Timothy M. Keller, Mayor

Environmental Health Department
Air Quality Program
Interoffice Memorandum

Paul J. Rogers, Director

Title V – University of New Mexico – Main campus - Statement of Basis

Company: The Regents of the University of New Mexico
Facility: The University of New Mexico, Main Campus
SIC and NAICS: 8221 and 611310
TV Permit #: 0536-RN2
AIRS#: NM/001/00141
Permit Writer: Barbara Georgitsis
Permit Action: Title V Operating Permit Renewal

Permit Review	
Permitting Review (initial & date): MM 6/7/24	**Compliance/Enforcement (initial & date): TR, 6/21/24**
	Legal Review (if applicable - initial & date): N/A
Date to Permittee/Facility for review: 5/22/24	**Date of Permittee/Facility response: 6/5/24**
Public Notice (30-day comment):	**Any Comments from Public Notice:**
Date Proposed Permit to EPA:	**Any Comments from EPA:**
Date Final permit to Permit Manager or Asst Director for signature:	

1.0 Introduction

This document summarizes the legal and factual basis for the draft permit conditions in the Regents of the University of New Mexico, The University of New Mexico (Permittee) air operating permit to be issued under the authority of the Albuquerque Environmental Health Department, Air Quality Program (Department) and the Albuquerque/Bernalillo County Air Quality Control Board (Board); pursuant to the Federal Clean Air Act (CAA, also known herein as the Federal Act); the New Mexico Air Quality Control Act, NMSA 1978, as amended 74-2-4, 74-2-5.C; the Joint Air Quality control Board Ordinance, Revised Ordinances of Albuquerque 1994, 9-5-1-4; the Joint air quality Control Board Ordinance, Bernalillo County Ordinance 94-5; Board Regulation Title 20, New Mexico Administrative Code (NMAC), Chapter 11 (20.11 NMAC), chapter 11, Part 41 (20.11.41 NMAC),Construction Permit; Part 42 (20.11.42 NMAC), Operating Permits. Unlike the permit, this document is not legally enforceable. This document includes references to the applicable statutory or regulatory provisions, emission calculations and other data that relates to the permit review.

2.0 Facility Description

The Permittee submitted an application, on May 11, 2022, for a renewal to the Title V Operating permit #0536-RN1 for its Main Campus located in Albuquerque, NM. The application was deemed administratively complete on August 30, 2022 with supplemental information received on September 25, 2023, October 20, 2023, January 19, 2024 and February 1, 2024. This Facility is a State chartered research university that offers bachelors through Doctorate degrees in various disciplines.

As an institution, the Facility occupies several non-contiguous properties and serves a variety of functions. The application treats the Facility in a manner consistent with Title V guidance. Taking this guidance into account, the Central Campus and associated portions of the North Campus comprise a major source for Title V purposes, and are collectively referred to as "Main Campus." Other properties and activities associated with the Permittee inside Bernalillo County are not part of this source, and are not included in the application.

The Permittee's core educational functions, and most of the air emission sources, are located on Central Campus. Facilities at the North Campus and South Campus, including educational research and administrative support facilities, are support activities for the Central Campus and belong to the same source despite their physical separation. Moreover, the separation is by a public road; in similar instances EPA has determined that such a separation is not sufficient to divide a facility into separate sources. Therefore, the Central Campus facilities, and portions of the North Campus and South Campus facilities were aggregated into a single source; referred to as the "Main Campus" source.

The University of New Mexico Hospitals (UNMH) complex, which consists of the hospital and other associated healthcare facilities, is considered a separate source from the Main Campus. It has a different SIC Major Group code (80) than the Main Campus, and is controlled independently by its own chief executive officer. The UNMH complex operates on a separate financial system and financial calendar and is funded differently than the Main Campus. UNMH complex facilities are not support facilities for the Main Campus. Therefore, the UNMH complex facilities are not part of the UNM Main Campus source. Therefore, this document addresses only the Main Campus (Facility) source.

3.0 History of Permitting Actions since 2016

Table 1.

Permit Number	Issue Date	Action Type	Description of Action (Changes)
3255	April 13, 2016		Initial SIP source for a 61 hp diesel fired emergency generator. The generator was previously thought to pre-date the City of Albuquerque Air Quality regulations, and so was did not have a Certificate of Registration. An audit conducted by the University of New Mexico found a nameplate on the unit indicating that it was manufactured in 2/14/1984.
1715-RV1	June 3, 2016	NSR	Revision NSR for the replacement of two (2) permitted 1.86 MMBtu/hr natural-gas fired boilers with two (2) 2.049 MMBtu/hr natural gas-fired boilers and listing them within the permit as insignificant
1601-M1-RV1	June 3, 2016	NSR	Technical permit revision to replace seven (7) permitted 10.122 MMBtu/hr natural gas-fired boilers with three (3) 12.4 MMBtu/hr natural gas-fired boilers.

Permit Number	Issue Date	Action Type	Description of Action (Changes)
1809-M1-2AR	July 18, 2016	NSR	Removal of initial and annual compliance testing requirements since applicable to Subpart IIII and Subpart ZZZZ. Correction of UTM coordinates.
1692-M1-1AR	September 19, 2016	NSR	Administrative Revision for the addition of the nameplate horsepower rating for Unit #1 (302-EG-1A) and removal of the boiler, heaters, and miscellaneous external combustion equipment from the process equipment table and on to the exempt equipment table.
3255-M1	March 14, 2017	NSR	Permit Modification replacing an older 61 hp diesel fired emergency generator with one (1) new, 69 hp diesel fired emergency generator (057-EG-1). The original 3255 was a registration.
3300	March 14, 2017	NSR	Permit Modification replacing an older 401 hp natural gas fired emergency generator with one (1) new, 480 hp diesel fired emergency generator (072-EG-1). The original engine was constructed prior to September of 1972. The emission units were included in the previous Title V permit the engine did not have an Authority-to-Construct Permit.
3299	March 14, 2017	NSR	Permit Modification replacing an older 460 hp natural gas fired emergency generator with one (1) new, 132 hp diesel fired emergency generator (053-EG-1). The original engine was constructed prior to September of 1972. The emission units were included in the previous Title V permit the engine did not have an Authority-to-Construct Permit.
1852-M1-1AR	February 14, 2018	Admin Revision	Change the applicability status back to applicable with CFR Title 40 Part 60 Subpart IIII and Subpart ZZZZ.
Various	2022	Admin Revisions	1174-1AR, 1692-M1-2AR, 1766-1AR, 1968-M1-1AR, 1970-M1-1AR, 1971-M1-1AR, 1972-M1-1AR, 1979-1AR, 1980-M1-1AR, 1981-M1-1AR, 2176-1AR, 3019-1AR, 3020-1AR, 3300-1AR; Update permits with engines' manufacture, model and SN.
1881-M1	October 10, 2023	Modification	Replace emergency engine with new diesel emergency engine, Installed in 4/2024
0624-M1	October 10, 2023	Modification	Replace emergency engine with new diesel emergency engine, Installed in 4/2024
1980-M2	October 10, 2023	Modification	Replace emergency engine with new diesel emergency engine, Installed in 4/2024
1601-M2	October 30, 2023	Modification	Permit to increase stack heights for boilers and add existing cooling towers (PM_{10}). Construction of stack increase was near complete at time of this draft operating permit renewal.
0490-2TR-1AR	December 11, 2023	Admin Revision	Replace 1997 8 MMBtu/hr with 4 MMBtu/hr NG fired. Decrease in emissions.
1643-M1-1TR	December 19, 2023	Technical Revision	Changed Serial numbers for Turbines 1 & 2. Turbine 2 has a greater capacity than was permitted. It is 7.9 MW and not 7.7 MW. Emission rates will not increase, and permitted emissions will not change.

Permit Number	Issue Date	Action Type	Description of Action (Changes)
1978-1AR	July 2024	Admin Revision	Update correct serial number, model number, other descriptive items.
1715-M1-1AR	June 2024	Admin Revision	Update correct serial number, model number, other descriptive items.
2167-1AR	June 2024	Admin Revision	Update correct serial number, model number, other descriptive items.
3255-M2	June 2024	Modification	Update existing emergency engine to correct power rating.
2038-M1	June 2024	Modification	Update existing emergency engine to correct power rating.
1700-M1	June 2024	Modification	Update existing emergency engine to correct power rating.

* refer to the Statement of Basis for 0536-RN1 for Permit History pre-2016.

4.0 Summary of Updates from the Previous Title V Permit (0536-RN1)

Table 2.

Device	Description
Emergency Generator/Engines- 255 EG-1, 081-EG-1, 082-EG-1	Removed from Facility so devices and associated permits/registrations removed from Permit: 255 EG-1 (AQCP#1750-1AR); 081-EG-1 (REG #1973); 082-EG-1 (REG #1974)
Modified/updated devices	Refer to Table 1. in application page 1-2
338-BLR-1	Previously ATC - 0490-RV1 for 6 MMBtu/hr 1997 boiler; replaced w/new 4 MMBtu/hr 2020 Riello AR4000 boiler Technical Revision application was received on 2/11/2022 and processed as 0490-2TR. An Administrative Revision was issued on 12/11/23 to correct an error by the Department; therefore the permit is now 0490-2TR-1AR.
All	Numbered the Tables throughout the permit.
TSP Emission Limits – Table 6	Removed TSP emission limits because TSP is regulated as PM_{10} which includes $PM_{2.5}$ for combustion units
All	Added to "Description" in Emission units table, the location (building), of the device
40 CFR 60, Subpart IIII engines	Updated emission calculations – instead of NOx + NHMC, NOx and NHMC (VOC) are shown separately. NHMC is 5% of the NOx+NHMC. NMHC or VOC, is ~5% of the ef (CARB,Table D-25, 12/2011). For this permit, NOx and VOC are shown separately.
Diesel fired Emergency Engines manufactured before 2006	40 CFR 63, Subpart ZZZZ references/requirements language edited to say "not subject" since the Permittee is an Institutional source and emergency engines are exempt from this Subpart, pursuant to 40 CFR 63.6585(f)(3); however, the engines are required to meet the definition of an emergency engine pursuant to 63.6675 and operate as emergency engines by definition in accordance with 40 CFR 63.6640(f). The emergency engine may not operate for demand response (under a financial arrangement to suppy power) according to 63.6640(f)(4)(i) & (ii).

Removed from the non-applicable Table 2 - 20.11.64 NMAC Emission Standards for Hazardous Air Pollutants for Stationary Sources 20.11.64.13 NMAC – The Facility is neither a listed source nor a major source for HAPs.	There are sources at the Facility subject to a NESHAP such as: 40 CFR 63, Subpart CCCCCC for gas dispensing facilities and 40 CFR 63, Subpart JJJJJJ for boilers when using liquid fuel. Emergency engines manufactured <2006 at an Institution are exempt from 40 CFR 63, Subpart ZZZZ engine requirements; however the emergency engines are required to operate as emergency engines (see row above) pursuant to the subpart.
Updated engines 024-EG-1, 048-EG-1, 266-EG-1	These engines were replaced and therefore, the manufacture, model, serial numbers, and capacity were updated. The engines were installed in 04/2024 and the applicable permits incorporated in the Title V renewal permit.
Consolidated applicable Operational Requirements and Limitations that were in different locations and some duplication in previous permit.	Section 3.2. Requirements for Individual Emission Units (Operational Requirements and Limitations- Tables 6a-6h). Also. moved the emergency engines allowable permitted hours table, to Table 6.e.1 below the engine requirements.
Removed a condition from Operation Requirements for 216-AST-1A, gasoline storage tank, since NMAC is stricter and takes precedence - §63.11117(b)(1) requires submerged fill pipes installed on or before November 9, 2006, must be no more than 12 inches from the bottom of the storage tank.	20.11.65 NMAC requires submerged fill pipes to be no more than 6 inches from the bottom of the storage tank which is more stringent.
In section 3.3.B Emission Limits - Removed for Subpart JJJJ, NG Engines - 191-EG-1A & 253-EG-2 a condition for emissions referencing a non-applicable regulation.	"Compliance with CO and NOx+NMHC, pound per hour (lb/hr) emission limits, shall be shown by meeting the requirements of 40 CFR 1054.105(a)." 40 CFR 1054.105(a) is applicable to **manufactures** of NG engines and not the owners/operators.
In section 3.3.B Emission Limits - Removed for Subpart IIII engines, a condition referencing a non-applicable regulation.	"the emission standards for new nonroad CI engines in §60.4202, for all pollutants, for the same model year and maximum engine power for their 2007 model year and later emergency stationary CI ICE". This regulation, 60.4202, is applicable for engine manufactures and not owners/operators.
Consolidated Emission Limitations in Section 3.3 in a table.	Some conditions were included in the Section 3.2 Operational Requirements and Limitations, Tables 6a-6h.
Removed Initial Testing Requirements - 021-EG-1, 116-EG-1A, 153-EG-1, and 260-EG-2	Removed the reference to initial testing requirements for these units since the required initial testing has been completed and is satisfactory.
Added a parking lot 233-DL-1	Parking lot was added to the Facility's fugitive dust plan and to operating permit along with other dirt lots as well as Elks Lodge demolition area.
Added language from Construction permit template that is applicable to permitted sources.	Pursuant to 20.11.41 NMAC, compliance tests may be imposed or re-imposed by the Department, in its sole discretion, if inspections of the source indicates non-compliance with Permit conditions or the previous test showed non-compliance or was technically unsatisfactory.

Removed condition in the Recordkeeping section 4.1: Maintain records of conducted maintenance for Emission Units #191-EG-1A and 253-EG-2 to demonstrate compliance with the requirements of 40 CFR 60.4243(a) if engine settings are adjusted.	The condition does not apply to NG fired SI emergency engines.
Reporting section 5.1-Schedule of Report Submittal - Removed reporting period due date language "Within 45 days following the end of every 6-month period following the date of permit issuance."	Replaced with the current semi-annual reporting period which was established from previous permit: May 15th to November 14th and November 15th to May 14th. Due to Dept within 45 days. Added – Annual Compliance Certification – May 14th. Due to Dept within 30 days.
7.0 Emergencies Section, Emergency constitutes an "affirmative defense" … pursuant to 20.11.42.12.E.(2)(a)-(d) was removed due to EPA's final rule. The reporting section 20.11.42.12.C.(5) references to "including emergencies" for deviations.	Removed/deleted section in permit per Federal Register Vol. 88 No. 139, July 21, 2023 - Removal of Title V Emergency, Affirmative Defense Provisions From State Operating Permit Programs and Federal Operating Permit Program. Deleted references to emergency defense in the Permit.
Table 1, Applicable Requirements, 11.20.49 NMAC Excess Emissions	No longer Federally Enforceable as "affirmative defense" (see 7.0 Emergencies Section description above) and this NMAC is not SIP approved; therefore, the rule is Only Locally Enforceable and this was noted appropriately in the Table.
Engines 211-EG-2, 260-EG-2, 211-EG-3	Three Admin Revisions issued to upgrade models, SNs, etc. Permit was updated accordingly.
Engines 57-EG-1, 200-EG-1, 194-EG-1	Three Modifications issued to upgrade rated capacity and emissions. Permit was updated accordingly.
Existing Cooling Towers at the steam plant permitted with the increased stack height for boilers (1601-M2)	Cooling Towers added under Steam Plant process table, Table 5b. along with the boilers.
Turbines 116-TRB-1 and 116-TRB-2 (1643-M1-1TR)	Changed Serial numbers for Turbines 1 & 2. Turbine 2 has a greater capacity than was permitted. It is 7.9 MW and not 7.7 MW. Emission rates will not increase, and permitted emissions will not change. Permit Tables were modified.
Reporting condition in old permit 5.1.4.1 (this permit - condition 5.1.A.1) for Turbines 116-TRB-1	Amended since there is no regulatory requirement for number of days notification required before replacement/substitution of a new gas producer component. Removed "not less than thirty (30) days".

and 116-TRB-2	
Turbine 116-TRB-1, gas producer component	Replaced in 5/2024. Updated process description Table 5a.

5.0 Insignificant Activities

The Facility has boilers, water heaters, heaters, and miscellaneous external combustion equipment located around the main campus that provide steam and/or comfort heating to various facilities. There is also a small diesel fuel tank. These units are sources of NOx, CO, PM, SO_2, and VOCs and are fired with natural gas. The PTE was previously considered for the Title V applicability determination; however, the "Insignificant Activities" do not need to be included in the annual emission's inventory nor the fees. Table 4 of the Permit lists the insignificant activities at the Facility.

6.0 State Regulatory Analysis:

Table 3.

20.11 NMAC Title	Comments	Applies (Y/N)
20.11.1 NMAC General Provisions	This part is to provide definitions which are generally applicable to Albuquerque/Bernalillo county air quality control board regulations	Y
20.11.2 NMAC Fees	This regulation establishes annual emissions fees for sources with source registrations, authority-to-construct permits, and Title V permits. UNM – Main Campus has several permits, therefore this regulation is applicable.	Y
20.11.3 NMAC Transportation Conformity	No transportation plan required	N
20.11.4 NMAC General Conformity	The Permittee will perform conformity assessments when necessary and is in compliance with this regulation.	Y
20.11.5 NMAC Visible Air Contaminants	The Permittee shall cause or allow visible emissions that exceed an opacity of 20 percent, 6 minute time-averaged. For spark ignition engines, these units shall not cause or allow visible air emissions to exceed 5 percent opacity for any three (3) minute timed average, except for the initial 10 seconds after startup pursuant to 20.11.5.13.B NMAC. For diesel engines, these units shall not cause or allow visible air emissions to exceed 20 percent opacity for any six (6) minute timed average pursuant to 20.11.5.13.C NMAC.	Y
20.11.6 NMAC Emergency Action Plan	The Permittee will comply with the provisions of this part as necessary.	Y
20.11.7 NAMC Variance Procedure	Facility is not seeking a variance	N
20.11.8 NMAC Ambient Air Quality Standards	This regulation adopts the Federal and State ambient air quality standards (NAAQS and NMAAQS).	Y

20.11.20 NMAC Fugitive Dust Control	This regulation requires the use of reasonable precautions to prevent particulate matter that is generated from becoming airborne, requires permits for disturbances exceeding ¾ acre, and requires controls on dirt roads.	Y
20.11.21 NMAC Open Burning	This regulation pertains to open burning. The Facility may have celebratory bonfires and may use burning in weed control. This regulation is therefore applicable.	Y
20.11.22 NMAC Woodburning	This regulation pertains to wood burning. This regulation is applicable to fireplaces located at the Facility.	Y
20.11.23 Stratospheric Ozone Protection	This regulation addresses CFC handling in automotive at conditions. The Facility repairs and maintains automotive air conditioners. This regulation is therefore applicable.	Y
20.11.40 NMAC Source Registration	This regulation addresses registration of applicable stationary air pollution sources. The Permittee has sources registered under this regulation.	Y
20.11.41 NMAC Construction Permits	This regulation addresses pre-construction permitting of applicable stationary air pollution sources. The Permittee has sources permitted under this regulation.	Y
20.11.42 NMAC Operating Permits	This regulation addresses permitting of Title V sources. The Permittee is a Title V major source of NOx and CO with PTE >100 tpy.	Y
20.11.43 NMAC Stack Height Requirements	This regulation pertains to stack heights as used to evaluate air quality impacts. The stack heights for emission source at the Facility are credible under the term "good engineering practices."	Y
20.11.47 NMAC Emissions Inventory (EI) Requirements	Applies to the owner or operator of every stationary source in Bernalillo County that has an active permit issued pursuant to 20.11.41 NMAC, Construction Permits, or 20.11.42 NMAC, Operating Permits. EI is due to Department annually by March 15.	Y
20.11.48 NMAC Greenhouse Gas Emissions Reporting	Facilities required to report greenhouse gas emissions to the department are electrical generating units is equal to or greater than 25 megawatts or electricity, a petroleum refining facility, and a cement manufacturing facility.	Y
20.11.49 NMAC Excess Emissions	This regulation pertains to any source whose operation results in an emission of a regulated air pollutant, including fugitive emissions, in excess of the quality, rate, opacity or concentration specified by an air quality regulation or permit condition.	Y (Only Locally Enforceable)
20.11.60 NMAC Permitting in nonattainment areas	The Facility is located in an attainment area for all regulated pollutants.	N
20.11.61 NMAC Prevention of Significant Deterioration	This regulation pertains to Prevention of Significant Deterioration and is not applicable to the Permittee. The Facility is not nor is it equipped with any named PSD Source Categories. The PTE is less than 250 tpy of any regulated pollutant. The Facility has never had a PTE of greater than 250 tpy therefore a contemporaneous period has not been triggered and netting calculations are not required.	N

20.11.62 NMAC Acid Rain	The Permittee is not an acid rain source as defined at 40 CFR 72.6. This element does not apply.	N
20.11.63 NMAC New Source Performance Standards	This regulation pertains to new source performance standards (NSPS) and incorporates the Federal NSPS as applicable.	Y
20.11.64 NMAC Emission Standard For Hazardous Air Pollutants For Stationary Sources	This regulation pertains to national emission standards for Hazardous Air Pollutants (NESHAP) and incorporates the federal NESHAP and maximum achievable control technology standards (MACT) as applicable.	Y
20.11.65 NMAC Volatile Organic Compounds	This regulation pertains to transport, delivery and storage of gasoline. The Facility's Automotive Center Fuel Management Station is located on main campus and is equipped with a tank subject to this regulation.	Y
20.11.66 NMAC Process Equipment	This regulation pertains to the control of particulate emissions for process equipment. This regulation is applicable to process equipment on the Facility.	Y
20.11.67 NMAC Equipment, Emissions, Limitations	The heat rates of the oil or gas burning equipment do not meet the applicability requirements of this regulation.	N
20.11.68 NMAC Incinerators and Crematories	This regulation limits emissions from crematories. The Animal Research Facility (ARF) is equipped with a crematorium and this regulation therefore applies.	Y
20.11.69 NMAC Pathological Waste Destructors	No Pathological Waste Destructors at facility.	N
20.11.90 NMAC Administration, Enforcement, Inspection	To minimize emissions from sources through inspection, enforcement, and good operating procedures.	Y
20.11.101 NMAC Motor Vehicle Inspection Centralized	This regulation includes provisions for the Program to operate a centralized vehicle emissions inspection and maintenance program. UNM Automotive is a certified I&M Program inspection station and maintains the UN fleet of vehicles, therefore this regulation applies.	Y

7.0 Federal Regulatory Analysis:

Table 4.

Citation	Comments	Applies (Y/N)
40 CFR 60, Subpart A - General Provisions	Pollutants applicable to 40 CFR 60, General provisions for any new or revised NSPS. Applicable for each emission unit affected by a NSPS, as indicated in 40 CFR 60 (see below)	Y
40 CFR 60, Subpart Dc - Small Industrial-Commercial-Institutional Steam	This regulation applies to Emission Units #116-BLR-1A, 116-BLR-2A, 176-BLR-1, 176-BLR-2, 176-BLR-3. These boilers were constructed after June 9, 1989, and have a design capacity of between	Y

Generating Units	10 MMBtu/hr and 100 MMBtu/hr.	
40 CFR 60, Subpart GG - Standards of Performance for Stationary Gas Turbines	This subpart applies to gas turbine emission unit # 116-TRB-1. This unit was constructed after October 3, 1977 and have a heat input at peak load equal to or greater than 10.7 gigajoules per hour (10 MMBtu/hr), based on the lower heating value of the fuel fired.	Y
40 CFR 60, Subpart KKKK – Standards of Performance for Stationary Combustion Turbines	This subpart applies to gas turbine emission unit # 116-TRB-2. This unit was constructed after February 18th, 2005 and have a heat input at peak load equal to or greater than 10.7 gigajoules per hour (10 MMBtu/hr), based on the higher heating value of the fuel fired.	Y
40 CFR 63, Subpart YYYY – National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines	This subpart applies to gas turbines emission units # 116-TRB-1 and 116-TRB-2. Since these units are located at an area not major source of HAPs they are not subject to 40 CFR 63 Subpart YYYY.	N
40 CFR 60 Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines	Applicable to all non-emergency and emergency stationary compression ignition internal combustion engines ordered after July 11, 2005 and manufactured after April 1, 2006.	Y
40 CFR 60 NSPS Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	This regulation is applicable to spark ignition internal combustion engines (SI ICE) that commence construction after June 12, 2006; where the SI ICE was manufactured on or after January 1, 2009 for emergency engines with a maximum engine power greater than 19KW (25 HP).	Y
40 CFR 61, Subpart M National Emission Standards for Asbestos	This subpart pertains to asbestos. It is applicable to this facility only periods of demolition or renovation work.	Y
40 CFR 63, Subpart ZZZZ National Emission Standards for Hazardous Air Pollutants for Stationary Compression Ignition Internal Combustion Engines (ICE)	Not applicable to non-emergency ICE at institutional facilities manufactured prior to 2006 (§63.6585(f)); however, emergency engines are required to operated as an emergency engine pursuant to §63.6640(f)	Y
40 CFR 63, Subpart CCCCCC- National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline	This subpart applies to Gasoline Dispensing Facilities (GDF) at the Facility.	Y

Dispensing Facilities		
40 CFR 98 – Mandatory Greenhouse Gas Reporting Rule	The Permittee is a Facility that in any calendar year starting in 2010 which meets conditions listed under § 98.2(3) of 40 CFR 98. Annual reporting to EPA by March 31.	Y

8.0 PSD Applicability:

Prevention of Significant Deterioration (PSD) - Major stationary sources in attainment areas listed with potential emissions greater than or equal to 250 tpy or specifically listed sources with potential emissions greater than or equal to 100 tpy of any regulated pollutant. The Facility is not equipped with any named PSD Source Categories listed in Table 1 of 20.11.61 NMAC – PSD Source Categories. In addition, the Facility is located in an attainment area and is below 250 tons per year for each of the regulated pollutants.

9.0 Facility Devices/Processes

The major air pollutant emitting devices/processes are listed in the Title V Permit Tables 5a-5h. and are subdivided into the following:

A. FORD UTILITIES CENTER [Emission Units 116-TRB-1 (Turbine), 116-TRB-2 (Turbine), 116-BLR-1A (Boiler) and 116-BLR-2A (Boiler)]

In 2002 UNM applied for a new Authority-to-Construct Permit for the installation of two (2) ~8 megawatt natural gas fired turbines and two (2) 96.2 MMBtu/hr boilers to replace five (5) boilers at the Ford Utilities Center. The two turbines are 7.5 MW and 7.9 MW respectively and permitted for these rates in Permit # 1643-M1-1TR issued on December 19, 2023. The two (2) 96.2 MMBtu/hr boilers generate steam for comfort heating and the two 7.5 MW and 7.9 MW turbines generate electricity for the UNM campus. Waste heat from the turbine is used to generate steam that is used for campus comfort heating. The two boilers are subject to NSPS, 40 CFR 60, Subpart Dc - Standards of Performance for Small Industrial Commercial-Institutional Steam Generating Units, and Subpart A - General Provisions. These process units were constructed, reconstructed, or modified after June 9, 1989 and each process unit has a maximum design heat input capacity greater than 10 million Btu/hr but less than 100 million Btu/hr. The 7.5 MW turbine unit (Unit #116-TRB-1) is subject to NSPS, 40 CFR 60, Subpart GG – Standards of Performance for Stationary Gas Turbines. It was constructed after October 3, 1977 and has a heat input at peak load equal to or greater than 10.7 gigajoules per hour (10 MMBtu/hr), based on the lower heating value of the fuel fired. The 7.9 NW turbine unit (Unit #116-TRB-2) is subject to NSPS, 40 CFR 60, Subpart KKKK – Standards of Performance for Stationary Combustion Turbines. It was constructed after February 18th, 2005 and has a heat input at peak load equal to or greater than 10.7 gigajoules per hour (10 MMBtu/hr), based on the higher heating value of the fuel fired.

The two boilers and two turbines currently operate under the construction Permit #1643-M1-1TR.

B. STEAM PLANT (Emission Units 176-BLR-1, 176-BLR-2, and 176-BLR-3; 176-CT1 & 176-CT2)

Each unit is a 12.4 MMBtu/hr natural gas-fired boiler to provide steam generation to the University of New Mexico main and north campus. The boilers are a source of NO_X, CO, VOCs, SO_2, and PM and do not have any emission control equipment or use control methods to limit emissions. The boilers are subject to Federal New Source Performance Standards (NSPS), 40 CFR 60, Subpart Dc - Standards of Performance for Small Industrial Commercial-Institutional Steam Generating Units, and Subpart A - General Provisions. These process units were constructed, reconstructed, or modified after June 9, 1989 and each process unit has a maximum design heat input capacity greater than 10 million Btu/hr but less than 100 million Btu/hr. The stack heights for the three boilers was increased to allow for better emissions dispersion and two cooling towers were added to the operating permit under the permit modification issued in October 2023, 1601-M2.

C. ARF CREMATORIUM (Emission Unit 262-CRM-1)

The ARF Crematorium is used to destroy animal research wastes from various facilities at UNM. The unit is rated at 2 MMBtu/hr using natural gas as fuel and is a source of NO_X, CO, SO_2, VOCs, and PM. Typically, this facility will operate no more than 4380 hours per year and shall not exceed 9,000,000 ft^3 of natural gas, 12-month rolling average. The ARF Crematorium currently is operating under Permit #1982.

D. INTERNAL COMBUSTION ENGINE (ICE) SOURCES (Emission Units XXX-EG-X)

UNM has forty (41) emergency generator engines and two (2) emergency blowers located around the main campus that provide electrical power to various facilities when there is a loss in electrical power from the local utility. These units are sources of NO_X, CO, PM_{10}, $PM_{2.5}$, SO_2, and VOCs and range from 16 hp to 1848 hp and are fired with either diesel or natural gas (NG). The emergency engines are permitted and the permit number (Construction or Registration) is in parenthesis below the Unit number in Table 5d. in the Permit. Various minor updates to ICEs occurred with the permit renewal. See above Table 2 for details.

E. EXTERNAL COMBUSTION SOURCE (Emission Unit 338-BLR-1)

The other external combustion sources at the Facility are described under 7.0. A and B. above. Unit #338-BLR-1 below is located at another building, and therefore, shown separately:

TABLE 5.

Emission Unit	Unit Description	Manufacturer	Model Number	Serial Number	Date of Mfg. Equipment	Date of Installation	Rated Process Rate
338-BLR-1 (ATC #0490-2TR)	Boiler (Natural Gas)	Riello	AR-4000	19-HE086634 619	2020	7/2020	4.0 MMBtu/hr

F. ABOVE GROUND STORAGE TANKS – (Emission Units #216-AST and #216-AST-1B)

These tanks are located at the UNM Automotive Center Fuel Management Station and are used to supply gasoline and diesel fuel. The gasoline storage tank has a capacity of 4,200 gallons and is a source of VOCs. These tanks are under Permit #0087-M1.

G. UNPAVED PARKING LOTS – Emission Units XXX-DL-X

The Facility has listed 8 unpaved parking lots in their application that are sources of PM emissions. These lots vary from 0.11vmt/hour to 40.27 vmt/hr (vmt=vehicle mile traveled). The Permittee was issued a Fugitive Dust Programmatic Permit (Permit #P05-0006H) which expired. The Permittee shall maintain a Fugitive Dust Plan for unpaved parking lots pursuant to 20.11.20 NMAC..

H. CHEMICAL USAGE – (Emission Units CHEM)

The Permittee purchases various VOC and HAP emitting chemicals that are used mostly for academic purposes. Emissions were based on the assumption that the chemicals with high vapor pressures were completely volatilized into the atmosphere. Chemical usage activities are monitored and recorded in accordance with permit #2135.

10.0 Operational Requirements/Emission Limitations in Tables 6a-6h. of Permit

The Permittee provided emission data along with applicable references for the emission factors used to derive the emissions at the Facility. The Department reviewed and verified the emissions. The emissions are listed in the Tables in the Permit. The emissions and associated data are in the following spreadsheet used for the analysis of this Permit:

0536-RN2_UNM_emissions.pdf

Difference in emissions from previous Title V renewal one permit (RN1) and current renewal permit (RN2):

	NOx		CO		SO2		PM_{10}		$PM_{2.5}$		VOC		HAPs	
Permit	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
RN1	255.78	145.00	221.72	161.00	25.38	31.42	21.41	16.00	21.41	16.00	20.39	59.00		13.00
RN2	247.398	138.678	187.086	158.059	22.755	30.847	44.638	17.049	44.640	17.061	20.380	53.784		10.335
Diff.	-8.38	-6.32	-34.63	-2.94	-2.62	-0.57	23.23	1.05	23.23	1.06	-0.01	-5.22		-2.67

11.0 Monitoring/Testing Requirements:

Refer to section 3.4, Table 9. of the permit for details on emissions monitoring. The following Table 6 refers to recent testing done at the Facility:

Table 6.

Unit No.	Compliance Test	Test Dates
116-TRB-1	Combustion Turbine/Compliance Test	9/19/2020
116-TRB-2	Combustion Turbine/Compliance Test	4/2021
116-TRB-2	Combustion Turbine/Compliance Test	3/2022
116-TRB-1	Combustion Turbine/Compliance Test	1/2022
116-TRB-2	Retest Turbine	6/2023
116-BLR-1A & 2A	Boilers/Compliance Test	1/2024

*The Facility is compliant with testing requirements; refer to the Department's database for the complete set of test reports.

12.0 Recordkeeping Requirements:

Refer to section 4.0, Table 10. of the permit for details on recordkeeping.

13.0 Reporting Requirements:

Refer to section 5.0, Table 11. of the permit for details on reporting. Following is Table 7 which lists recent reports received by the Department:

Unit No.	Compliance Reporting	Report Dates
Facility wide	Annual Compliance Report	6/2020, 6/2021, 6/2022, 6/2023, 6/2024
Facility wide	Semi-Annual Reporting	6/2022, 12/2022, 6/2023, 12/2023, 6/2024

*The Facility is compliant with testing requirements; refer to the Department's database for the complete set of test reports.

14.0 Startup and Shutdown:

The Permittee takes all appropriate measures necessary to mitigate emissions to the atmosphere during startups, shutdowns, and emergencies.

Startup and shutdown conditions are not expected to have a significant effect on emissions, as conditions are not expected to persist for more than a few minutes. Operating conditions during these procedures will not depart greatly from normal operating conditions; that is, no special fuel or operating parameters will be used during startup and shutdown.

When calculating the emissions for applicable Construction permits or Registrations, the Permittee routinely includes safety factors, either or both in the emission rates, operating load levels, and/or the hours per year of operation. The safety factors built into the emissions sufficiently cover the emissions from startup, shutdown and schedule maintenance.

For non-emergency backup sources, the Permittee typically permits for operating at the 100% load level for 8760 hours per year. The Permittee has never actually operated any of their emission sources at 100% load for 8760 hours per year.

For sources inherently limited by batch process operating constraints, such as cool down periods for safely removing ash from a crematorium, the Permittee applies for the maximum amount of batch cycles.

For emergency internal combustion engines (emergency generator engines), are permitted to operate a maximum of 200 hours per year. Three emergency engines are permitted at 300 hours per year and two are permitted at 500 hours per year maximum operation. These operating hour limits are sufficient and have not been exceeded to date.

Furthermore, the emission sources at the Facility are required to utilize pipeline quality natural gas and ultra-low sulfur diesel/distillate (ULSD) fuel or #2 fuel oil.

15.0 Compliance and Enforcement Status:

There are no open enforcement actions with the Permittee according to the Compliance/Enforcement Program of the Department.

An enforcement action against UNM was settled on April 6, 2022. For more information, refer to Enforcement Record id - EN000239.

16.0 Modeling:

The Department waived modeling for this renewal, 0536-RN2 – See Memo June 7, 2022 in the Modeling section of the electronic file under 4.0 EHD Dispersion Modeling Review.

Overview of Facilities
UNM's Ford Center has two natural gas-fired turbines and two dual fuel boilers. The Steam Plant has three boilers. The Animal Research Facility has a crematorium and the CHTM building has a boiler.

Past modeling results - Conclusions of Dispersion Modeling-Conducted for 0536-RN1 in 2017 and 0536 in 2010
Modeling was performed and compliance demonstrated for the 1-hour NO_2 and 1-hour SO_2 standards using AERMOD.

Assumptions used in the modeling review
1. Operating hours: 24/7 for all sources
2. Both turbines and both boilers operate simultaneously.
3. The Ford Center boilers are dual fuel and either fuel can be used 24/7.
4. Use of emergency generators is not frequent enough to contribute to the annual distribution of daily 1-hour maximum concentrations.

Modeling Results:

Table 7: Impact of emissions vs. Ambient Air Quality Standards

Pollutant	Averaging Time	Modeled Impact ($\mu g/m^3$)	Background ($\mu g/m^3$)	Model + Background ($\mu g/m^3$)	Most stringent Standard ($\mu g/m^3$)	Pass/Fail
NO_2	1-hour	See discussion		181.1	188	P
SO_2	1-hour	175.3	13.1	188.4	196.4	P

Discussion

Only the 1-hour NO_2 and SO_2 standards were modeled. Compliance was demonstrated with other NAAQS and NMAAQS in the last Title V model. No sources of criteria pollutants that would require modeling have been added. Emissions of criteria pollutants have not increased from any existing sources.

Two scenarios were modeled for each pollutant: one with the Ford Center boilers running on natural gas, one with them running on low sulfur diesel. NO_X emissions from the Ford Center boilers were higher on diesel than natural gas; SO_2 emissions from the Ford Center boilers were lower with the boilers running on diesel than natural gas. The 1-hour NO_2 design concentration was near the Ford Utilities Center. The 1-hour SO_2 design concentration was near the Animal Research Facility. The design concentration was

higher for diesel than natural gas in the 1-hour NO_2 model whereas the design concentration was the same for the two scenarios in the SO_2 model. The difference in the NO_2 results versus SO_2 results was due to the difference in primary source for the two pollutants. For SO_2, the primary source was the crematory at the Animal Research Facility. For NO_2, the two turbines would be characterized as the primary source. The stacks for the two turbines are less than 10 meters apart. The emission rates and stack characteristics of the turbines are similar. Thus, it makes sense to think of both turbines together as the primary source.

ARM2 was used to demonstrate compliance with the 1-hour NO_2 standard. Before the results with ARM2 were verified, Tier 1 modeling was performed. The Tier 1 NO_2 modeling included all sources, not just the primary source. Building downwash was performed. Background concentrations were left out. The highest, first high impact of the Tier 1 modeling was 261 $\mu g/m^3$ for natural gas and 309 $\mu g/m^3$ for diesel.

EPA's 30 Sept 2014 clarification memo discusses the use of whether it's appropriate to use ARM2 for a particular project. Page 6, Section 3.2.6.1 of that EPA memo says that if modeled concentrations from Tier 1 modeling of the primary source are too high, then ARM2 is not appropriate. A reasonable threshold level for Albuquerque, not having particularly high or low ozone levels, is 175 PPB or 329.3 $\mu g/m^3$. The Tier 1 results for both natural gas and diesel were below the unacceptable limit, so ARM2 is an acceptable technique for this modeling project.

Table 3 only shows the cumulative total for 1-hour NO_2 modeling, i.e. modeled impact plus background. Only the cumulative total was available because of the way this model was run. In particular, it was run with backgrounds that vary by season and hour of day. The variable background is allowed per EPA's 01 Mar 2011 clarification memo on 1-hour NO_2 modeling. The background is added in for each hour of the modeling and is averaged along with the modeled concentrations.

The dispersion modeling report submitted with the Title V application states that the Ford Center boilers only operated 3 days over the last 5 years. This seems unlikely since the boilers provide the steam that the turbines need to operate. Regardless of how many hours in a year the Ford Center boilers actually operate, they were modeled as operating 24/7.

The Ford Center turbines were modeled in waste heat recovery mode which results in higher impacts than when all the heat is vented through the exhaust stack. The relatively low exit temperature and velocity of heat recovery mode mean less dispersion and higher impacts.

Aspects of this modeling that were more protective of public health than required:

- 10 meter receptor spacing in vicinity of sources
- No fenceline around ARF in model versus real fence at ARF
- Use of Tier 2 rather than Tier 3 modeling techniques for the 1-hour NO_2 standard
- An exit velocity of 16.67 feet per second for the crematorium. Stack testing in 2010 showed exit velocities of 22.62 ft/s and 30.58 ft/s.

Based on the analysis of the modeling, this facility meets all applicable New Mexico Ambient Air Quality Standards (NMAAQS) and National Ambient Air Quality Standards (NAAQS).

17.0 Total Pollutant Emission from Entire Facility:

Table 8.

Pollutant	Emissions (tons per year)*
Nitrogen Oxides (NO_x)	139

Carbon Monoxide (CO)	158
Particulate Matter (PM_{10})	17
Particulate Matter ($PM_{2.5}$)	17
Sulfur Dioxide (SO_2)	31
Volatile Organic Compounds (VOC)	54
Hazardous Air Pollutants (HAPs)	10

*The emissions excludes insignificant activities emissions. For informational purposes only.

18.0 Public and EPA Comment Period - Response/Concerns

Public comment period was from 7/15/2024 to 8/14/2024. The public notice was published on the CABQ.gov website and the Albuquerque Journal; e-mails and certified letters were sent to affected programs and interested parties.

The EPA 45-day comment period was from /2024 to /2024. The EPA had no comments on the Proposed permit.

19.0 Data Base Summary

Permit Writer:	**Barbara Georgitsis**
Operating Permit No.:	0536-RN2
AIRS Number:	NM/001/00141
SIC Code:	8221 – Colleges, Universities, and Professional Schools
Facility Type:	State Charted University
Company:	The Regents of the University of New Mexico
Facility:	The University of New Mexico
Type of Permit Action:	Title V Operating Permit renewal
Application Date:	May 11, 2022 (received by Department)
Ruled Incomplete:	N/A
Ruled Complete:	July 11, 2022
Application Sent to EPA:	February 23, 2023
Public Notice:	July 15, 2024
Comments Due:	August 14, 2024
Public Hearing:	N/A
Proposed Permit to EPA:	
Permit Due:	, 2024
Permit Issued:	2024
Facility Location:	Scholes Hall 160, Bldg. 10, 1800 Roma NE
UTM ZONE:	13
UTME:	352,000m
UTMN:	3,883,550m
County:	Bernalillo
Contact Name:	Casey Hall Director of Environmental Health and Safety UNM, Department of Safety and Risk Phone: (315) 885-8683 or (505) 277-2753 Email: cbhall4@unm.edu
Contact Address:	MSC 07 4100 1 University of New Mexico

Title V - Affected Program Notification:Affected Program	Distance	Units	Date Letter Sent
Santo Domingo Pueblo	37	miles	
Zia Pueblo	25	miles	
Santa Ana Pueblo	15	miles	
San Felipe Pueblo	22	miles	
Navajo Nation	35	miles	
Laguna Pueblo	43	miles	
Jemez Pueblo	33	miles	
Isleta Pueblo	13	miles	
Acoma Pueblo	50	miles	
Cochiti Pueblo	36	miles	
Sandia Pueblo	5	miles	
State - New Mexico Environment Department, Air Quality Bureau	50	miles	