and this application along with the additional checklist information requested on the Permit Application checklist must be provided if:

(1) any one of these process units or combination of units, has an uncontrolled emission rate greater than or equal to (\geq) 10 lbs/hr or 25 tons/yr for any of the above pollutants, excluding HAPs, based on 8,760 hours of operation; or

(2) any one of these process units or combination of units, has an uncontrolled emission rate ≥ 2 tons/yr for any single HAP or ≥ 5 tons/yr for any combination of HAPs based on 8,760 hours of operation; or

(3) any one of these process units or combination of units, has an uncontrolled emission rate ≥ 5 tons/yr for lead (Pb) or any combination of lead and its compounds based on 8,760 hours of operation; or

(4) any one of the process units or combination of units is subject to an Air Board or federal emission limit or standard.

* If all of these process units, individually and in combination, have an uncontrolled emission rate less than ($<$) 10 lbs/hr or 25 tons/yr for all of the above pollutants (based on 8,760 hours of operation), but > 1 ton/yr for any of the above pollutants, then a source registration is required. A Registration is required, at minimum, for any amount of HAP emissions. Please complete the remainder of this form.

**Application for Air Pollutant Sources in Bernalillo County
Source Registration (20.11.40 NMAC) and Construction Permits (20.11.41 NMAC)**

Controlled Emissions Table

(Based on current operations with emission controls OR requested operations with emission controls)

Regulated Emission Units listed on this Table should match up to the same numbered line and Unit as listed on the Regulated Emissions and Uncontrolled Tables. List total HAP values per Emission Unit if overall HAP total for the facility is ≥ 1 ton/yr.

Unit Number	Nitrogen Oxides (NO _x)		Carbon Monoxide (CO)		Nonmethane Hydrocarbons/Volatile Organic Compounds (NMHC/VOCs)		Sulfur Dioxide (SO ₂)		Particulate Matter ≤ 10 Microns (PM ₁₀)		Particulate Matter ≤ 2.5 Microns (PM _{2.5})		Hazardous Air Pollutants (HAPs)		Control Method	% Efficiency ¹
	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		
Example 1.	27.7	55.4	9.1	18.2	1.3	2.6	0.5	1.0	2.0	4.0	0.2	0.088	0.2	0.088	Operating Hours	N/A
1	4.0	4.16	3.29	3.43	0.22	0.22	0.084	0.09	0.30	0.31	0.30	0.31	-	-	Operating Hours	N/A
Totals of Controlled Emissions																

NOTE: To add extra rows in Word, click anywhere in the second-to-last row. A plus (+) sign should appear on the bottom right corner of the row. Click the plus (+) sign to add a row. Repeat as needed.
 1. Basis for Control Method % Efficiency (e.g., Manufacturer's Data, Field Observation/Test, AP-42, etc.). _____
 Submit information for each unit as an attachment.

**Application for Air Pollutant Sources in Bernalillo County
Source Registration (20.11.40 NMAC) and Construction Permits (20.11.41 NMAC)**

Hazardous Air Pollutants (HAPs) Emissions Table

Report the Potential Emission Rate for each HAP from each source on the Regulated Emission Sources Table that emits a given HAP. Report individual HAPs with ≥ 1 ton/yr total emissions for the facility on this table. Otherwise, report total HAP emissions for each source that emits HAPs and report individual HAPs in the accompanying application package in association with emission calculations. If this application is for a Registration solely due to HAP emissions, report the largest HAP emissions on this table and the rest, if any, in the accompanying application package.

Unit Number	Total HAPs		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																
Example 1.	6.3	18.2	3.2	8.5	2.3	7.7	0.5	1.0	0.3	1.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hazardous Air Pollutants and Volatile Organic Compounds are addressed in Site-wide registration for chemical use (Construction Permit #1901-M1)																		
Totals of HAPs for all units:																		

NOTE: To add extra rows in Word, click anywhere in the second-to-last row. A plus (+) sign should appear on the bottom right corner of the row. Click the plus (+) sign to add a row. Repeat as needed. Use Instructions: Copy and paste the HAPs table here if need to list more individual HAPs.

**Application for Air Pollutant Sources in Bernalillo County
Source Registration (20.11.40 NMAC) and Construction Permits (20.11.41 NMAC)**

Purchased Hazardous Air Pollutant Table*

Product Categories (Coatings, Solvents, Thinners, etc.)	Hazardous Air Pollutant (HAP), or Volatile Hazardous Air Pollutant (VHAP) Primary To The Representative As Purchased Product	Chemical Abstract Service (CAS) Number of HAP or VHAP from Representative As Purchased Product	HAP or VHAP Concentration of Representative As Purchased Product (pounds/gallon, or %)	Concentration Determination (CPDS, SDS, etc.) ¹	Total Product Purchases For Category	(-)	Quantity of Product Recovered & Disposed For Category	(=)	Total Product Usage For Category
Example 1. Surface Coatings	Xylene	1330207	4.0 lbs/gal	SDS	lb/yr	(-)	lb/yr	(=)	lb/yr
					100 gal/yr		0 gal/yr		100 gal/yr
Example 2. Cleaning Solvents	Toluene	108883	70%	Product Label	lb/yr	(-)	lb/yr	(=)	lb/yr
					200 gal/yr		50 gal/yr		150 gal/yr
Hazardous Air Pollutants and Volatile Organic Compounds are addressed in Site-wide registration for chemical use (Construction Permit #1901-M1)					lb/yr	(-)	lb/yr	(=)	lb/yr
					gal/yr		gal/yr		gal/yr
2.					lb/yr	(-)	lb/yr	(=)	lb/yr
					gal/yr		gal/yr		gal/yr
3.					lb/yr	(-)	lb/yr	(=)	lb/yr
					gal/yr		gal/yr		gal/yr
4.					lb/yr	(-)	lb/yr	(=)	lb/yr
					gal/yr		gal/yr		gal/yr
5.					lb/yr	(-)	lb/yr	(=)	lb/yr
					gal/yr		gal/yr		gal/yr
6.					lb/yr	(-)	lb/yr	(=)	lb/yr
					gal/yr		gal/yr		gal/yr
7.					lb/yr	(-)	lb/yr	(=)	lb/yr
					gal/yr		gal/yr		gal/yr
8.					lb/yr	(-)	lb/yr	(=)	lb/yr
					gal/yr		gal/yr		gal/yr
9.					lb/yr	(-)	lb/yr	(=)	lb/yr
					gal/yr		gal/yr		gal/yr
					lb/yr	(-)	lb/yr	(=)	lb/yr
					gal/yr		gal/yr		gal/yr
TOTALS					lb/yr	(-)	lb/yr	(=)	lb/yr
					gal/yr		gal/yr		gal/yr

NOTE: To add extra rows in Word, click anywhere in the second-to-last row. A plus (+) sign should appear on the bottom right corner of the row. Click the plus (+) sign to add a row. Repeat as needed.

NOTE: Product purchases, recovery/disposal and usage should be converted to the units listed in this table. If units cannot be converted please contact the Air Quality Program prior to making changes to this table.

1. Submit, as an attachment, information on one (1) product from each Category listed above which best represents the average of all the products purchased in that Category. CPDS = Certified Product Data Sheet; SDS = Safety Data Sheet

*** A Registration is required, at minimum, for any amount of HAP or VHAP emission.**

Emissions from purchased HAP usage should be accounted for on previous tables as appropriate.

A permit may be required for these emissions if the source meets the requirements of 20.11.41 NMAC.

**Application for Air Pollutant Sources in Bernalillo County
Source Registration (20.11.40 NMAC) and Construction Permits (20.11.41 NMAC)**

Material and Fuel Storage Table

(E.g., Tanks, barrels, silos, stockpiles, etc.)

Storage Equipment		Product Stored	Capacity (bbls, tons, gals, acres, etc.)	Above or Below Ground	Construction (Welded, riveted) & Color	Installation Date	Loading Rate ¹	Offloading Rate ¹	True Vapor Pressure	Control Method	Seal Type	% Eff. ²
Ex. 1.	Tank	Diesel Fuel	5,000 gal.	Below	Welded/Brown	3/1993	3,000 gal/hr	500 gal/hr	N/A	N/A	N/A	N/A
Ex. 2.	Barrels	Solvent	55 gal. drum	Above	Welded/Green	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Not Applicable – No Material or Fuel will be stored.												

NOTE: To add extra rows in Word, click anywhere in the last row. A plus (+) sign should appear on the bottom right corner of the row. Click the plus (+) sign to add a row. Repeat as needed.

1. Basis for Loading/Offloading Rate (*e.g.*, Manufacturer’s Data, Field Observation/Test, etc.). _____
Submit information for each unit as an attachment.
2. Basis for Control Method % Efficiency (*e.g.*, Manufacturer’s Data, Field Observation/Test, AP-42, etc.). _____
Submit information for each unit as an attachment.

**Application for Air Pollutant Sources in Bernalillo County
Source Registration (20.11.40 NMAC) and Construction Permits (20.11.41 NMAC)**

Stack Parameters Table

If any equipment from the Regulated Emission Sources Table is also listed in this Stack Table, use the same numbered line for the emission unit on both tables to show the association between the Process Equipment and its stack.

Unit Number and Description		Pollutant (CO, NOx, PM ₁₀ , etc.)	UTM Easting (m)	UTM Northing (m)	Stack Height (ft)	Stack Exit Temp. (°F)	Stack Velocity (fps)	Stack Flow Rate (acfm)	Stack Inside Diameter (ft)	Stack Type
Ex. 1.	Generator	CO, NOx, PM ₁₀ , PM _{2.5} , SO ₂	349430.28	3884014.64	18	900 °F	150 fps	4524 acfm	0.8	Rain Cap
Ex. 2.	Spray Gun	PM ₁₀ , xylene, toluene	348540.1	3882928.5	9.2	Ambient	50 fps	589 acfm	0.5	Vertical
1.	Heater	CO, NOx, PM ₁₀ , PM _{2.5} , SO ₂	359548.0	3872182.0	32	1700	31.6 fps	20000 acfm	3.67	Vertical
										Select
										Select
										Select
										Select

NOTE: To add extra rows in Word, click anywhere in the last row. A plus (+) sign should appear on the bottom right corner of the row. Click the plus (+) sign to add a row. Repeat as needed.

**Application for Air Pollutant Sources in Bernalillo County
Source Registration (20.11.40 NMAC) and Construction Permits (20.11.41 NMAC)**

Certification

NOTICE REGARDING SCOPE OF A PERMIT: The Environmental Health Department's issuance of an air quality permit only authorizes the use of the specified equipment pursuant to the air quality control laws, regulations and conditions. Permits relate to air quality control only and are issued for the sole purpose of regulating the emission of air contaminants from said equipment. Air quality permits are not a general authorization for the location, construction and/or operation of a facility, nor does a permit authorize any particular land use or other form of land entitlement. It is the applicant's/permittee's responsibility to obtain all other necessary permits from the appropriate agencies, such as the City of Albuquerque Planning Department or Bernalillo County Department of Planning and Development Services, including but not limited to site plan approvals, building permits, fire department approvals and the like, as may be required by law for the location, construction and/or operation of a facility. For more information, please visit the City of Albuquerque Planning Department website at <https://www.cabq.gov/planning> and the Bernalillo County Department of Planning and Development Services website at <https://www.bernco.gov/planning>.

NOTICE REGARDING ACCURACY OF INFORMATION AND DATA SUBMITTED: Any misrepresentation of a material fact in this application and its attachments is cause for denial of a permit or revocation of part or all of the resulting registration or permit, and revocation of a permit for cause may limit the permittee's ability to obtain any subsequent air quality permit for ten (10) years. Any person who knowingly makes any false statement, representation, or certification in any application, record, report, plan or other document filed or required to be maintained under the Air Quality Control Act, NMSA 1978 §§ 74-2-1 to 74-2-17, is guilty of a misdemeanor and shall, upon conviction, be punished by a fine of not more than ten thousand dollars (\$10,000) per day per violation or by imprisonment for not more than twelve months, or by both.

I, the undersigned, hereby certify that I have knowledge of the information and data represented and submitted in this application and that the same is true and accurate, including the information and data in any and all attachments, including without limitation associated forms, materials, drawings, specifications, and other data. I also certify that the information represented gives a true and complete portrayal of the existing, modified existing, or planned new stationary source with respect to air pollution sources and control equipment. I understand that there may be significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations. I also understand that the person who has applied for or has been issued an air quality permit by the Department is an obligatory party to a permit appeal filed pursuant to 20.11.81 NMAC. Further, I certify that I am qualified and authorized to file this application, to certify the truth and accuracy of the information herein, and bind the source. Moreover, I covenant and agree to comply with any requests by the Department for additional information necessary for the Department to evaluate or make a final decision regarding the application.

Signed this _____ day of _____, 20_____

Conrad Valencia

Assistant Manager for Engineering, Sandia Field Office/NNSA

Print Name

**Conrad S.
Valencia**

Digitally signed by Conrad
S. Valencia
Date: 2023.07.13 14:33:00
-06'00'

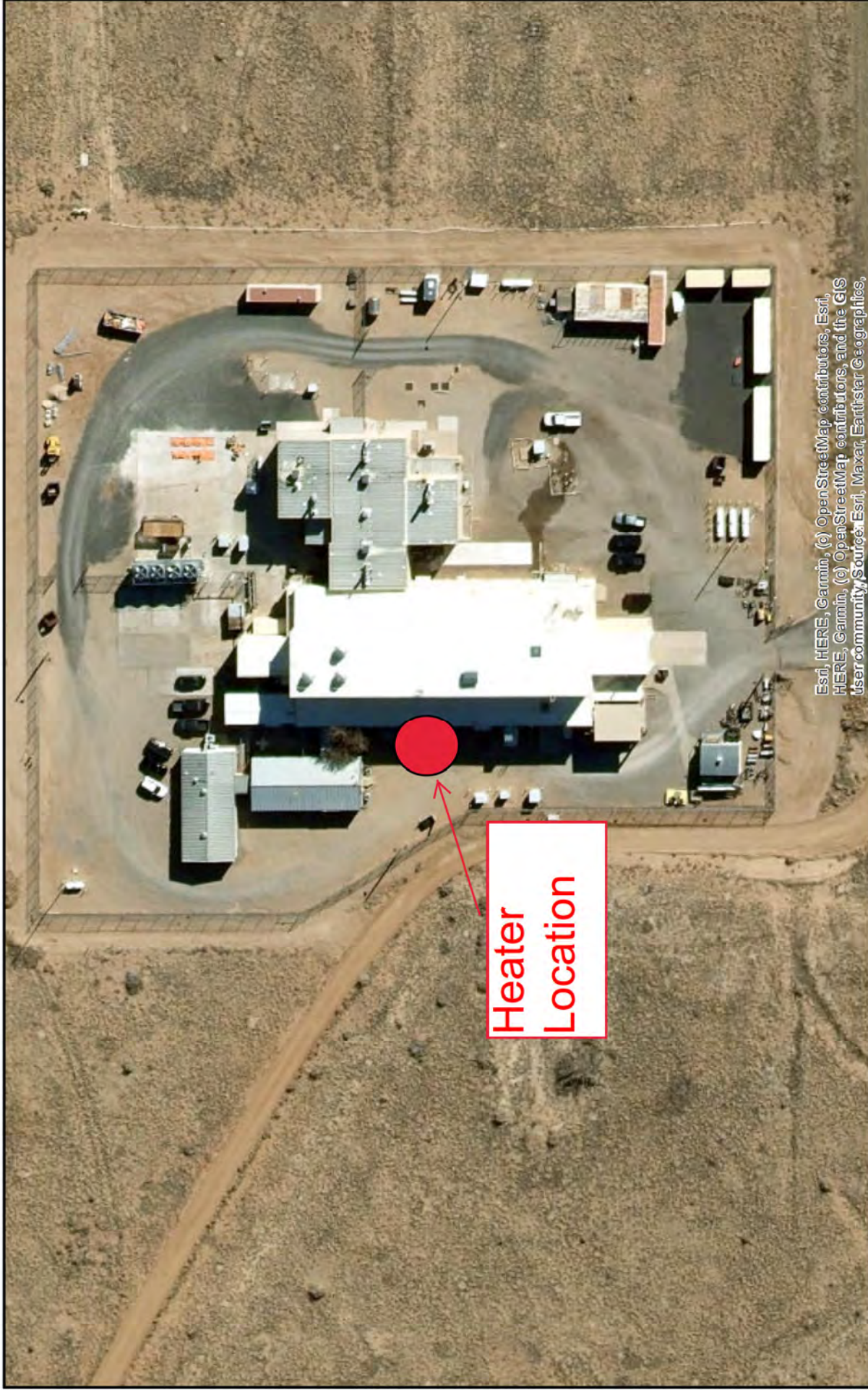
Signature

Print Title

Role: Owner Operator

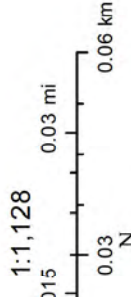
Other Authorized Representative

3.b. Plot Pan identifying the location of the heater



Esri, HERE, Garmin, (c) OpenStreetMap contributors, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS User community, Source: Esri, Maxar, Earthstar Geographics,

May 23, 2023

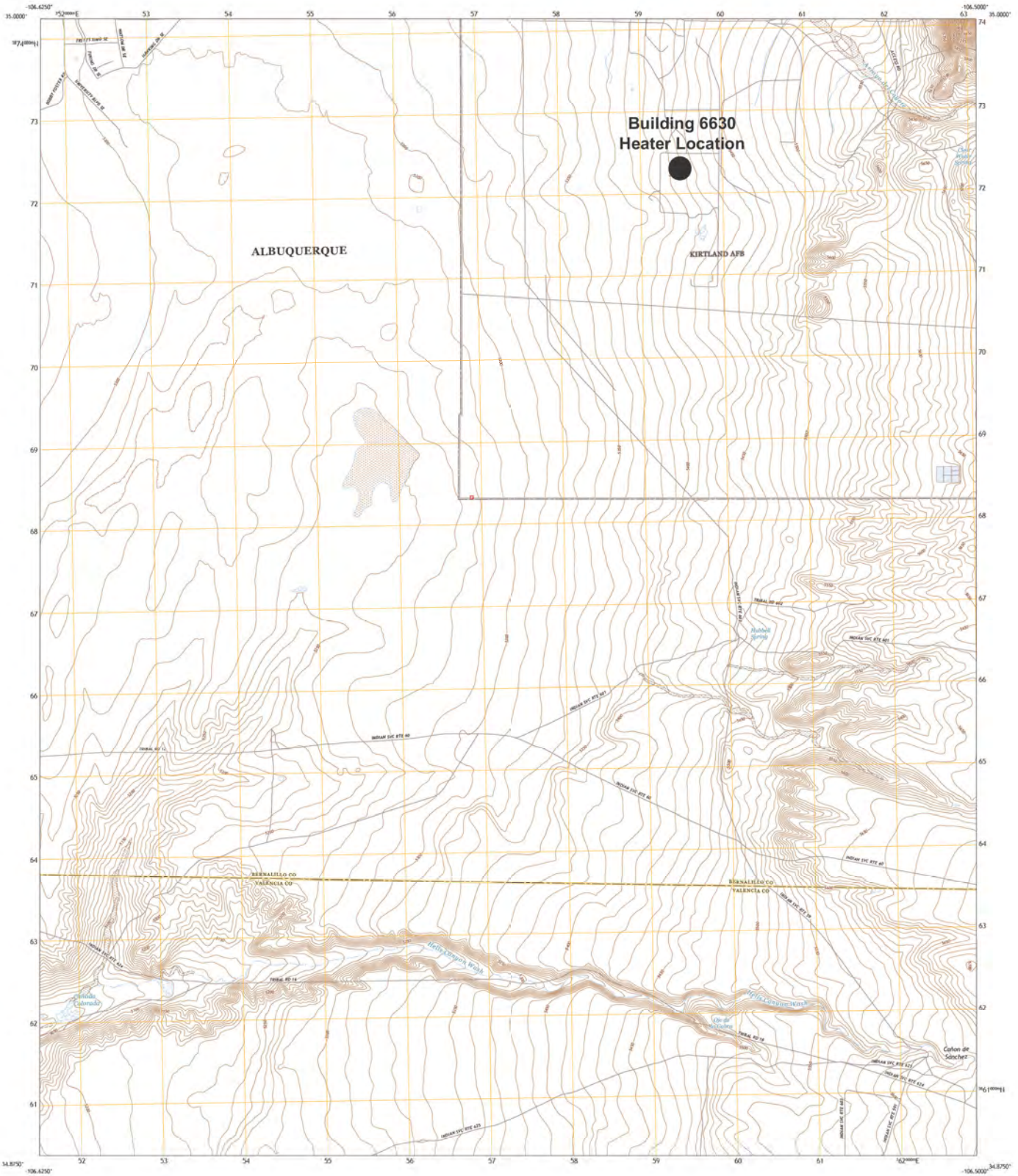




U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

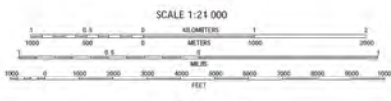
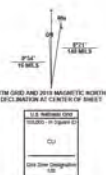


HUBBELL SPRING QUADRANGLE
NEW MEXICO
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Coordinate System of 1983 (WGS84) Projection and
1 000-meter grid (Universal Transverse Mercator, Zone 13S)
This map is not a legal document. Boundaries may be
generalized for this map scale. Private lands within government
reservations may not be shown. Obtain permission before
entering private lands.

Inventory: NADP, June 2018 - August 2018
Base: U.S. Census Bureau, 2016
Boundaries: Census Bureau, 2010
Hydrography: National Hydrography Dataset, 1989 - 2010
Contours: National Elevation Dataset, 1986
Boundaries: Multiple sources, see metadata file 2012 - 2010
Public: Land Survey System, 1916 - 2018
Watercolor: FWS National Wetlands Inventory, Not Available



CONTOUR INTERVAL: 10 FEET
NORTH AMERICAN DATUM (NAD 83)
NORTH AMERICAN DATUM (NAD 83)
This map was produced in conformance with the
National Geospatial Program and US Topographic Standards, 03/11
A metadata file associated with this product is available at www.usgs.gov

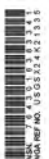


1	2	3
4	5	6
7	8	9

ROAD CLASSIFICATION

	Expressway		Local Connector
	Secondary Highway		Local Road
	Main Road		Road
	Interstate Route		US Route
	State Road		State Road

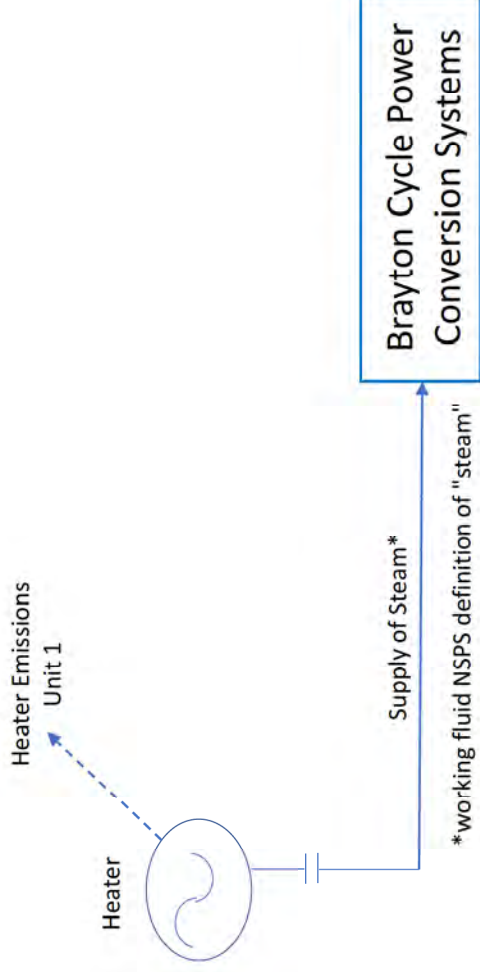
HUBBELL SPRING, NM
2020



3.c. Process flow diagram

Note: Attached is the process flow diagram for the heater.

Building 6630 – Process Flow Diagram



3.d. Emission calculations and supporting information used to calculate emissions

System Information	
Fuel Type	Natural Gas
Uncontrolled	8,760 hr
Controlled	2,080 hr

Calculation Factors	
Maximum Burner Capacity	40.00 MMBtu/hr
Nat. Gas Heating Value	1,020 Btu/SCF

Site Specific SO ₂ Emission Factor Calculation	
Sulfur	0.75 grain/100-SCF
Grains to Pounds Conversion	7000 grain in 1 lb
MW SO ₂	64.06 lb SO ₂ / lb-mol
MW S	32.06 lb S / lb-mol
SO ₂ EF *	0.084 lb/hr

Pollutant	Emission Factors		Uncontrolled Emissions		Controlled Emissions	
	EF	Units	lb/hr	tpy	lb/hr	tpy
NO _x **	0.10	lb/MMBTU	4.00	17.52	4.00	4.16
CO***	84.00	lb/MMSCF	3.29	14.43	3.29	3.43
PM***	7.6	lb/MMSCF	0.30	1.31	0.30	0.31
SO ₂	0.084	lb/hr	0.084	0.37	0.084	0.09
VOC***	5.5	lb/MMSCF	0.22	0.94	0.22	0.22

* SO₂ emissions are based on the tariff agreement with the NM Gas Company: 0.75 grains of sulfur per 100-scf. A sample calculation is provided below for SO₂:

$$SO_2 \text{ (lb/hr)} = \frac{0.75 \text{ grain S}}{100 \text{ SCF}} \times \frac{hr}{40 \text{ MMBTU}} \times \frac{1,000,000 \text{ BTU}}{\text{MMBTU}} = \frac{1.875 \text{ lb}}{40 \text{ MMBTU}} \times \frac{1020 \text{ BTU}}{\text{SCF}} = \frac{1.875 \text{ lb}}{7000 \text{ grains}} \times 32.06 \text{ lb S / lb-mol} = 0.084 \text{ lb/hr}$$

$$SO_2 \text{ (tpy)} = \frac{0.084 \text{ lb}}{hr} \times \frac{2080 \text{ hr}}{yr} \times \frac{ton}{2000 \text{ lb}} = 0.09 \text{ tpy}$$

** Emission factors from heater manufacturer specifications for NO_x:

$$NO_x \text{ (lb/hr)} = \frac{0.1 \text{ lb}}{\text{MMBTU}} \times \frac{hr}{40 \text{ MMBTU}} \times \frac{1020 \text{ BTU}}{\text{SCF}} = 4 \text{ lb/hr}$$

$$NO_x \text{ (tpy)} = \frac{4 \text{ lb}}{hr} \times \frac{2080 \text{ hr}}{yr} \times \frac{ton}{2000 \text{ lb}} = 4.16 \text{ tpy}$$

*** Emission factors from heater based on AP-42 Section 1.4 Table(s) 1.4-1 and 1.4-2. A sample calculation is provided below for CO:

$$CO \text{ (lb/hr)} = \frac{84 \text{ lb}}{\text{MMSCF}} \times \frac{hr}{1020 \text{ MMBTU}} \times \frac{40 \text{ MMBTU}}{\text{hr}} = 3.29 \text{ lb/hr}$$

$$CO \text{ (tpy)} = \frac{3.294 \text{ lb}}{hr} \times \frac{2080 \text{ hr}}{yr} \times \frac{ton}{2000 \text{ lb}} = 3.43 \text{ tpy}$$

3 Natural Gas Fired Burner/Blower

Thar proposes to deliver, in partnership with Dayco, a 11.7 MWt (40,000,000 BTUH) natural gas burner/blower system that is designed to work in concert with the above 2.5 MWt HX fabricated by Thar Energy. Figure 3-1 shows the modular nature of the burner/blower for each of shipment and of on-site installation. Also shown are some performance features and basic dimensions.

Thar/Dayco Supplied Air Heater:

- 11.7 MWt max heat rate
- 927°C (1700°F) design temperature
- Air blower with VFD
- Transition to HX provided
- NOx emissions limited to allow for permit by rule.



Skid:

- Length (flow direction): 130"
- Width: 175"
- Height: 96"
- Process stream exit ID: 42"

Figure 3-4. Thar/Dayco Supplied 11.7 MWt Natural Gas Fired Burner/Blower

The direct fire natural gas burner/blower will have the following performance and design standards:

- Inlet air temperature: 60°F
- Airflow volume: 20,000 SCFM
- Air supply pressure: 15" WC @ heater outlet
- Maximum air outlet temperature: 1700°F
- Normal air outlet temperature: 1700°F
- Maximum input: 40,000,000 BTUH
- Minimum input: 2,000,000 BTUH
- Fuel: Natural gas @ 10 PSIG supply pressure
- Air outlet size: sized to match HX bellows

The process air heat components include:

- Air heater with natural gas burner
- Gas safety train assembly
- Self-checking flame safety system
- Temperature control system
- Control system
- Support Frame
- Supply air blower

AIR HEATER CONSTRUCTION

The air heater is a double shell design. The exterior is carbon steel and is seal welded to prevent air leakage. The interior combustion chamber area is stainless steel. The carbon steel exterior is sand blasted and painted with corrosive resistant paint.

The process supply air enters the air heater and flows between the inner and outer shells keeping the exterior of the air heater cool. The air enters the combustion area for heating and is discharged thru a 45" W x 45" H flanged outlet. Interconnecting duct work between the air heater and supply air blower is included. The footprint of the air heater including controls and the supply blower is approximately 96" wide (with blower 175" wide) x 96" high x 130" long.

SUPPLY BLOWER

The supply air blower is a New York Blower Series blower is rated for 20,000 SCFM @ 20" WC. The blower is complete with a 100 HP inverter-duty premium efficiency motor. The blower includes a constant speed V-Belt drive, belt shaft and bearing guards, cleanout door and base.

BURNER

The burner is a "Maxon LV Airflow" gas burner and has a maximum capacity of 40,000,000 BTUH. Estimated NOx levels are less than 0.1 pounds per million BTU's.

GAS PIPING TRAIN ASSEMBLY

A 3" gas train assembly is included. The gas train assembly is designed to meet FM, CGA and NFPA standards.

BURNER MANAGEMENT AND CONTROL SYSTEM

The air heater control system is housed in a NEMA 12 steel enclosure. The control system is designed for operation on 480V/3PH/60HZ. All components are mounted and wired to a numbered terminal strip. The burner system is monitored with a Honeywell series 7800 flame safeguard system with Self-Checking UV scanner.

OTHER SAFETY EQUIPMENT

The air heater is complete with one (1) Honeywell DC2500 digital indicating excess temperature controllers with thermocouples to shut off the burner system in the event of excess temperature. In addition, high and low gas pressure switches and air flow switch are included.

TEMPERATURE CONTROL

The discharge temperature of the air heater is controlled with a Honeywell UDC 2500 digital indicating proportional controller and V-ported temperature control valve with an electric actuator. The set point of the temperature controller can be set locally or with a 4 – 20 MA signal from a remote source.

BILL OF MATERIAL

- 1 - Air heater complete with burner assembly including the following components:
- 1 - Supply blower

Table 1.4-1. EMISSION FACTORS FOR NITROGEN OXIDES (NO_x) AND CARBON MONOXIDE (CO) FROM NATURAL GAS COMBUSTION^a

Combustor Type (MMBtu/hr Heat Input) [SCC]	NO _x ^b		CO	
	Emission Factor (lb/10 ⁶ scf)	Emission Factor Rating	Emission Factor (lb/10 ⁶ scf)	Emission Factor Rating
Large Wall-Fired Boilers (>100) [1-01-006-01, 1-02-006-01, 1-03-006-01] Uncontrolled (Pre-NSPS) ^c Uncontrolled (Post-NSPS) ^c Controlled - Low NO _x burners Controlled - Flue gas recirculation	280	A	84	B
	190	A	84	B
	140	A	84	B
	100	D	84	B
Small Boilers (<100) [1-01-006-02, 1-02-006-02, 1-03-006-02, 1-03-006-03] Uncontrolled Controlled - Low NO _x burners Controlled - Low NO _x burners/Flue gas recirculation	100	B	84	B
	50	D	84	B
	32	C	84	B
Tangential-Fired Boilers (All Sizes) [1-01-006-04] Uncontrolled Controlled - Flue gas recirculation	170	A	24	C
	76	D	98	D
Residential Furnaces (<0.3) [No SCC] Uncontrolled	94	B	40	B

^a Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. To convert from lb/10⁶ scf to kg/10⁶ m³, multiply by 16. Emission factors are based on an average natural gas higher heating value of 1,020 Btu/scf. To convert from lb/10⁶ scf to lb/MMBtu, divide by 1,020. The emission factors in this table may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value. SCC = Source Classification Code. ND = no data. NA = not applicable.

^b Expressed as NO_x. For large and small wall fired boilers with SNCR control, apply a 24 percent reduction to the appropriate NO_x emission factor. For tangential-fired boilers with SNCR control, apply a 13 percent reduction to the appropriate NO_x emission factor.

^c NSPS=New Source Performance Standard as defined in 40 CFR 60 Subparts D and Db. Post-NSPS units are boilers with greater than 250 MMBtu/hr of heat input that commenced construction modification, or reconstruction after August 17, 1971, and units with heat input capacities between 100 and 250 MMBtu/hr that commenced construction modification, or reconstruction after June 19, 1984.

TABLE 1.4-2. EMISSION FACTORS FOR CRITERIA POLLUTANTS AND GREENHOUSE GASES FROM NATURAL GAS COMBUSTION^a

Pollutant	Emission Factor (lb/10 ⁶ scf)	Emission Factor Rating
CO ₂ ^b	120,000	A
Lead	0.0005	D
N ₂ O (Uncontrolled)	2.2	E
N ₂ O (Controlled-low-NO _x burner)	0.64	E
PM (Total) ^c	7.6	D
PM (Condensable) ^c	5.7	D
PM (Filterable) ^c	1.9	B
SO ₂ ^d	0.6	A
TOC	11	B
Methane	2.3	B
VOC	5.5	C

^a Reference 11. Units are in pounds of pollutant per million standard cubic feet of natural gas fired. Data are for all natural gas combustion sources. To convert from lb/10⁶ scf to kg/10⁶ m³, multiply by 16. To convert from lb/10⁶ scf to lb/MMBtu, divide by 1,020. The emission factors in this table may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value. TOC = Total Organic Compounds. VOC = Volatile Organic Compounds.

^b Based on approximately 100% conversion of fuel carbon to CO₂. CO₂[lb/10⁶ scf] = (3.67) (CON) (C)(D), where CON = fractional conversion of fuel carbon to CO₂, C = carbon content of fuel by weight (0.76), and D = density of fuel, 4.2x10⁻⁴ lb/10⁶ scf.

^c All PM (total, condensable, and filterable) is assumed to be less than 1.0 micrometer in diameter. Therefore, the PM emission factors presented here may be used to estimate PM₁₀, PM_{2.5} or PM₁ emissions. Total PM is the sum of the filterable PM and condensable PM. Condensable PM is the particulate matter collected using EPA Method 202 (or equivalent). Filterable PM is the particulate matter collected on, or prior to, the filter of an EPA Method 5 (or equivalent) sampling train.

^d Based on 100% conversion of fuel sulfur to SO₂. Assumes sulfur content is natural gas of 2,000 grains/10⁶ scf. The SO₂ emission factor in this table can be converted to other natural gas sulfur contents by multiplying the SO₂ emission factor by the ratio of the site-specific sulfur content (grains/10⁶ scf) to 2,000 grains/10⁶ scf.

NEW MEXICO GAS COMPANY

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V. QUALITY

5.1 All Gas Tendered at Receipt Point(s) shall be of merchantable pipeline quality. Gas Tendered through interstate pipelines and at tailgates of cryogenic or lean oil processing plants shall be deemed to be of merchantable pipeline quality. Currently, the cryogenic or lean oil processing plants located in New Mexico on the Company's system are the Williams Kutz 1 and Kutz 2 plants, Duke's Artesia and Eunice plants and Frontier's Maljamar and ABO plants. All Gas Tendered from other sources shall be reasonably free of objectionable material, and commercially free of dust, gums or gumforming constituents, liquids or solid matter and any other substance, which interferes with the intended purpose of merchantability of Gas, or causes interference with the proper and safe operation of the lines, meters, regulators, or other appliances through which it may flow; and which must conform to the following specifications.

- (a) Shall not contain more than a trace indication of oils and other liquids that are employed in the operation of Gas processing and/or compression facilities.
- (b) Shall be commercially free of water in their liquid state at the temperature and pressure at which delivered, and in no event contain water vapor in excess of seven (7) points per million cubic feet. The water vapor content shall be determined by use of dew-point apparatus approved by the Bureau of Mines, or by any other method that is deemed appropriate for the condition(s).
- (c) Shall not contain more than three quarters (3/4) grains of total sulfur per one hundred (100) standard cubic feet, which includes hydrogen sulfide, carbonyl sulfide, carbon disulfide, mercaptans, mono- di- and poly- sulfides. The Gas shall also meet the following individual specifications for hydrogen sulfide (H₂S) and mercaptans:
 - i. Hydrogen sulfide: The Gas shall not contain more than one-quarter (1/4) grain per one hundred (100) standard cubic feet.
 - ii. Mercaptan sulfur: The gas shall not have mercaptan sulfur content greater than three tenths (0.3) grain per one hundred (100) standard cubic feet.
- (d) Shall not contain in excess of 2-mol% of carbon dioxide (CO₂).
- (e) Shall not contain in excess of 0.2-mol% of oxygen (O₂). Every effort shall be made to keep the Gas free of oxygen.
- (f) Shall not contain in excess of 5-mol% of total inert gases.
- (g) Shall be commercially free of hydrocarbons and not have a hydrocarbon dew point that exceeds fifteen degrees Fahrenheit (15°F) between 100 and 1,000 Psia.
- (h) Shall not be delivered into any of the Company's transmission or distribution pipeline systems at a temperature less than forty degrees Fahrenheit (40°F) nor greater than one hundred twenty degrees Fahrenheit (120°F).

NEW MEXICO GAS COMPANY

SECOND REVISED SAMPLE FORM NO. 31
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ON-SYSTEM STANDARD TRANSPORTATION CONTRACT

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- (i) Have a minimum heating value of not less than nine hundred fifty (950) British thermal units (Btu) per cubic foot, and not to exceed greater than eleven hundred (1,100) Btu per standard cubic foot.
- (j) Shall not contain hydrocarbons with a molecular carbon content of C₅ and above (C₅+) in excess of 0.2 gallon per one thousand (1,000) standard cubic feet.

5.2 If, at any time, Gas Tendered to the Company at the Receipt Point(s) hereunder fails to conform to the applicable quality specifications, the Company shall promptly provide notice to Transportation Customer of the deficiency. Transportation Customer shall remedy any such deficiency within a reasonable period of time. If, in the Company's reasonable judgment, non-conforming deliveries threaten imminent physical danger or harm to the Company's system, operations, or facilities, then the Company, at its option, may immediately refuse to accept any further non-conforming Gas. In addition, in the event Gas Tendered to the Company at the Receipt Point(s) hereunder fails to conform to the applicable quality specifications and (a) are in close proximity to the Company's distribution system or (b) is a repeat offense, the Company at its sole option, may immediately refuse to accept any Gas Tendered by the Transportation Customer at said Receipt Point(s).

5.3 If Gas delivered to the Delivery Point(s) fails to conform to the applicable quality specifications, Transportation Customer shall notify the Company in writing of such deficiency. Transportation Customer, at its option, may refuse to take any non-conforming deliveries of Gas. The term of this Contract may be lengthened or extended by any period during which Transportation Customer has refused deliveries of non-conforming Gas by Transportation Customer submitting a written request for such extension to the Company. The Company may not unreasonably refuse such lengthening or extension.

5.4 The Company at its reasonable discretion and without undue discrimination may accept any Gas stream received into its pipeline provided such Gas will not result in a blended stream which does not comply with Gas Quality specifications in Section 5.1 or prevent delivery of the blended stream into a downstream pipeline or other Delivery Points, or cause a change of more than four percent (4%) to the Wobbe Number at the nearest distribution point, and that at the Company's reasonable judgment will not adversely impact the Company's facilities, pipeline integrity or operations.

5.5 Whenever the Company deems it necessary, the Company shall conduct or have conducted on its behalf a test or tests to determine the quality of Gas received at the Receipt Point(s) for transport. Upon Transportation Customer's written request the Company shall provide copies of such tests.

VI. MEASUREMENT EQUIPMENT

6.1 Reading, calibration and adjustment of the Company's owned and controlled meter(s) and related measurement equipment shall be performed solely by the Company, but such reading, calibration, and adjustment

3.e. Operational and Maintenance Strategy

At all times, the source will be operated in a manner consistent with good practices for minimizing emissions.

The heater will be maintained and operated in accordance with manufacturer's specifications and the facility's standard operating procedures. In the event of excess emissions, the unit will be shut down and serviced/repaired.

There are no anticipated startup or shutdown emissions that will exceed the hourly emission rates requested.

3.f. Zoning Requirement

See the attached letters from the City of Albuquerque Code Enforcement Division and Bernalillo County Planning & Development Services.



**City of Albuquerque
Environmental Health Department
Air Quality Program**



**Construction Permit (20.11.41 NMAC)
Zoning Requirement Cover Letter**

This Cover Letter Must Be Returned With The Application Along With All Required Attachments

The Albuquerque-Bernalillo County Joint Air Quality Program, which administers and enforces local air quality laws for the City of Albuquerque (“City”) and Bernalillo County (“County”), on behalf of the City Environmental Health Department (“Department”).

Any person seeking a new air quality permit or a permit modification under 20.11.41 NMAC (Construction Permits) shall provide documentary proof that the proposed air quality permitted use of the facility’s subject property is allowed by the zoning designation of the City or County zoning laws, as applicable. Sufficient documentation may include (i) a zoning certification from the City Planning Department or County Department of Planning and Development Services, as applicable, if the applicant is subject to City or County zoning jurisdiction; or (ii) a zoning verification from both planning departments if the applicant is not subject to City or County zoning jurisdiction. A zone atlas map shall not be sufficient. At this time, applicants are not required to submit documentation for the subject property’s zoning designation when applying for an emergency permit, a new portable stationary source, a relocation of a portable stationary source, or a technical or administrative revision to an existing permit.

The Department will rule an application administratively incomplete if it is missing or has incorrect information. If the Department has ruled an application administratively incomplete three (3) times, the Department will deny the permit application. Any fees submitted for processing an application that has been denied will not be refunded. If the Department denies an application, a person may submit a new application and the fee required for a new application. The applicant has the burden of demonstrating that a permit should be issued.

The Department may require additional information that is necessary to make a thorough review of an application. At all times before the Department has made a final decision regarding the application, an applicant has a duty to promptly supplement and correct information the applicant has submitted in an application to the Department. The applicant’s duty to supplement and correct the application includes, but is not limited to, relevant information acquired after the applicant has submitted the application and additional information the applicant otherwise determines is relevant to the application and the Department’s review and decision. While the Department is processing an application, regardless of whether the Department has determined the application is administratively complete, if the Department determines that additional information is necessary to evaluate or make a final decision regarding the application, the Department may request additional information and the applicant shall provide the requested additional information.

NOTICE REGARDING SCOPE OF A PERMIT: The Department’s issuance of an air quality permit only authorizes the use of the specified equipment pursuant to the air quality control laws, regulations and conditions. Permits relate to air quality control only and are issued for the sole purpose of regulating the emission of air contaminants from said equipment. Air quality permits are not a general authorization for the location, construction and/or operation of a facility, nor does a permit authorize any particular land use or other form of land entitlement. It is the applicant’s/permittee’s responsibility to obtain all other necessary permits from the appropriate agencies, such as the City Planning Department or County Department of Planning and Development Services, including but not limited to site plan approvals, building permits, fire department approvals and the like, as may be required by law for the location, construction and/or operation of a facility. For more information, please visit the City Planning Department website at <https://www.cabq.gov/planning> and the County Department of Planning and Development Services website at <https://www.bernco.gov/planning>.

Corporate and Facility Information: This information shall match the information in the permit application.

Air Quality Permit Applicant Company Name: U.S. Dept of Energy			
Facility Name: SNL/NM - Building 6630			
Facility Physical Address: 1515 Eubank Blvd. SE	City: Albuquerque	State: NM	Zip: 87123
Facility Legal Description: Research and Development			

General Operation Information: This information shall match the information in the permit application.

Permitting action being requested (please refer to the definitions in 20.11.41 NMAC):

- New Permit Permit Modification, Current Permit #:

Attachment Information: The location information provided to the City Planning Department or County Department of Planning and Development Services, as applicable, and reflected in the zoning certification or verifications, as applicable, shall be the same as the Facility location information provided to the Department in the air quality construction permit application.

<input checked="" type="checkbox"/> Zoning Certification Provided by: County Planning <i>This is a use-specific certification.</i> City Planning Form: https://www.cabq.gov/planning/code-enforcement-zoning County Planning Form: https://www.bernco.gov/planning/planning-and-land-use/applications-forms/	<input checked="" type="checkbox"/> City Zoning Verification <input checked="" type="checkbox"/> County Zoning Verification City Planning Form: https://www.cabq.gov/planning/code-enforcement-zoning County Planning Form: https://www.bernco.gov/planning/planning-and-land-use/applications-forms/
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County of Bernalillo
State of New Mexico
Planning & Development Services Department
415 Silver Ave. SW, 2nd Floor
Albuquerque, New Mexico 87102
Office: (505) 314-0350 Fax: (505) 314-0480
www.bernco.gov

June 14, 2022

U.S. Dept. of Energy and U.S. Dept. of Defense, KAFB
PO Box 5800, MS 0730
Albuquerque, NM 87123

Re: Bernalillo County zoning regulations and federally owned parcels

To Whom It May Concern:

This letter shall certify that Bernalillo County zoning regulations are not applicable to U.S. Federal Government nor U.S. Federal Government entity owned properties. This includes properties located within the boundary of Kirtland Air Force Base. Bernalillo County is willing to assist federal entities with necessary permits, building permits for example, if approached by a federal entity.

This certification statement only references the applicability of the Zoning Ordinance as it applies to the aforementioned properties.

Do not hesitate to contact me if you have questions concerning this matter at 314-0388 or at nhamm@bernco.gov.

Sincerely,

A handwritten signature in blue ink, appearing to be "NH", representing Nicholas Hamm.

Nicholas Hamm
Zoning Administrator

Cc: Paula Schuh; pschuh@sandia.gov

COMMISSIONERS

Adriann Barboa, Chair, District 3 *Walt Benson, Vice-Chair, District 4*
Debbie O'Malley, District 1 *Steven Michael Quezada, District 2* *Charlene E. Pyskoty, District 5*

ELECTED OFFICIALS

Tanya R. Giddings, Assessor *Linda Stover, Clerk* *Cristy J. Carbón-Gaul, Probate Judge* *Manuel Gonzales III, Sheriff* *Nancy M. Bearce, Treasurer*

COUNTY MANAGER

Julie Morgas Baca

CITY OF ALBUQUERQUE

CODE ENFORCEMENT

Plaza Del Sol Building, Suite 500
600 2nd Street NW
Albuquerque, NM 87102
Tel: (505) 924-3850 Fax: (505) 924-3847



Date: May 23, 2022

VIA Email, pschuh@sandia.gov

Paula Schuh, Environmental Compliance & Monitoring Manager
PO Box 5800 mail stop 0730
Albuquerque, NM 87185

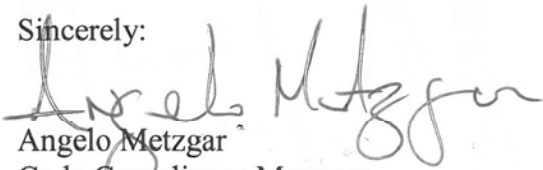
RE: US Department of Energy - Kirkland Airforce Base

To Whom It May Concern:

This letter will certify that according to the map on file in this office on May 23, 2022, the property located at:
US Department of Energy - Kirkland Airforce Base, is not located within City of Albuquerque jurisdiction.

If you have any questions regarding this matter please feel free to contact code enforcement by email at
codeenforcement@cabq.gov

Sincerely:


Angelo Metzgar
Code Compliance Manager

3.g. Air Dispersion Modeling Ambient Impact Analysis

AIR DISPERSION MODELING REPORT

**Construction Permit Application
Authority to Construct**

Building 6630 – Brayton Cycle Power Conversion System

**U.S. Department of Energy (DOE) and Sandia National
Laboratories / New Mexico (SNL/NM)**

Prepared By:

Jaimy Karacaoglu – Consultant
Trinity Consultants, Inc
9400 Holly Ave NE
Building 3, Suite B
Albuquerque, NM 87122
(505) 266-6611

May 2023

Project 233201.0080



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1. APPLICANT AND CONSULTANT INFORMATION

This modeling report is being submitted as part of a permit application submitted pursuant to 20.2.11.41 NMAC for U.S. Department of Energy (DOE) and Sandia National Laboratories / New Mexico (SNL/NM) (Sandia) Building 6630 – Brayton Cycle Power Conversion System (Building 6630) located at approximately 5 miles (8.05 kilometers (km)) south of the Kirtland Air Force Base Eubank Gate in Bernalillo County, NM. This report and accompanying air dispersion modeling files are being submitted to the City of Albuquerque (COA) Environmental Health Department (EHD), Air Quality Program (AQP) to satisfy the requirements of 20.11.41.13.E NMAC. This report includes all required components requested in the “Completeness Requirements” section of the COA Air Dispersion Modeling Guidelines (published October 2019). This modeling has been conducted in accordance with the modeling protocol reviewed by COA on August 14, 2020. Questions posed by the COA regarding the second submittal of the modeling protocol will be addressed herein.

a) Name of Facility and Company

Facility Name: Building 6630: Nuclear Energy Systems Laboratory

Company: U.S. Department of Energy (DOE) and Sandia National Laboratories / New Mexico (SNL/NM)

b) Permit Numbers

This is an initial construction permit for the facility. The facility does not currently have a construction permit associated with it.

c) Contact Information for Modeling Questions

Contact Name: Jaimy Karacaoglu

Phone Number: (410) 903-0750

E-Mail Address: jaimy.karacaoglu@trinityconsultants.com

2. FACILITY AND OPERATIONS DESCRIPTION

a) Narrative Summary of Application

This report details AERMOD inputs and modeled concentrations associated with the proposed installation of the Building 6630 heater. Details of the permit application are included below.

The proposed application requests the installation of one 40 MMBtu/hr heater at the remote Building 6630. The project will result in emissions of Volatile Organic Compounds (VOC), Hazardous Air Pollutants (HAP), NO_x, SO₂, CO, PM₁₀, and PM_{2.5} from the heater (unit 1).

b) Physical Description

The heater will be located at the SNL/NM Brayton site, which is located approximately 5 miles (8.05 kilometers (km)) south of the Kirtland Air Force Base Eubank Gate in Bernalillo County, NM. The UTM coordinates of the heater are Zone 13, 359,548 meters East and 3,872,182 meters North by NAD83 datum, at an elevation of approximately 1649 meters above mean sea level.

c) Duration of Time to be Located on Site

The heater will be at this location for greater than one (1) year.

d) Facility Maps

The attached figures display an aerial image of the facility with labels of all source emission points at the facility: point sources, area sources, and volume sources. Figures are also included which show the entire layout of buildings at the facility, an aerial image obtained from the City of Albuquerque's Advanced Map Viewer, and plot plans of the facility.

Figure 1 displays an aerial image of the facility from Google Earth®, with imagery dated October 2020. The figure includes the layout of buildings and structures at the site.

Figure 1. Aerial Image Specifying Building Locations

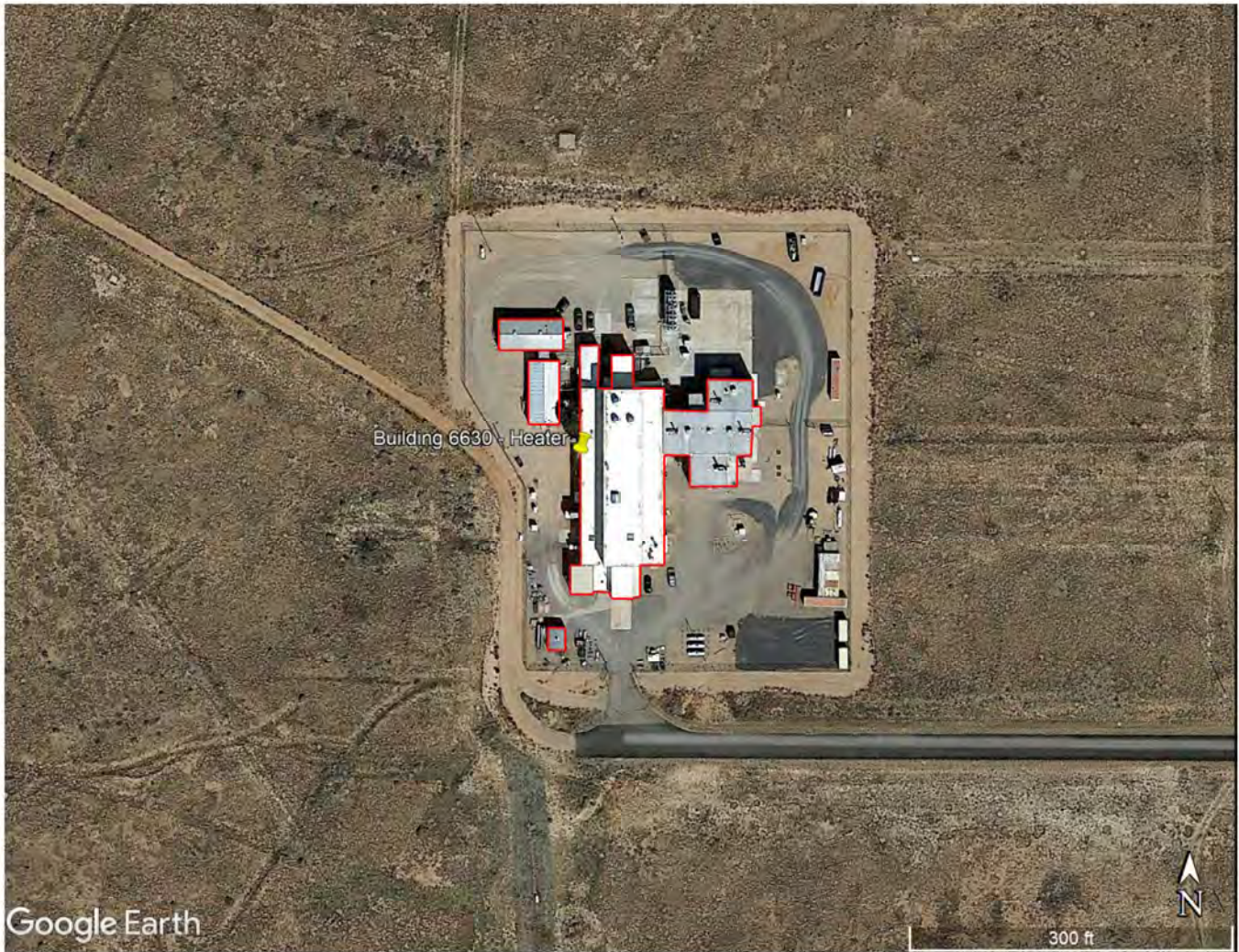


Figure 2 displays a map obtained from the COA's Advanced Map Viewer. All available layers are displayed in this figure. Background imagery is displayed for 2018.

The facility is located in an unincorporated area that shows land use that is also predominately unincorporated. There is an area of non-residential sensitive zone district approximately 1.8 miles west of the location of the heater.

Figure 2. Aerial Image Obtained from the City of Albuquerque's Advanced Map Viewer



Figure 3 displays an aerial image obtained from Google Earth® for the facility location. The imagery in this figure is dated 10/4/2020.

Figure 3. Aerial Image of the Facility and Surroundings Obtained from Google Earth®.



Figure 5 displays an aerial image obtained from Google Earth® with the facility location circumscribed by a 3km radius. The imagery in this figure is dated October 2020.

Figure 4. Aerial Image of the Facility Location Circumscribed by 3 km Radius



3. MODELING REQUIREMENTS DESCRIPTION

a) List of Pollutants Requiring Modeling

This modeling is for a permit application that will authorize a new point source of combustion emissions. As such, averaging periods will be evaluated for CO, NO₂, PM₁₀, PM_{2.5}, and SO₂. This facility is not a source of lead (Pb) or hydrogen sulfide (H₂S); therefore, no modeling is required for these pollutants.

Table 1. Pollutants Standards that are Modeled to Demonstrate Compliance with the NAAQS/NMAAQs

Pollutant	Standard	Not Emitted	Surrogate Modeled	Modeled
CO	8-hr			<input checked="" type="checkbox"/>
	1-hr			<input checked="" type="checkbox"/>
H ₂ S	1-hr	<input checked="" type="checkbox"/>		
Pb	Quarterly	<input checked="" type="checkbox"/>		
NO ₂	Annual			<input checked="" type="checkbox"/>
	24-hr 1-hr		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
PM _{2.5}	Annual			<input checked="" type="checkbox"/>
	24-hr			<input checked="" type="checkbox"/>
PM ₁₀	24-hr			<input checked="" type="checkbox"/>
SO ₂	Annual		<input checked="" type="checkbox"/>	
	24-hr		<input checked="" type="checkbox"/>	
	3-hr		<input checked="" type="checkbox"/>	
	1-hr			<input checked="" type="checkbox"/>
TAP	N/A	<input checked="" type="checkbox"/>		

*Note: Demonstration of compliance with a certain standard can be a surrogate that demonstrates compliance with other standards/averaging periods (e.g., 1-hr NO₂ for 24-hr NO₂; 1-hr SO₂ for 3-hr and 24-hr SO₂). The high first high value is always compared to the significant impact level for each averaging period.

b) Additional Modeling Required

No additional NSPS, NESHAP or PSD modeling is required as part of this application. Building 6630 is located in an area that is classified by the EPA as in attainment with the NAAQS for all regulated pollutants.

4. MODELING INPUTS

a) General Modeling Approach

i. Models Used and Justification

The most recent executable of AERMOD (v22112) was used to perform all air dispersion modeling. All models were run in regulatory default mode and Building Profile Input Program (BPIP) Prime was run to address building downwash associated with the structures located at this facility as well as the surrounding area. Based on satellite imagery and the COA Advanced Map Viewer, the land use in a 3 km radius around the facility is less than 50% industrial, commercial, or compact residential, as defined in the COA modeling guidance;¹ therefore, rural dispersion coefficients were used.

The Tier 2, Ambient Ratio Method 2 (ARM2) was used to model the ambient impact of NO₂. The national default minimum ambient ratio of 0.5 and maximum ambient ratio of 0.9 were used.²

ii. Operational Flexibility

No operational flexibility was modeled or requested as part of this permit application. The Building 6630 heater is expected to operate 2080 hours per year, but modeling was completed with 8760 hours of operation per year with no downtime to provide the most conservative estimate of emissions for facility demonstration of compliance with the NAAQS and NMAAQs.

iii. Source Groups

The only source at Building 6630 that is modeled is the heater.

The ALL source group includes the heater.

iv. Hourly Emission Factors

Table 3 reports the hourly emission rates that were modeled for the heater.

Table 2. Modeled Emissions Rates

Unit No.	Description	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
		Emission Rate (lb/hr)				
1	Heater	4.0	3.29	0.084	0.30	0.30
Total		4.0	3.29	0.084	0.30	0.30

¹ City of Albuquerque Environmental Health Department Air Quality Program Permitting Division, *Air Dispersion Modeling Guidelines for Air Quality Permitting*, Revised October 10, 2019, Attachment A.

² New Mexico Environment Department Air Quality Bureau, *New Mexico Air Quality Bureau Air Dispersion Modeling Guidelines*. Revised July 21, 2022, Section 2.6.4.3.

v. Gravitational Settling/Plume Depletion

Wet and dry depletion are not used to model ambient impacts of PM₁₀ and PM_{2.5}.

vi. Reduction of NO_x to NO₂

The Tier 2, Ambient Ratio Method 2 (ARM2) is used to model ambient impacts of NO₂. The national default minimum ambient ratio of 0.5 and maximum ambient ratio of 0.9 are used.³

vii. Background Concentrations

All modeled concentrations were below the Significant Impact Level (SIL) for NO₂, CO, PM_{2.5}, PM₁₀ and SO₂. As such, cumulative modeling was not necessary.

³ New Mexico Environment Department Air Quality Bureau, *New Mexico Air Quality Bureau Air Dispersion Modeling Guidelines*. Revised July 21, 2022, Section 2.6.4.3.

viii. Demonstration of Compliance in Nearby Facilities

Discrete receptors were included in all surrounding sources and facilities.

b) Meteorological and Ozone Data

i. Discussion of Meteorological and Ozone Data

Meteorological data from the Albuquerque International Sunport from 2014 to 2018 provided by the COA was used for this air dispersion modeling. This meteorological data was assumed to be adequately representative of conditions at Building 6630, based on the COA modeling guidelines.⁴

No ozone data was used or required for the modeling completed as part of this application.

ii. Actual Data

No further justification is required as the data was provided by the COA.

c) Receptor and Terrain Discussion

i. Spacing of Receptor Grids

AERMOD was run using a rectangular grid receptor array. Spacing followed COA modeling guidelines:⁵

- ▶ Fence line spacing: 50 meters.
- ▶ Fine grid spacing: 100 meters out to 13 kilometers from the center of the Kirtland AFB.
- ▶ Coarse grid spacing: 500 meters from the edge of the fine grid out to 18.5 kilometers from the center of Kirtland AFB.

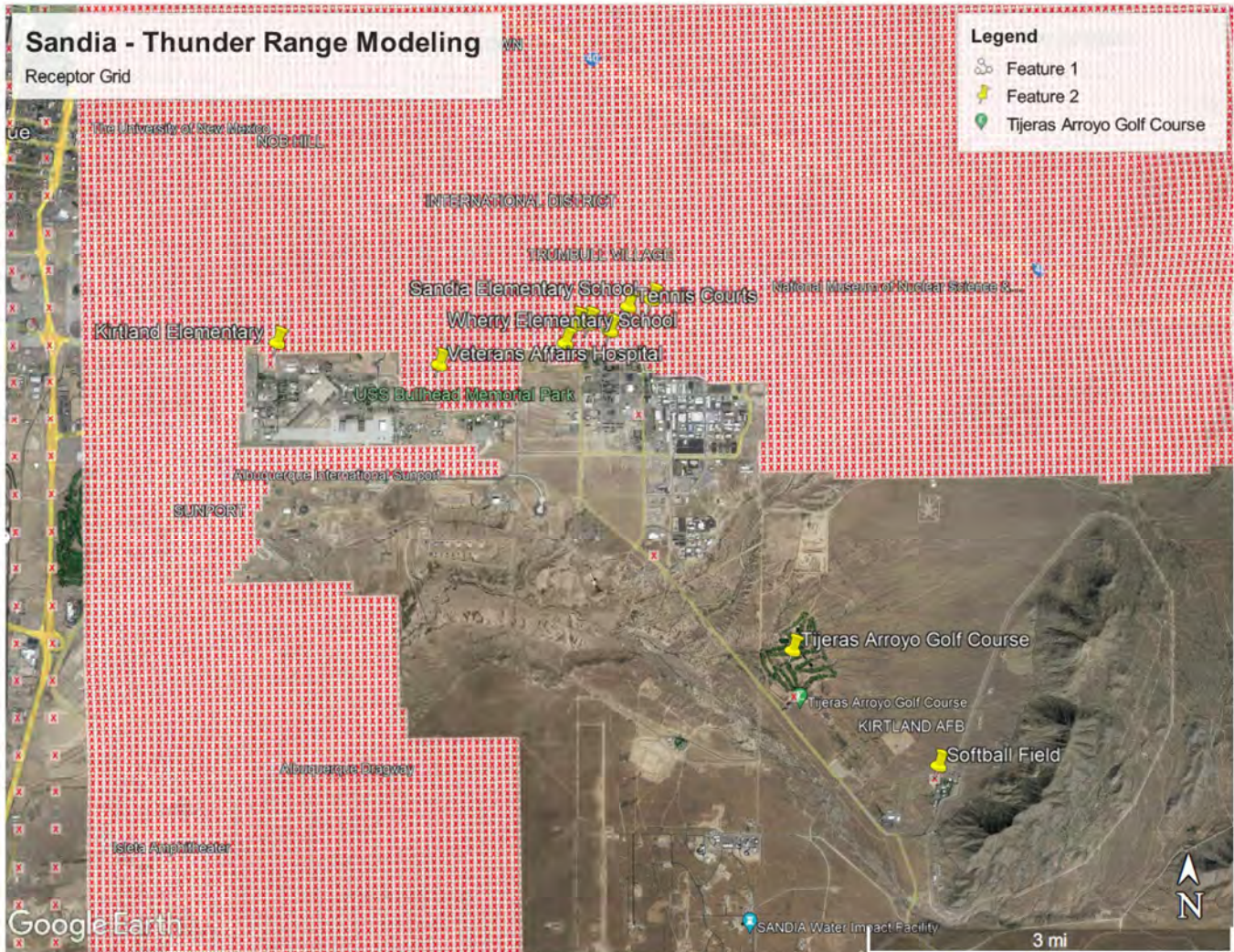
A secondary, smaller receptor grid was used to account for sensitive areas on the base as follows and are depicted in Figure 7:

- ▶ KAFB Housing – A property line was included at the south border of the onsite base housing developments spaced 50 m apart. Onsite base housing is the housing area on both sides of Wyoming Blvd and north of Gibson and Frost Ave. Receptors were also included for offsite base housing at Maxwell Street and Gibson Ave. Sensitive receptors were spaced 100 m apart throughout the base housing locations.
- ▶ The KAFB Commissary, KAFB Exchange, Child Care Center and Sandia Elementary School are all covered by the 100 m receptor spacing described in the base housing section above.
- ▶ Outdoor recreation area including softball fields and tennis courts.
- ▶ Boys and Girls Club.
- ▶ Tijeras Arroyo Golf Course.
- ▶ Additional sensitive receptors including Kirtland Elementary, Wherry Elementary, the Veterans Affairs Hospital, and Lovelace Hospital are located outside of the Kirtland AFB fence line and are contained within the 100 m receptor grid along Kirtland AFB's perimeter.

⁴ City of Albuquerque Environmental Health Department Air Quality Program Permitting Division, *Air Dispersion Modeling Guidelines for Air Quality Permitting*, Revised October 10, 2019, Page 7.

⁵ Ibid, Page 4.

Figure 5. Sensitive Area Discrete Receptors



ii. Terrain Discussion

Based on the most recent guidance from the COA, USGS National Elevation Dataset (NED) files were used. 1 arc-second NED files were downloaded from the USGS National Map website in GeoTIFF format. These files were then imported into AERMAP to determine elevations for sources, receptors, and buildings.

AERMAP, a terrain data preprocessor that incorporates complex terrain using USGS Digital Elevation Data, was used to integrate all elevations and process the complex terrain in the model.

iii. Reduction in Receptor Grid Size

The full receptor grid was utilized for all SIL models.

d) Emission Sources

i. Description of Sources at Facility

1. Choice of Source Type

Table 3. Point Source Stack Parameters

Unit	Description	Height (m)	Diameter (m)	Velocity (m/s)	Temperature (K)	Stack Orientation
1	Heater	9.75	1.12	9.62	1199.80	Vertical

2. Table of Proposed Changes

Table 4. Modeled Emission Rates for Modified or New Point Sources (lb/hr)

Unit	Description	NO ₂	CO	SO ₂	PM ₁₀	PM _{2.5}
1	Heater	4.00	3.29	0.084	0.30	0.30

3. Treatment of Operating Hours

All hours of operation were modeled as part of this permit application. Maximum hourly emission rates were used to model all standards. No reductions were claimed to represent non-continuous annual operation.

4. Particle Size Characteristics

No particle size distribution characteristics were included in the PM modeling.

5. Discrepancies Between Modeled Parameters and those in the Applications

Modeled parameters represent the requested emissions rates in the application.

6. Flare Calculations

There are no flares at this facility.

7. Cross-Reference of Model Input Numbers/Names

All unit names in the model are identical to unit names reported in this application.

e) Building Downwash

i. Dimensions of Buildings

Table 5. Building Dimensions and Locations

ID	X	Y	Elevation	Height	Vertices	
	(m)	(m)	(m)	(ft)	X	Y
					(m)	(m)
T49	359544.50	3872222.50	1648.79	3.5814	359544.501	3872222.503
					359526.0884	3872222.73
					359526.1507	3872213.986
					359544.4633	3872213.78

ID	X	Y	Elevation	Height	Vertices	
	(m)	(m)	(m)	(ft)	X	Y
					(m)	(m)
T11	359543.23	3872210.80	1648.75	3.9624	359543.2285	3872210.797
					359534.458	3872210.869
					359534.2761	3872192.605
					359543.0451	3872192.365

ID	X	Y	Elevation	Height	Vertices	
	(m)	(m)	(m)	(ft)	X	Y
					(m)	(m)
STORAGE	359544.16	3872135.09	1648.72	3.2004	359544.1595	3872135.092
					359539.2764	3872135.245
					359539.1749	3872128.824
					359544.1483	3872128.673

ID	X	Y	Elevation	Height	Vertices	
	(m)	(m)	(m)	(ft)	X	Y
					(m)	(m)
6630	359554.602	3872215.002	1648.95	12.1158	359554.60	3872215.00
					359549.19	3872214.99
					359548.74	3872152.66
					359545.79	3872152.68
					359545.77	3872144.52
					359552.26	3872144.45
					359552.27	3872145.24
					359556.50	3872145.09
					359557.45	3872143.22
					359563.35	3872143.05
					359563.84	3872143.44
					359565.52	3872143.61

					359565.67	3872152.61
					359572.47	3872152.49
					359572.79	3872183.48
					359579.97	3872183.37
					359579.96	3872174.75
					359593.38	3872174.73
					359593.43	3872182.97
					359597.40	3872183.20
					359597.94	3872191.42
					359600.32	3872191.38
					359600.31	3872197.07
					359598.12	3872197.10
					359598.11	3872204.44
					359585.23	3872204.83
					359585.18	3872195.82
					359572.79	3872196.40
					359572.89	3872202.37
					359564.13	3872202.60
					359564.28	3872212.19
					359557.99	3872212.19
					359558.13	3872202.49
					359554.20	3872202.55
					359554.60	3872215.00

ii. Discussion of Included Buildings

All buildings were included in the air dispersion modeling as shown in Section 2(e).

5. MODELING FILES DESCRIPTION

a) List of Files

Table 6. Modeling Files and Description

Name	Description
Brayton_CO SIL_2023 0518	CO Significance Analysis
Brayton_NO2 SIL_2023 0518	NO ₂ Significance Analysis
Brayton_PM2.5 SIL_2023 0518	PM _{2.5} Significance Analysis
Brayton_PM10 SIL_2023 0518	PM ₁₀ Significance Analysis
Brayton_SO2 SIL_2023 0518	SO ₂ Significance Analysis

b) Description of Scenarios

All files labeled "SIL" represent the Significance Impact Level analysis. Modeled concentrations were below the SIL for NO₂, CO, PM_{2.5}, PM₁₀ and SO₂ for the modeled location of the heater. As such, Cumulative Impact Analysis modeling was not necessary.

6. MODELING RESULTS

a) Summary of Modeling Results

Table 7. Model Results; Maximum Concentrations; SIL Comparison

Pollutant	Averaging Period	Significance Level	Modeled	Percent of Significance	Location of Maximum Concentration		Elevation (m)
		$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$		X	Y	
CO	8-hr	500	0.755	0.15%	362492.2	3879374.0	1709.45
CO	1-hr	2000	5.203	0.26%	362492.2	3879374.0	1709.45
NO2	Annual	1	0.034	3.40%	359492.2	3868174.0	1649.15
NO2	24-hr	5	0.276	5.52%	362492.2	3879374.0	1709.45
NO2	1-hr	7.52	5.693	75.71%	362492.2	3879374.0	1709.45
PM2.5	Annual	0.2	0.00283	1.42%	359492.2	3868174.0	1649.15
PM2.5	24-hr	1.2	0.0175	1.46%	359192.2	3868274.0	1639.72
PM10	Annual	1	0.00283	0.28%	359492.2	3868174.0	1649.15
PM10	24-hr	5	0.023	0.46%	362492.2	3879374.0	1709.45
SO2	Annual	1	0.00079	0.079%	359492.2	3868174.0	1649.2
SO2	24-hr	5	0.00644	0.13%	362492.2	3879374.0	1709.45
SO2	3-hr	25	0.04436	0.18%	362492.2	3879374.0	1709.45
SO2	1-hr	7.8	0.13285	1.70%	362492.2	3879374	1709.45

7. SUMMARY AND CONCLUSIONS

a) Modeling Statement

The submitted air dispersion modeling and report demonstrate compliance with the National and New Mexico Ambient Air Quality Standards. All requirements have been satisfied. There are no exceedances which would prohibit approval of the permit application.

APPENDIX A. RESPONSES TO COA QUESTIONS

The updated modeling protocol was reviewed by COA on August 14, 2020. Several questions, concerns, and recommendations were posed in response. These questions, comments, and recommendations are addressed below.

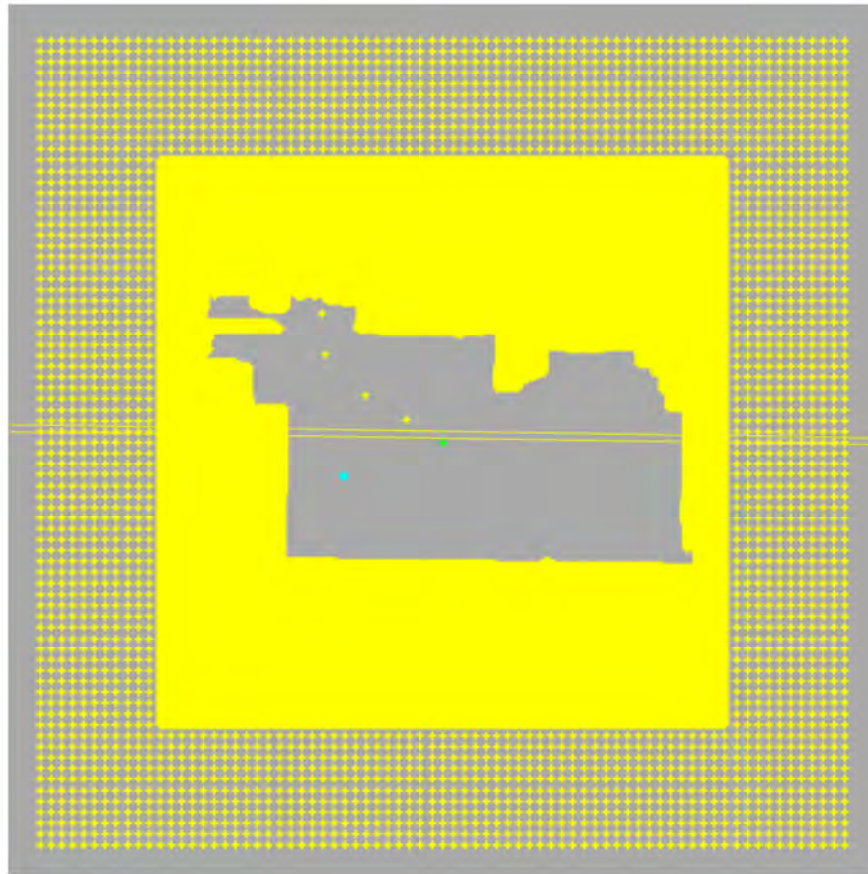
1. The modeling results to be used as design values for significance modeling were not addressed in the revised protocol. A section on design concentrations was added but this only addressed the design concentrations in relation to the NAAQS that is for cumulative modeling. Comparison to the significant impact levels (SILs) is done with different modeling results than the comparison to the NAAQS. The high 1st high results are typically compared to the SILs, with special processing disabled so that NO₂, SO₂ and PM_{2.5} don't use the special processing that is required for comparison to the NAAQS. Also, make sure to include building downwash in the SIL modeling, as well as cumulative modeling.

A screening analysis was conducted to determine if the High 1st High modeled impact of each standard exceeded the significance thresholds listed in Table 6A of the NMED Air Dispersion Modeling Guidelines.⁶ The significance levels for the modeled pollutants are provided in Section 6A of this report. All pollutants and standards were modeled to assess significance.

2. The receptor grid description does not make sense. It sounds like there will be no receptors outside the fence on the eastern and northern boundaries. There need to be receptors out to at least 500 meters in all directions from the fence at least in SIL modeling to determine the radius of impact. The grid can be reduced for CIA modeling based on where modeled impacts are found.

The Kirtland Air Force Base receptor grid, as shown below, was used. Additional information regarding the receptor grid and sensitive receptors is included in Section 4.c.

⁶ Ibid, Table 6A.



3. It is not clear why the emission rates for the source were not provided in this version of the protocol like they were in the first. That is something that should be included in a modeling protocol, along with the stack parameters that were included. Please make sure these are included in the full modeling report. Thank you for clarifying in your responses that low-NOx burners will be included in the permit application as an enforceable condition.

Please see below and Table 4 and Table 5 for the emission rates and stack parameters of the source.

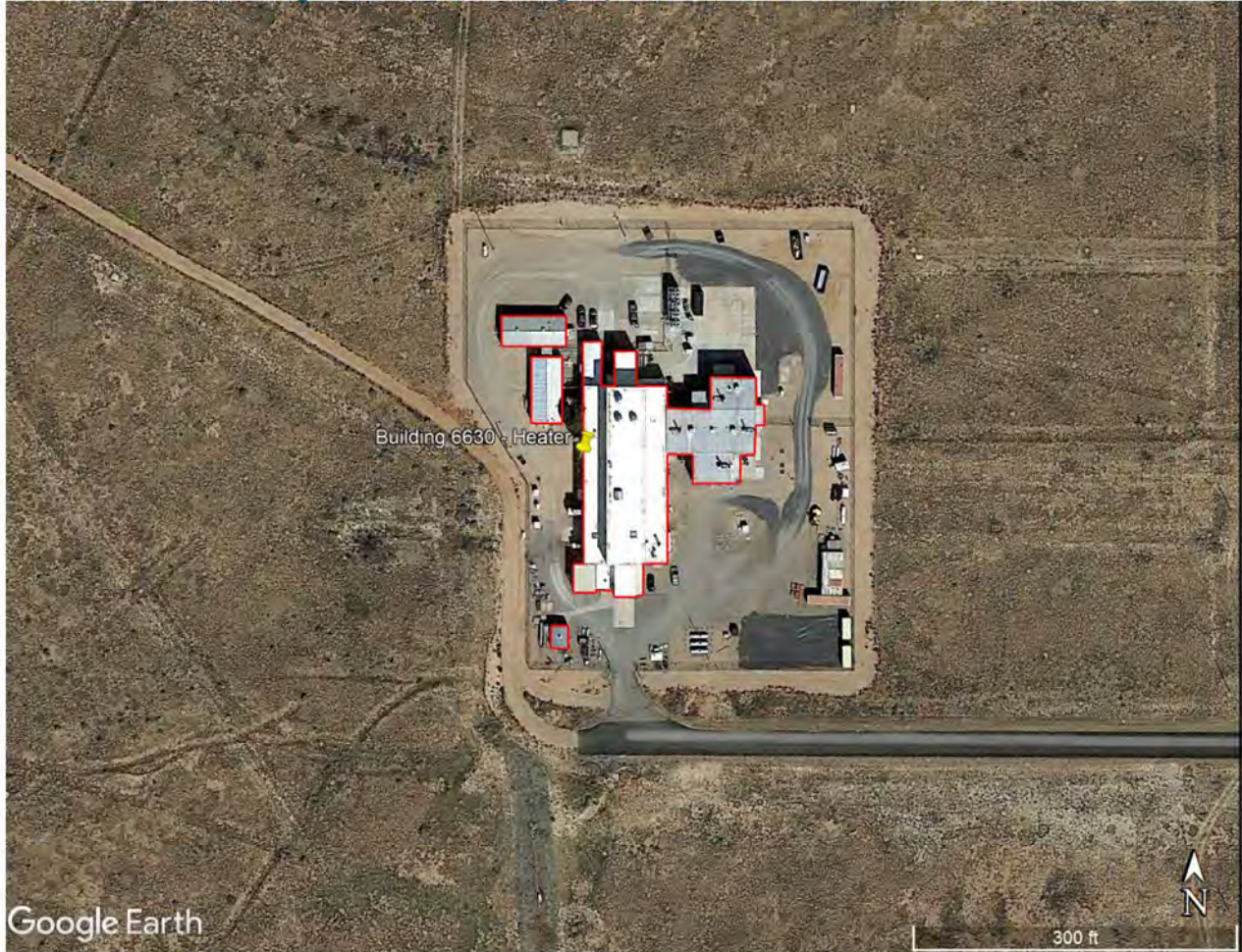
Unit	Description	Height (m)	Diameter (m)	Velocity (m/s)	Temperature (K)	Stack Orientation
1	Heater	9.75	1.12	9.62	1199.80	Vertical

Unit	Description	NO ₂	CO	SO ₂	PM ₁₀	PM _{2.5}
1	Heater	4.00	3.29	0.084	0.30	0.30

4. The location of the planned test cell relative to the building is not shown in any figure. UTM coordinates for the stack are provided but the coordinates are the same as those given for the facility and are just a

spot roughly in the center of the property. Is the stack really going to be in that corner of the building? A figure that is close enough to show the building and stack location will need to be in the final modeling report.

Please see below and Figure 1 in the modeling report for the location of the heater.



5. The building parameters in the first protocol were useful even if we had questions about them. It is unclear why they were removed in the revised protocol rather than updated. They are helpful to the review and a figure identifying the buildings to be modeled is even more helpful. This is true in this case because there are multiple buildings that will need to be included but the original protocol only seems to indicate one building. The response to question #13 indicates that actual coordinates of building 6630 will be utilized. There appear to be multiple buildings at the site that will need to be included.

Building parameters used in the models are included in Section 4.e of the modeling report.