

**CITY OF ALBUQUERQUE
ENVIRONMENTAL HEALTH DEPARTMENT
AIR QUALITY PROGRAM**

**CONSTRUCTION PERMIT
MODIFICATION APPLICATION
#1601-M1-RV**

**University of New Mexico
UNM Steam Plant**

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Project 213201.0082

TABLE OF CONTENTS

TABLE OF CONTENTS

LIST OF TABLES	I
1. GENERAL INFORMATION	1-1
1.0 Executive Summary	1-1
2. DESCRIPTION OF FACILITY AND EMISSIONS INFORMATION	2-1
2.1 Description of the Facility	2-1
2.2 Process Flow Sheets	2-2
2.3 Air Pollutant Emissions and Calculation Methodology	2-3
2.4 Emission Calculations	2-4
2.5 Supporting Information	2-5
3. OPERATION PLAN – AIR EMISSIONS DURING SSM	3-1
4. AIR DISPERSION MODELING ANALYSIS	4-1
APPENDIX A. APPLICATION FORMS	A-1
APPENDIX B. PRE-PERMIT APPLICATION MEETING	B-1
APPENDIX C. PUBLIC NOTICE REQUIREMENTS	C-1
APPENDIX D. FACILITY LOCATION AND AERIAL PHOTOGRAPH	D-1
APPENDIX E. ZONING CERTIFICATIONS	E-1

LIST OF TABLES

Table 1. Potential Emissions (Uncontrolled and Controlled Emissions are Equal)

1-2

1. GENERAL INFORMATION

1.0 Executive Summary

This application describes the modification to ATC Permit #1601-M1-RV1 for the University of New Mexico Steam Plant located at Building 176, 2601 Campus Blvd. NE. A pre-application meeting with the City of Albuquerque (CABQ) Environmental Health Department (EHD) Air Quality Program (AQP) was held on June 8th, 2021.

1. General information
 - a. University of New Mexico (UNM)
 - b. Facility Name: University of New Mexico Steam Plant
2. Facility Information
 - a. Purpose of permit and description/plan: Modification to ATC Permit #1601-M1-RV1
 - i. UNM is seeking a modification to their existing permit (#1601-M1-RV1) associated with the steam plant. Updates include the increase in stack heights for the boilers to reduce emission re-entrainment in other air handling units surrounding the plant. This modification will raise stack heights to 60 feet. There will be cooling towers for the steam plant that will be associated with this expansion. The preexisting sources include three (3) natural gas-fired boilers rated at 12.4 MMBtu/hr. UNM proposes to provide air dispersion modeling to demonstrate that ambient concentrations do not exceed the applicable state or federal standards. Where applicable, UNM may request a waiver for certain sources, pollutants, or standards.
 - ii. See Attachment A for a full description of all of the proposed modifications.
 - b. Physical facility address: Building 176, 2601 Campus Blvd. NE, Albuquerque, NM 87106
 - c. Facility maps: Various maps and aerial images of the steam plant are included in Appendix D of this application. These include:
 - i. A layout of buildings and sources of criteria pollutants;
 - ii. Most recent Google Earth® imagery of the site;
 - iii. The City of Albuquerque’s Advanced Map Viewer (see Attachment B) shows land use surrounding the facility that is predominately educational, community, multi-family or low-density residential. The areas to the north and south are predominately educational and community while the area to the east is primarily low-density residential. To the west, there is a combination of educational, commercial retail and multi-family. Google Maps presents a similar land use in the vicinity of the hospital as does the Advanced Map Viewer. There is no fencing precluding public access to any of the buildings – as such, the building outlines will be treated as the fence line.
 - iv. The buildings supplied with steam from the facility, these include UNM’s buildings as well as UNMH’s buildings which are only supplied steam when the UNMH steam facility is down.
 - d. Anticipated operating days and hours: The anticipated operating times are 24 hours per day, 7 days per week, and 52 weeks per year.

The following tables detail potential and controlled emissions associated with the proposed modifications.

Table 1. Potential Emissions (Uncontrolled and Controlled Emissions are Equal)

Unit	Description	Uncontrolled Emissions													
		NO _x		CO		SO ₂		VOC		PM ₁₀		PM _{2.5}		HAPs	
		lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
1	Boiler	0.30	1.32	0.92	4.01	0.0074	0.033	0.067	0.29	0.093	0.41	0.093	0.41	0.023	0.10
2	Boiler	0.30	1.32	0.92	4.01	0.0074	0.033	0.067	0.29	0.093	0.41	0.093	0.41	0.023	0.10
3	Boiler	0.30	1.32	0.92	4.01	0.0074	0.033	0.067	0.29	0.093	0.41	0.093	0.41	0.023	0.10
4	Cooling Tower	-	-	-	-	-	-	-	-	0.24	1.04	0.0014	0.0061	-	-
5	Cooling Tower	-	-	-	-	-	-	-	-	0.24	1.04	0.0014	0.0061	-	-
Total		0.90	3.96	2.75	12.04	0.022	0.098	0.20	0.88	0.75	3.30	0.28	1.28	0.070	0.31

	Permit Comparison											
	NO _x		CO		SO ₂		VOC		PM ₁₀		PM _{2.5}	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
New Source Total	0.90	3.96	2.75	12.04	0.022	0.098	0.20	0.88	0.75	3.30	0.28	1.23
Current Permitted Emissions	0.75	3.30	2.25	9.87	0.021	0.09	0.21	0.87	0.27	1.20	0.27	1.20
Total	21%	20%	22%	22%	5%	9%	-5%	1%	179%	175%	4%	3%

Updated page received July 26, 2023 *KT*

2. DESCRIPTION OF FACILITY AND EMISSIONS INFORMATION

The following section summarizes the emission factors and methodology used to estimate air pollutant emissions from the UNM Steam Plant .

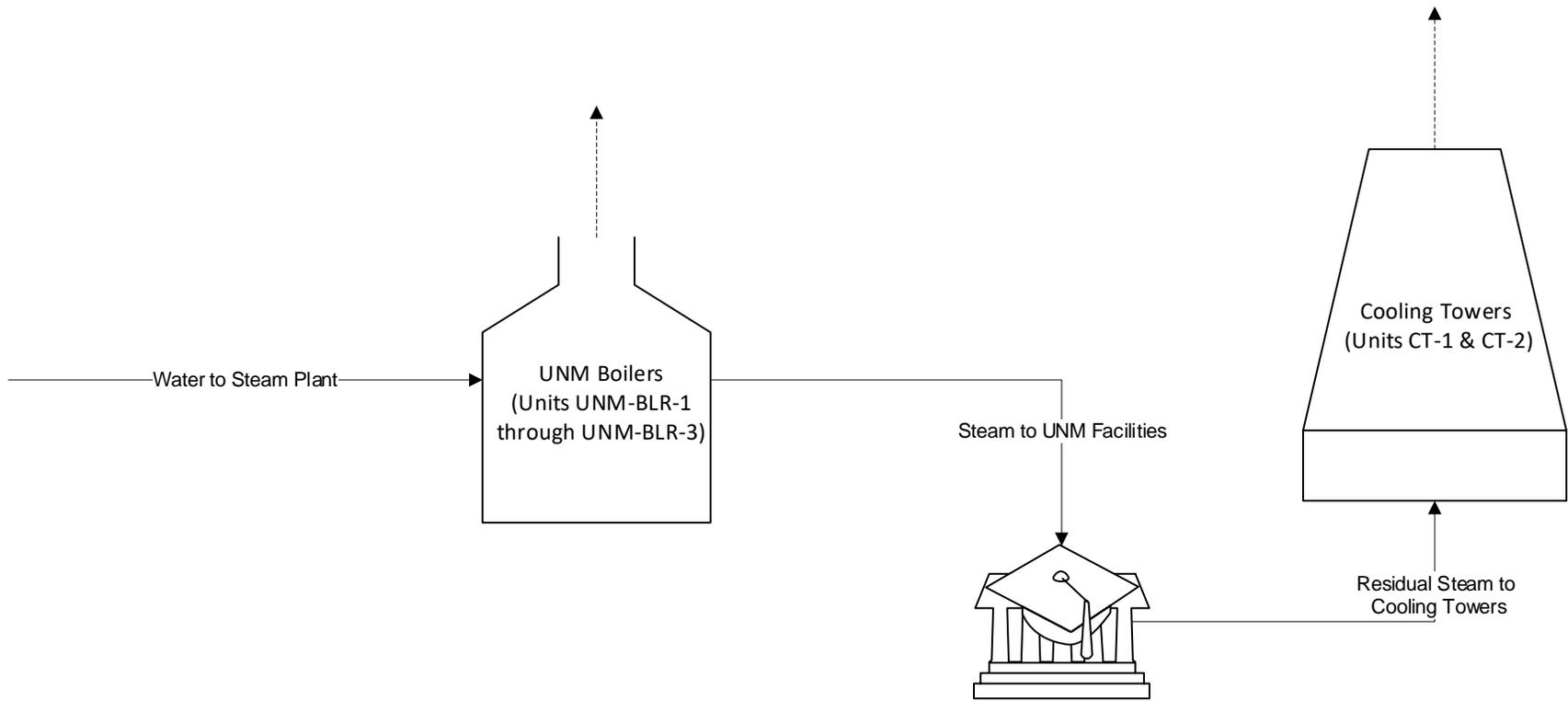
2.1 Description of the Facility

The process description included below includes information for production of steam at the facility with updates to all emissions sources.

2.1.1 UNM Steam Plant Processing Description

- Water is delivered to boilers where it is vaporized into low-pressure steam
- The low-pressure steam is then distributed throughout the various buildings on and around UNM's campus
- Low-pressure steam is then cooled in the cooling towers at the facility and water is recovered for reheating

2.2 Process Flow Sheets



↑
= Emissions

UNM Steam Plant
Bldg. 176, 2601 Campus Blvd. NE,
Albuquerque, NM

2.3 Air Pollutant Emissions and Calculation Methodology

2.3.1 Current Process

2.3.1.1 Boilers (Units 1, 2, 3)

Emissions from the existing boilers are a result of the combustion emissions (associated with the combustion of natural gas). NO_x, SO₂, VOC, CO, and PM emission rates are based the Miura LX-300SG Boiler Specification Sheet. HAPs combustion emissions are based on AP-42 Table 1.4-1 & 1.4-2 for external combustion sources. These calculations have been updated in this permit modification.

2.3.1.2 Cooling Towers (Units 4 & 5)

Emissions from the existing cooling towers are a result of particulate emissions (associated with the evaporation of water). PM emissions are based on cooling tower manufacturer data and operating parameters. These calculations have been added in this permit modification.

2.4 Emission Calculations

University of New Mexico- Steam Plant

Building 176, 2601 Campus Blvd. NE, Albuquerque, NM 87102.

Unit: UNM-BLR-1 through UNM-BLR-3
Make: Miura
Model: LX-300SG
Description: Boilers

Reboiler Fuel Usage			
Fuel Consumption	12.40	MMBtu/hr	Input heat rate
Fuel heat value	1000	Btu/scf	Nominal HHV of fuel gas
Hourly fuel usage	12.4	Mscf/hr	Fuel usage
Annual fuel usage	108.6	MMscf/yr	Annual usage
Operating hours	8760.0	hr/yr	

Emissions	NO_x	CO	VOC	SO₂	PM (2.5,10)	Total HAPs	Units	Notes
	0.0243	0.0739	0.0054	0.0006	0.0075		lb/MMBtu	MFG Data
Total	0.30	0.92	0.067	0.0074	0.093	0.023	lb/hr	MMBtu/hr * lb/MMBtu = lb/hr
	1.32	4.01	0.29	0.033	0.41	0.10	tpy	lb/hr * 8760 hr/yr * 1 ton/2000 lb = ton/yr

GHG Calculations

CO₂¹	N₂O¹	CH₄¹	CO₂e¹		
53.06	0.0001	0.001		kg/MMBtu	40 CFR 98 Subpart C Tables C-1 and C-2
1	298	25		GWP	40 CFR 98 Table A-1
<u>6353.2</u>	<u>0.0120</u>	<u>0.120</u>		tpy	
6353.2	3.57	2.99	6359.8	tpy CO ₂ e	

¹N₂O, CH₄, and CO₂ tpy Emission Rate= EF* Fuel Usage * Fuel Heat Value * 2.20462 lb/1 kg * 1 ton/2000 lb
 CO₂e tpy Emission Rate = CO₂ Emission Rate + N₂O Emission Rate*GWP Factor +CH₄ Emission Rate*GWP Factor

University of New Mexico- Steam Plant

Building 176, 2601 Campus Blvd. NE, Albuquerque, NM 87102.

Unit: CT-1, CT-2
Description: Cooling Towers

Unit No.		CT-1	CT-2	Notes
Circulation Rate, Q_{circ}	gpm	3500	3500	Site Specific Data
Drift Rate, Q_{drift}	%	0.02	0.02	NMED Default Value
Dissolved Solids, TDS	ppm	769	769	Site Specific Data
PM_{10}^1	lb/hr	0.24	0.24	Based on NMED Guidance
	tpy	1.04	1.04	tpy = lb/hr * 8760 hr/yr * 1 ton / 2000 lb
$PM_{2.5}^1$	lb/hr	0.0014	0.0014	Based on NMED Guidance
	tpy	0.0061	0.0061	tpy = lb/hr * 8760 hr/yr * 1 ton / 2000 lb

Notes:

¹ Emissions were calculated using guidance provided in the NMED technical memorandum for "Calculating TSP, PM10, and PM 2.5 from Cooling Towers" dated 9/9/2013.

$$PM_{\text{Total}} = \text{TDS (mg/L)} * 1/453,600 \text{ (lb/mg)} * 3.785 \text{ (L/gal)} * Q_{\text{circ}} \text{ (gpm)} * Q_{\text{drift}} \text{ (\%)} * 60 \text{ (min/hr)}$$

2.5 Supporting Information

AP-42 Tables 1.4-1 and 1.4-2: Emission Factors for Natural Gas Combustion

Miura LX-300SG-16 Boiler Specification Sheet

Cooling Tower Manufacturer Specifications

- Calculating TSP, PM10, and PM 2.5 from Cooling Towers" dated 9/9/2013 from the Cooling tower footnote for supporting info.

Updated cooling tower pages received July 26, 2023 *KT*

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	280	A	84	B
Uncontrolled (Post-NSPS) ^c	190	A	84	B
Controlled - Low NO _x burners	140	A	84	B
Controlled - Flue gas recirculation	100	D	84	B
Small Boilers (≤100) [1-01-006-02, 1-02-006-02, 1-03-006-02, 1-03-006-03]				
Uncontrolled	100	B	84	B
Controlled - Low NO _x burners	50	D	84	B
Controlled - Low NO _x burners/Flue gas recirculation	32	C	84	B
Tangential-Fired Boilers (All Sizes) [1-01-006-04]				
Uncontrolled	170	A	24	C
Controlled - Flue gas recirculation	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 NO₂. 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, 4.2x10⁴ 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.

Technical Support
Rockmart, GA
www.miuraboiler.com

University of New Mexico

Miura’s UL Rating is understood as the **maximum** allowable heat input value. At the time these boilers were built, the stated maximum value was 12.4 MMBTU.

Miura’s Nameplate restates this maximum allowable heat input and is displayed on the nameplate as the Max Heat Input.

It is important to note that this is the maximum allowable. It is not the actual value.

Miura conducts a Shop Test to set the actual gas input on the boiler. The shop test values are measured by recording the pressure drop across an orifice. This correlates to a gas flow value. The gas flow is multiplied by the high heating value (HHV) of the fuel to get a heat input value. Since the HHV varies by location, the flow rate is normally reduced to make sure the maximum UL heat input is not exceeded.

Depending on what value is used for the HHV of natural gas, the heat input can vary. For the maximum condition of 5 psig gas pressure, the flow values are set at shop test. The assumed gas temperature is 70°F. The minimum gas pressure of 3 psig will decrease the gas input.

Boiler Serial Number 48S402892
Gas flow rate = 41.38 sec/100cft
= 11,659 SCFH

HHV	MMBTU
1000	11.659



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Boiler Serial Number 48S402893
Gas flow rate = 41.32 sec/100cft
= 11,676 SCFH

HHV	MMBTU
1000	11.676

Boiler Serial Number 48S492816
Gas flow rate = 41.00 sec/100cft
= 11,767 SCFH

HHV	MMBTU
1000	11.767

Sincerely,
Rick Gaston
Technical Support Department

Boiler Model
LX-300SG-16

Document Number
 EN-SC-018-01

Boiler Output		
Description	-	Standard Pressure
Boiler Type	-	Multiple water tube, once through, forced flow, steam boiler
Boiler Capacity	BHP	300
Operating Pressure Range	PSIG	70-150
Equivalent Output ¹	lb/hr	10350
Maximum Heat Output	MMBTU/hr	10.043
Boiler Heating Surface Area	ft ²	611
Turn-Down	-	4:1
Turn-Down	%	25.0%

Air and Fuel Requirements				
Fuel	-	Natural Gas	Propane	#2 Oil
Fuel Supply Pressure	PSIG	3-5	3-5	N/A
Heat Input	MMBTU/hr	11.544	11.544	N/A
Efficiency ²	%	87.0%	87.0%	N/A
Flue Gas Excess Oxygen	%	5.0%	5.0%	N/A
Flue Gas Temperature ²	°F	190	190	N/A
Fuel Consumption ³	SCFH/GPH	11,320.0	126.2	N/A
Combustion Air Volume	SCFH	142,850	142,850	N/A
Flue Gas Volume - Wet	SCFH	154,170	154,170	N/A
Flue Gas Volume - Dry ⁴	SCFH	132,170	132,170	N/A
Flue Gas Velocity	ft/s	25.1	25.1	N/A

Emissions ^{5,6}				
Fuel	-	Natural Gas	Propane	#2 Oil
NOx	ppm	20.0	25.0	N/A
NOx	lbs/MMBTU	0.0243	0.0303	N/A
CO	ppm	100.0	100.0	N/A
CO	lbs/MMBTU	0.0739	0.0739	N/A
CO2	lbs/MMBTU	117.6	136.6	N/A
VOC	lbs/MMBTU	0.0054	0.0054	N/A
TOC	lbs/MMBTU	0.0108	0.0109	N/A
SO2	lbs/MMBTU	0.0006	0.0005	N/A
PMt	lbs/MMBTU	0.0075	0.0077	N/A
PMf	lbs/MMBTU	0.0019	0.0022	N/A
PMc	lbs/MMBTU	0.0056	0.0055	N/A

Weights & Capacities		
Shipping Weight	lbs	11,500
Operational Weight	lbs	12,700
Operational Water Content ⁷	Gallons	110
Fully Flooded Water Content ⁸	Gallons	260

Inlet & Outlet Connections		
Economizer Drain (If Equipped)	in NPT	2
Main Steam Outlet	NPT Flange	4 (150#)
Safety Valve Outlet ⁹	in NPT	(2) 2-1/2
Drip Pan Elbow Vent	in NPT	(2) 4
Drip Pan Elbow Drain	in NPT	(2) 3/4
Feedwater Inlet	in NPT	1-1/2
Fuel Gas Inlet	in NPT	2-1/2
#2 Oil Inlet	in NPT	N/A
Automatic "Surface" Blowdown	in NPT	Tees into Bottom Blowoff Piping
Bottom Blow-Off	in NPT	1-1/4
LVC Blow-Off	in NPT	Tees into Bottom Blowoff Piping
Chimney Diameter	in OD	20

Electrical Ratings at 460V ¹⁰				
Feedwater Configuration ¹¹	-	Std. Check Valve	MI Check Valve	No Pump
Electrical Rating	A	49.1	49.1	35.1
Min. Circuit Ampacity	A	58.0	58.0	44.0
Max. Circuit Protective Device ¹²	A	70.0	70.0	60.0

Electrical Components & Controls		
Power Supply	-	575, 460, 380, 230 or 208 Volts, 3 Phase, 60 Hz
Blower Motor	HP	25
Water Pump Motor ¹³	HP	10
Oil Pump Motor	HP	N/A
Combustion Control	-	3-Position Step Burner (High - Low - Off)
Combustion System	-	Forced Draft Burner
Ignition System	-	Electric Spark Ignited, Interrupted Gas Pilot
Flame Safeguard	-	Miura BL Microcontroller with Miura ZUV Flame Sensor
Low Water Protection	-	Primary and Secondary Low Water Cutoff Electrodes
Miura Online Maintenance (M.O.M)	-	Analog Phone Line or 3G Cellular, Optional

Notes
1) Equivalent output is calculated based on conversion of 212°F feedwater to 212°F steam
2) Flue gas temperatures and efficiencies are based on 68°F feedwater and 80°F combustion air and calculated using the higher heating value
3) Fuel consumption assumes 1,020 BTU/SCF for natural gas, 91,500 BTU/gal for LPG, and 140,000 BTU/gal for #2 oil
4) Dry flue gas volume is corrected for the operating O ₂ percentage and assumes F-factor of 8,710 SCF/MMBTU for natural gas/LPG and 9,190 SCF/MMBTU for #2 oil
5) NO _x and CO emissions are based on empirical test data corrected to 3% excess oxygen, all others are calculated using EPA factors
6) SO ₂ factor assumes 0.002 grains/SCF for natural gas, 0.005 grains/SCF for LPG, 15ppm for #2 oil
7) The operational water content is the average water content during normal operation for the entire boiler assembly including economizer
8) The fully flooded water content is the total water and steam capacity for the entire boiler assembly including economizer
9) Boiler safety valve outlet size is subject to change based on specific operating pressure
10) To convert to amps at a different voltage, multiply given amps by ratio of 460V/new voltage
11) Multiple installation (MI) check valve is required with higher feedwater pressures (i.e. when using DA tank) and may require a larger pump
12) For time-delay fuse protective device, value will be larger for time-delay circuit breaker
13) Water pump output may vary by feedwater piping options

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SIZE **2X10X15** TYPE **364A BF**

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Air Quality Bureau

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www.env.nm.gov



RYAN FLYNN
Cabinet Secretary-Designate
BUTCH TONGATE
Deputy Secretary

TECHNICAL MEMORANDUM

DATE: September 9, 2013
TO: All Permitting Staff
FROM: Daren Zigich
THROUGH: Ted Schooley, Permit Program Manager
Ned Jerabek, Major Source Section Manager
SUBJECT: Calculating TSP, PM-10 and PM-2.5 from Cooling Towers

The goal of this memo is to offer a Department approved step-by-step approach for calculating particulate emissions from cooling towers. While the Department encourages using this approach, other approaches, that do not use a droplet settling ratio may be approved on a case-by-case basis.

Due to the variability of methods used by permittees to estimate particulate emissions from cooling towers, a consistent, defensible approach is warranted. For example, some permittees have used a droplet settling ratio from Reference 3 to lower the total potential emissions rate of total particulate matter (PM_{total}). This is unacceptable due to the following:

1. Particulate settling is not appropriate since any verification testing would be completed inside the cooling tower fan stack. All particulate mass that can be measured by an EPA reference method and are emitted to the atmosphere shall be counted as particulate emissions. Particle size distribution can then be used to modify the emission rate of each regulated particulate size.
2. The Department is not aware of information that verifies the droplet settling data is representative for arid climates where evaporation rates are high.
3. The droplet size distribution and % mass data from Reference 1 only consider droplets up to 600 microns. Reference 3 states that settling only exists for droplets greater than 450 microns. Reference 1 lists the % mass of droplets greater than 450 microns to be less than 1 percent of the total mass.

4. Reference 2 test data shows that towers with significant drift droplet diameters greater than 600 microns usually suffer from poor installation of the drift eliminator or from poor water distribution due to issues with the tower packing. Large droplets may indicate that the assumed or guaranteed drift eliminator efficiency is not being met. Providing emissions credit for poor installation, operation or maintenance runs counter to general Department practice.
5. References 1 and 2 make no reference to and assign no credit for the settling theory stated in Reference 3.

For the above reasons, the Reference 3 settling ratio is not an acceptable emissions reduction approach.

Acceptable Calculation Method

Cooling tower particulate emissions are a function of the Drift rate and the concentration of dissolved solids present in the water. The Drift rate is normally listed as a percentage of the circulating water flow rate of the cooling tower.

Step 1 – Establish maximum water circulation rate (Q_{circ}) for the cooling tower. This is usually dependent on the capacity of the circulation pumps and the plant cooling system and should be reported as gallons per minute (gpm). The circulation rate is the sum of the circulation rates for each cell in the tower and thus represents the total flow for the tower.

Step 2 – Establish Drift rate (Q_{drift}) of the cooling tower. This information is dependent on the drift eliminator design and is usually supplied by the tower manufacturer. If manufacturer data is unavailable, the standard drift of 0.02 percent, listed in AP-42, should be used.

Step 3 – Establish maximum Total Dissolved Solids concentration (TDS) in the circulating cooling water. This is dependent on the facility's operations. TDS should be reported as parts per million (ppm) or mg/l.

Step 4 – Calculate total potential hourly particulate emissions (PM_{total}) in pounds per hour (lbs/hr).

$$PM_{\text{total}} = \text{TDS}(\text{mg/l}) \times \frac{1(\text{lbs/mg})}{453,600} \times 3.785(\text{l/gal}) \times Q_{\text{circ}}(\text{gpm}) \times \frac{Q_{\text{drift}}(\%Q_{\text{circ}})}{100} \times 60(\text{min/hr})$$

Example: TDS = 3000 ppm or mg/l, $Q_{\text{circ}} = 50,000$ gpm, $Q_{\text{drift}} = 0.004\%$

$$PM_{\text{total}} = 3000 \times (1/453,600) \times 3.785 \times 50,000 \times (0.004/100) \times 60$$

$$PM_{\text{total}} = 3.0 \text{ lbs/hr}$$

Step 5 – Estimate particulate size distribution of the PM_{total} to determine potential emissions of TSP/PM, PM_{10} and $PM_{2.5}$.

The current estimating technique used in References 1 and 2 employs a formula for determining a potential particulate size (i.e. diameter) for a given set of variables. The variables are:

$$\begin{aligned}
 d_d &= \text{Drift droplet diameter, microns} \\
 C_{TDS} &= \text{Concentration of TDS in the circulating water, ppm} \times 10^{-6} \\
 \rho_w &= \text{Density of Drift droplet, g/cm}^3 \\
 \rho_{salt} &= \text{Density of particle, g/cm}^3
 \end{aligned}$$

The equation for determining particle size/diameter (d_p), in microns is:

$$d_p = \frac{d_d}{(\rho_{salt} / \rho_w C_{TDS})^{1/3}}$$

The tables below list particle size related to droplet size for various concentrations (1000 ppm to 12,000 ppm) of TDS in the circulating cooling water. The density of the water droplet (ρ_w) is assumed to be 1.0 g/cm³ (based on density of pure water) and the average density of the TDS salts is assumed to be 2.5 g/cm³. This assumed density is selected based on the average density of common TDS constituents, CaCO₃, CaSO₄, CaCl₂ NaCl, Na₂SO₄, and Na₂CO₃. If actual circulating water constituents are available, that data may be used to estimate the dissolved solids average density.

To determine the droplet size that generates particulate matter of the applicable regulated diameters, TSP/PM (defined as 30 microns or less per NM AQB definition¹), PM_{10} and $PM_{2.5}$, find the column in the table that matches the maximum circulating water TDS concentration and read the values associated with the $PM_{2.5}$, PM_{10} and TSP/PM boxes. Boxed values are not exactly equal to the applicable sizes, but are the values greater than and closest to the applicable sizes, given the listed water droplet values from Reference 1.

The far right column of each table provides mass distribution data from Reference 1. The values indicate what percent of the total particulate mass emission, calculated in Step 4, is associated with the applicable particulate size. Read the value that is on the same line (same color) as the applicable particulate size associated with the specified TDS concentration column.

Note: Although the relationship between droplet size and percent mass is not linear, a linear interpolation of the tabulated data is acceptable between two adjacent rows (particle size) to determine an estimate of percent mass for a specific particle size (i.e. PM_{30} , PM_{10} and $PM_{2.5}$). Particle sizes for droplets with a non-listed TDS ppm concentration may be calculated using the equation in Step 5.

Example: Continuing from Step 4,

$$PM_{\text{total}} = 3.0 \text{ lbs/hr}$$

$$C_{\text{TDS}} = 3000 \text{ ppm}$$

From Table:

PM _{2.5} :	d _d = 30	%Mass = 0.226%
PM ₁₀ :	d _d = 110	%Mass = 70.509%
TSP/PM:	d _d = 270	%Mass = 96.288%

The mass emission of each applicable particulate size is:

$$PM_{2.5} = PM_{\text{total}}(\% \text{Mass}/100) = 3.0(0.00226) = 0.007 \text{ lbs/hr}$$

$$PM_{10} = 3.0(.70509) = 2.115 \text{ lbs/hr}$$

$$TSP/PM = 3.0(.96288) = 2.889 \text{ lbs/hr}$$

¹Definition of TSP for purposes of permitting emission sources, 11/2/09, see <P:\AQB-Permits-Section\NSR-TV-Common\Permitting-Guidance-Documents> – Index & Links document

Size Distribution

1000 ppm (TDS)		2000 ppm		3000 ppm		% Mass
d_d	d_p	d_d	d_p	d_d	d_p	\leq
10	0.7387304	10	0.930527	10	1.0650435	0
20	1.4774608	20	1.8610539	20	2.130087 PM2.5	0.196
30	2.2161912	30	2.7915809 PM2.5	30	3.1951306 PM2.5	0.226
40	2.9549216 PM2.5	40	3.7221079	40	4.2601741	0.514
50	3.693652	50	4.6526349	50	5.3252176	1.816
60	4.4323825	60	5.5831618	60	6.3902611	5.702
70	5.1711129	70	6.5136888	70	7.4553046	21.348
90	6.6485737	90	8.3747427	90	9.5853917	49.812
110	8.1260345	110	10.235797 PM10	110	11.715479 PM10	70.509
130	9.6034953	130	12.096851	130	13.845566	82.023
150	11.080956 PM10	150	13.957905	150	15.975653	88.012
180	13.297147	180	16.749485	180	19.170783	91.032
210	15.513339	210	19.541066	210	22.365914	92.468
240	17.72953	240	22.332647	240	25.561045	94.091
270	19.945721	270	25.124228	270	28.756175	94.689
300	22.161912	300	27.915809	300	31.951306 TSP/PM30	96.288
350	25.855564	350	32.568444 TSP/PM30	350	37.276523	97.011
400	29.549216	400	37.221079	400	42.601741	98.34
450	33.242868 TSP/PM30	450	41.873714	450	47.926958	99.071
500	36.93652	500	46.526349	500	53.252176	99.071
600	44.323825	600	55.831618	600	63.902611	100

Size Distribution

4000 ppm (TDS)		5000 ppm		6000 ppm		% Mass
d _d	d _p	d _d	d _p	d _d	d _p	≤
10	1.1721197	10	1.2625337	10	1.3415607	0
20	2.3442393	20	2.5250675 PM2.5	20	2.6831215 PM2.5	0.196
30	3.516359 PM2.5	30	3.7876012	30	4.0246822	0.226
40	4.6884787	40	5.0501349	40	5.366243	0.514
50	5.8605984	50	6.3126686	50	6.7078037	1.816
60	7.032718	60	7.5752024	60	8.0493645	5.702
70	8.2048377	70	8.8377361	70	9.3909252	21.348
90	10.549077 PM10	90	11.362804 PM10	90	12.074047 PM10	49.812
110	12.893316	110	13.887871	110	14.757168	70.509
130	15.237556	130	16.412938	130	17.44029	82.023
150	17.581795	150	18.938006	150	20.123411	88.012
180	21.098154	180	22.725607	180	24.148093	91.032
210	24.614513	210	26.513208	210	28.172776	92.468
240	28.130872	240	30.300809 TSP/PM30	240	32.197458 TSP/PM30	94.091
270	31.647231 TSP/PM30	270	34.088411	270	36.22214	94.689
300	35.16359	300	37.876012	300	40.246822	96.288
350	41.024188	350	44.18868	350	46.954626	97.011
400	46.884787	400	50.501349	400	53.66243	98.34
450	52.745385	450	56.814018	450	60.370234	99.071
500	58.605984	500	63.126686	500	67.078037	99.071
600	70.32718	600	75.752024	600	80.493645	100

Size Distribution

7000 ppm (TDS)		8000 ppm		9000 ppm		% Mass
d _d	d _p	d _d	d _p	d _d	d _p	≤
10	1.4122241	10	1.4764371	10	1.5354962	0
20	2.8244482 PM2.5	20	2.9528742 PM2.5	20	3.0709923 PM2.5	0.196
30	4.2366724	30	4.4293112	30	4.6064885	0.226
40	5.6488965	40	5.9057483	40	6.1419846	0.514
50	7.0611206	50	7.3821854	50	7.6774808	1.816
60	8.4733447	60	8.8586225	60	9.2129769	5.702
70	9.8855688	70	10.33506 PM10	70	10.748473 PM10	21.348
90	12.710017 PM10	90	13.287934	90	13.819465	49.812
110	15.534465	110	16.240808	110	16.890458	70.509
130	18.358914	130	19.193682	130	19.96145	82.023
150	21.183362	150	22.146556	150	23.032442	88.012
180	25.420034	180	26.575867	180	27.638931	91.032
210	29.656707	210	31.005179 TSP/PM30	210	32.245419 TSP/PM30	92.468
240	33.893379 TSP/PM30	240	35.43449	240	36.851908	94.091
270	38.130051	270	39.863801	270	41.458396	94.689
300	42.366724	300	44.293112	300	46.064885	96.288
350	49.427844	350	51.675298	350	53.742365	97.011
400	56.488965	400	59.057483	400	61.419846	98.34
450	63.550085	450	66.439668	450	69.097327	99.071
500	70.611206	500	73.821854	500	76.774808	99.071
600	84.733447	600	88.586225	600	92.129769	100

Size Distribution

10,000 ppm (TDS)		11,000 ppm		12,000 ppm		% Mass
d _d	d _p	d _d	d _p	d _d	d _p	≤
10	1.5903253	10	1.6416091	10	1.6898701	0
20	3.1806507 PM2.5	20	3.2832181 PM2.5	20	3.3797403 PM2.5	0.196
30	4.770976	30	4.9248272	30	5.0696104	0.226
40	6.3613013	40	6.5664363	40	6.7594806	0.514
50	7.9516267	50	8.2080453	50	8.4493507	1.816
60	9.541952	60	9.8496544	60	10.139221 PM10	5.702
70	11.132277 PM10	70	11.491263 PM10	70	11.829091	21.348
90	14.312928	90	14.774482	90	15.208831	49.812
110	17.493579	110	18.0577	110	18.588572	70.509
130	20.674229	130	21.340918	130	21.968312	82.023
150	23.85488	150	24.624136	150	25.348052	88.012
180	28.625856	180	29.548963	180	30.417663 TSP/PM30	91.032
210	33.396832 TSP/PM30	210	34.47379 TSP/PM30	210	35.487273	92.468
240	38.167808	240	39.398618	240	40.556883	94.091
270	42.938784	270	44.323445	270	45.626494	94.689
300	47.70976	300	49.248272	300	50.696104	96.288
350	55.661387	350	57.456317	350	59.145455	97.011
400	63.613013	400	65.664363	400	67.594806	98.34
450	71.56464	450	73.872408	450	76.044156	99.071
500	79.516267	500	82.080453	500	84.493507	99.071
600	95.41952	600	98.496544	600	101.39221	100

References

1. Calculating Realistic PM10 Emissions from Cooling Towers, Abstract No. 216 Session No. AS-1b, J. Reisman and G. Frisbie, Greyston Environmental Consultants, Inc.
2. Cooling Tower Particulate Matter and Drift Rate Emissions Testing Using the Cooling Technology Institute Test Code – CTI ATC-140, August 2003 EPRI Cooling Tower Technology Conference, K. Hennon, P.E., D. Wheeler, P.E., Power Generation Technology.
3. Effects of Pathogenic and Toxic Materials Transported Via Cooling Device Drift, Vol. 1 Technical Report, EPA-600/7-79-251a, H.D. Freudenthal, J.E. Rubinstein, and A. Uzzo, November 1979.

3. OPERATION PLAN – AIR EMISSIONS DURING SSM

The UNM Steam Plant is owned and operated by the University of New Mexico. As soon as a malfunction occurs, the facility will shut down applicable equipment as soon as possible to ensure no excess emissions or non-permitted emissions are released. The facility will only startup again once it is identified that the malfunction is addressed, and the facility will operate as normal and permitted.

Additional details are provided in this section regarding specific steps UNM will take should any malfunction occur on site as well as details regarding safety procedures and processes to ensure protection of employees, the general public and the environment.

The following definitions from 20.11.41.7 NMAC apply to this SSM plan:

- ▶ **“Malfunction”** means any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment or process equipment, or the failure of a process to operate in a normal or expected manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.
- ▶ **“Shutdown”** means the cessation of operation of any air pollution control equipment, process equipment or process for any purpose, except routine phasing out of batch process units.
- ▶ **“Startup”** means to put a stationary source that has been constructed or modified as authorized by a permit issued pursuant to 20.11.41 NMAC into operation complete with functional air pollution controls, so the process equipment or the process performs for the purpose intended. The operation may be cyclic in response to on-off controls. Repetition of cycles is not startup for purposes of 20.11.41 NMAC.

Note that all the procedures contained herein may be superseded (and thereby fulfilled by) by other NSR and NSPS requirements.

Emissions during startups, shutdowns, and malfunctions will be minimized through the use of industry standards and/or manufacturer recommended operating practices. The following summarizes UNM’s operational plans for minimizing excess emissions.

UNM actively maintains facility equipment according to manufacturer and industry-recommended guidelines and fosters a culture of safety and environmental awareness. Operations personnel are informed of the importance of proper and efficient operation of equipment, and of the potential liabilities associated with improper operation. Moreover, UNM recognizes the economic incentives to maintain and operate equipment efficiently.

Equipment at the facility is operated and maintained in accordance with manufacturers’ recommendations, industry best operating practices, and UNM’s own practices designed to minimize downtime and on routine operations. Procedures exist for maintenance of each major piece of equipment, personnel are trained in proper procedures, and UNM’s own internal review processes ensure that procedures are followed. As a result, non-routine operational events and consequent excess emissions are minimized.

If a startup, shutdown, or malfunction event occurs which violates an applicable requirement or results in emissions greater than the allowable emission rate for the affected emissions unit(s), UNM will report such an event to the City of Albuquerque Environmental Health Department.

4. AIR DISPERSION MODELING ANALYSIS

Modeling Report

Modeling Protocol (as submitted)

Response to CABQ Questions Regarding Protocol

AIR DISPERSION MODELING REPORT
Construction Permit
Modification Application
Authority to Construct 1601-M1-RV1
University of New Mexico
UNM Steam Plant

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Project 213201.0082

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TABLE OF CONTENTS

1. APPLICANT AND CONSULTANT INFORMATION	1
a) Name of Facility and Company	1
b) Permit Numbers	1
c) Contact Information for Modeling Questions	1
2. FACILITY AND OPERATIONS DESCRIPTION	2
a) Narrative Summary of Modification	2
b) Physical Description	2
c) Duration of Time to be Located on Site	2
d) Facility Maps	2
3. MODELING REQUIREMENTS DESCRIPTION	3
a) List of Pollutants Requiring Modeling	3
b) Additional Modeling Required	3
4. MODELING INPUTS	4
a) General Modeling Approach	4
i. Models Used and Justification	4
ii. Operational Flexibility	4
iii. Source Groups	4
iv. Hourly Emission Factors	4
v. Gravitational Settling/Plume Depletion	4
vi. Reduction of NO _x to NO ₂	4
vii. Background Concentrations	4
viii. Demonstration of Compliance in Nearby Facilities	6
b) Meteorological and Ozone Data	6
i. Discussion of Meteorological and Ozone Data	6
ii. Actual Data	6
c) Receptor and Terrain Discussion	6
i. Spacing of Receptor Grids	6
ii. Terrain Discussion	6
iii. Reduction in Receptor Grid Size	7
d) Emission Sources	7
i. Description of Sources at Facility	7
e) Building Downwash	8
i. Dimensions of Buildings	8
ii. Discussion of Included Buildings	10
5. MODELING FILES DESCRIPTION	11
a) List of Files	11
b) Description of Scenarios	11
6. MODELING RESULTS	12
a) Summary of Modeling Results	12
b) Table of Cumulative Concentrations	12
7. SUMMARY AND CONCLUSIONS	13
a) Modeling Statement	13

LIST OF TABLES

Table 1. Pollutant Standards for Which Modeling Waivers Have Been Granted or That are Modeled to Demonstrate Compliance with the NAAQS/NMAAQs	3
Table 2. Background Concentrations	5
Table 3. Temporally Varying 1-hr NO ₂ Background Data (µg/m ³)	5
Table 4. Point Source Stack Parameters	7
Table 5. Modeled Emission Rates for Modified or New Point Sources (lb/hr)	7
Table 6. Building Dimensions and Locations	8
Table 7. Modeling Files and Description	11
Table 8. Model Results; Maximum Concentrations; SIL Comparison	12
Table 9. Cumulative vs. Ambient Air Quality Standards	12

1. APPLICANT AND CONSULTANT INFORMATION

This modeling report is being submitted as part of a permit modification application submitted pursuant to 20.2.11.41.29 NMAC for the UNM Steam Plant, which is owned and operated by the University of New Mexico (UNM). This report and accompanying modeling files are being submitted to the City of Albuquerque (CABQ) 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 CABQ's Air Dispersion Modeling Guidelines (published October 2019).

a) Name of Facility and Company

Facility Name: UNM Steam Plant

Company: University of New Mexico (UNM)

b) Permit Numbers

The facility operates under **ATC #1601-M1-RV1**

c) Contact Information for Modeling Questions

Contact Name: Jaimy Karacaoglu

Phone Number: (505) 266-6611

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

2. FACILITY AND OPERATIONS DESCRIPTION

a) Narrative Summary of Modification

The included modeling report details AERMOD inputs and modeled concentrations associated with the proposed updates. Details of the permit modification are included below.

The proposed modification includes the following updates to the existing permit:

- Update boiler emission calculations to use Miura LX-300SG Boiler Specification data (Units BLR-1 through BLR-3)
- Raise boiler stacks by 10 feet to a total height of 60 feet
- Addition of two cooling towers currently at the facility into the permit (Units CT-1 & CT-2)

b) Physical Description

The UNM Steam Plant is currently located at 2601 Campus Blvd. NE, Albuquerque, NM 87131-0001. The coordinates on the permit are: 352,654 m E, 3,883,855 m N

c) Duration of Time to be Located on Site

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

d) Facility Maps

The following maps are included: a map showing the location of the facility; on-site buildings; emission points; fence line; and property boundary.

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.

3. MODELING REQUIREMENTS DESCRIPTION

a) List of Pollutants Requiring Modeling

This modeling is for a permit modification that will authorize the addition of boilers with updated combustion emissions using Miura LX-300SG manufacturer specifications as well as cooling towers with particulate emissions based on current operational information. As such, averaging periods will be evaluated for CO, NO₂, PM₁₀, PM_{2.5}, and SO₂. This facility will not be a source of Pb; no modeling is required for this pollutant.

Table 1. Pollutant Standards for Which Modeling Waivers Have Been Granted or That are Modeled to Demonstrate Compliance with the NAAQS/NMAAQs

Pollutant	Standard	Waiver Granted	Modeled
CO	8-hr		☑
	1-hr		☑
NO ₂	Annual		☑
	24-hr*		☑
	1-hr		☑
PM ₁₀	Annual		☑
	24-hr		☑
PM _{2.5}	Annual		☑
	24-hr		☑
SO ₂	Annual		☑
	24-hr*		☑
	3-hr*		☑
	1-hr		☑
H ₂ S	1-hr	N/A	
Pb	Quarterly	N/A	

*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 modification application. The UNM Steam Plant 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.

ii. Operational Flexibility

No operational flexibility was modeled or requested as part of this permit modification. The steam plant is expected to operate 8760 hours per year with no downtime to provide the most conservative estimate of emissions for the facility to demonstrate compliance with the NAAQS and NMAAQs.

iii. Source Groups

All units were modeled simultaneously. In the SIL models, ALL source group includes all UNM Steam Plant sources. In the CIA models, the STEAMPLT source group includes all UNM Steam Plant sources while the NAAQS source group includes the addition of the surrounding sources. The NAAQS source group also includes the addition of the 1-hr temporally varying background NO₂ concentration. Additional details are provided in Section vii.

iv. Hourly Emission Factors

No hourly emission factors were used as part of the air dispersion modeling. All lb/hr values were calculated as the maximum and conservative concentration for each of the sources. Units BLR-1 through BLR-3 were modeled with the provided Miura LX-300SG manufacturer specification sheets.

v. Gravitational Settling/Plume Depletion

Wet and dry depletion were 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) was used to model ambient impacts of NO₂. The national default minimum ambient ratio of 0.5 and maximum ambient ratio of 0.9 were used.

vii. Background Concentrations

The below background concentrations have been added to the calculated facility and neighboring source impacts for each pollutant and averaging period. These background concentrations were provided by the AQP via email on 11/18/2022 and have been preserved as provided.

Table 2. Background Concentrations

Pollutant	Standard	Value ($\mu\text{g}/\text{m}^3$)	Location
NO ₂	1-hr	VARIABLES*	Temporally Varying Data
NO ₂	Annual	19	Del Norte
PM ₁₀	24-hr	45	South Valley
PM _{2.5}	24-hr	23	South Valley
PM _{2.5}	Annual	9.1	South Valley

A temporally varying 1-hr NO₂ background concentration was provided by the EHD on 3/2/2021. The data was taken from the Del Norte monitor – which is the only EPA-approved monitor with checked data for a long enough period to calculate background values. This background file was added to AERMOD and used in lieu of the static background value of 84.6 $\mu\text{g}/\text{m}^3$ from the Del Norte Monitor. The table is included below – all values are in units of $\mu\text{g}/\text{m}^3$.

Table 3. Temporally Varying 1-hr NO₂ Background Data ($\mu\text{g}/\text{m}^3$)

Hour	Winter	Spring	Summer	Fall
1	72.1	47.6	29.3	65.6
2	67.8	48.3	27.7	59.7
3	67.7	46	26.4	57.9
4	68.4	48.9	26.6	58.9
5	69.1	51.7	32.7	58
6	69.7	63.9	39.3	57.8
7	72.8	70.7	46.4	63.5
8	77.6	71.8	48.5	64.5
9	80	61.1	34.2	65.9
10	71.4	48	27.3	55
11	62	28.6	24.3	47.3
12	48.1	18.9	19.9	35.4
13	36.9	17.6	17	28.2
14	35.1	15.7	15.9	25.3
15	33.6	14.8	17.4	24.2
16	37.2	15.3	19.4	28
17	48.4	17.1	20.4	38
18	73	19.4	19.3	69.6
19	79.3	38.5	21.7	79.1
20	78.1	53.2	30.9	77.1
21	77.3	48	34.1	73.4
22	76.5	56.3	30.8	70.4
23	75	58.8	34.9	69.7
24	72.4	57.9	33.6	70.9

viii. Demonstration of Compliance in Nearby Facilities

Discrete receptors were included in all surrounding sources and facilities. In the SIL models, no receptors were deleted as this facility is open the public and there are no defined fenced boundaries to the steam plant.

b) Meteorological and Ozone Data

i. Discussion of Meteorological and Ozone Data

The most recent meteorological data from the Albuquerque Airport from 2014 to 2018 provided by the CABQ was used for the air dispersion modeling. The airport is located nearby and this meteorological data is assumed to be adequately representative of conditions at the UNM Steam Plant.

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

ii. Actual Data

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

c) Receptor and Terrain Discussion

i. Spacing of Receptor Grids

- ▶ Fence line spacing: 25 meters
- ▶ Fine grid spacing: 25 meters (to approximately 1000 meters from the facility center)
- ▶ Coarse grid spacing: 500 meters out to 5000 meters from the facility, and finally 1000 meters out to the edge of the modeling domain.

Additionally, flag-pole receptors were included for the parking garage surrounding the steam plant facility as well as the nearby parking garages for the UNM Hospital, these receptors were included by recommendation of the EHD as the open garages have the potential to expose pedestrians residing within the structures to exceedances. The following information was used for the flag-pole receptors:

- ▶ Flag-pole receptor spacing: 25m
- ▶ Flag-pole receptor height:
 - Level 1: 2.74 m
 - Level 2: 6.10 m
 - Level 3: 9.14 m

ii. Terrain Discussion

Based on the most recent guidance from the EHD, USGS National Elevation Dataset (NED) files were used in lieu of Digital Elevation Model (DEM) data. 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:

There is no complex terrain requiring modifications to air dispersion modeling inputs.

iii. Reduction in Receptor Grid Size

The full receptor grid was utilized for all SIL models. Each modeled pollutant’s high first high were recorded and compared to the SIL. The receptors not exceeding significance thresholds per Table 6-A of the NMED Air Dispersion Modeling Guidelines were removed for all CIA modeling.

d) Emission Sources

i. Description of Sources at Facility

1. Choice of Source Type

Table 4. Point Source Stack Parameters

Unit	Description	Height* (ft)	Diameter (ft)	Flow (ft ³ /min)	Velocity (ft/s)	Temperature (°F)	Stack Orientation
BLR-1	Boiler-Nat Gas	60.00	2.17	2,203	9.95	190	Vertical
BLR-2	Boiler-Nat Gas	60.00	2.17	2,203	9.95	190	Vertical
BLR-3	Boiler-Nat Gas	60.00	2.17	2,203	9.95	190	Vertical
CT-1	Cooling Tower	35.83	10.00	198,000	42.0	Ambient	Vertical
CT-2	Cooling Tower	35.83	10.00	198,000	42.0	Ambient	Vertical

* The boilers stack heights for the boilers (Units UNM-BLR-1 through UNM-BLR-3) will be increased from 40 ft to 60 ft.

2. Table of Proposed Changes

Table 5. Modeled Emission Rates for Modified or New Point Sources (lb/hr)

Unit	Description	NO ₂	CO	SO ₂	PM ₁₀	PM _{2.5}
UNM-BLR-1	Boiler-Nat Gas	0.30	0.92	0.0074	0.093	0.093
UNM-BLR-2	Boiler-Nat Gas	0.30	0.92	0.0074	0.093	0.093
UNM-BLR-3	Boiler-Nat Gas	0.30	0.92	0.0074	0.093	0.093
CT-1	Cooling Tower	-	-	-	0.24	0.0014
CT-2	Cooling Tower	-	-	-	0.24	0.0014

3. Treatment of Operating Hours

All hours of operation were modeled as part of this permit modification. Maximum hourly emission rates were used to model all standards. All surrounding sources provided by the EHD were modeled on a 24/7/8760 basis despite some of these units having potentially limited hours of operation. 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 and those represented in the application are identical.

6. *Flare Calculations*

There are no flares at this facility.

7. *Cross-Reference of Model Input Numbers/Names*

All unit names of the facility in the model are identical to unit names reported in this application. For the unit names of the surrounding sources, minor name modifications were made to differentiate the units with identical/similar names (e.g., unit "1" was changed to "UNMARF1" in the CIA models).

e) Building Downwash

i. Dimensions of Buildings

Table 6. Building Dimensions and Locations

ID	X	Y	Elevation	Height
	(m)	(m)	(m)	(m)
NEW_1_1	352214.2	3884276	1564.53	22.2504
NEW_1_2	352334.1	3884209	1565.42	14.021
NEW_1_3	352328.4	3884191	1564.14	17.069
NEW_1_4	352339	3884203	1565.17	24.079
NEW_2_1	352183.5	3884184.2	1560.61	21.031
NEW_2_2	352210.8	3884166	1560.73	27.737
NEW_2_3	352198.8	3884146.6	1560.09	37.49001
NEW_2_4	352227.6	3884124.5	1560.2	40.538
NEW_2_5	352244	3884111	1560.33	45.41499
NEW_2_6	352247.9	3884105	1560.36	48.158
BLD_1_1	352259.4	3884318	1568.37	11.278
BLD_1_2	352282.6	3884290	1568.21	12.802
BLD_2_1	352316.9	3884259.3	1568.11	7.010001
BLD_2_2	352341.4	3884279.8	1569.02	16.764
BLD_3_1	352413.7	3884286.4	1570.55	17.678
BLD_4_1	352382	3884198	1565.7	22.25
BLD_253	352443.1	3884216	1568.57	18.288
BLD_211B	352478.6	3884226	1569.91	18.288
BLD_211C	352444.1	3884152	1565.61	12.192
BLD_5_1	352325.6	3884023	1564.56	35.052
BLD_5_2	352403.7	3884038.1	1562.93	39.624

BLD_5_4	352354.9	3883993.9	1566.04	8.534
BLD_6_1	352499.1	3884088.8	1565.59	12.192
BLD_6_2	352502.6	3884003.1	1563.31	22.86
BLD_6_3	352527.1	3884059	1566.29	24.384
BLD_6_4	352597	3884022	1568.37	32.61399
B265	352537.6	3884144	1568.75	10.668
B201	352568.1	3884176	1570.61	4.572
MENTALB	352640.2	3884160.2	1574.26	6.096
INDIANA	352696.1	3884111.7	1575.01	13.411
B205	352753.7	3884225.6	1576.85	7.314999
B226	352694.5	3884214.4	1575.89	12.192
B211A	352634.9	3884264	1574.8	6.401001
B228	352558.9	3884231	1571.8	15.24
B266_1_1	352530.1	3884256	1573.21	10.363
B266_1_2	352530.4	3884256	1573.19	14.63
B234	352468.7	3884294.2	1572.72	19.202
B212B	352646	3884318.5	1575.68	7.314999
B213B	352707.9	3884254.5	1576.38	3.657999
B213A	352754.1	3884257.9	1576.96	3.657999
MINDB	352434.4	3884345	1572.9	16.764
MINDA	352517.1	3884412	1574.1	8.23
MINDC	352485.9	3884424	1573.78	13.106
MINDD	352462.3	3884449	1573.6	18.288
BLD_7	352108.3	3884150.1	1559.64	8.534
BLD_8	352018.6	3884229.8	1558.03	10.363
BLD_9	351974.2	3884318.3	1559.34	7.314999
BLD_10	352189.7	3883992.9	1564.86	17.678
BLD_11	352291.6	3883961	1567.68	14.326
B153A	352698.5	3883912	1570.6	8.23
B153B	352733.4	3883900	1571.23	7.62
BLD_253B	352429.6	3884158	1565.21	12.192
BLD_5_5R	352393.8	3884077	1560.97	29.566
BLD_5_6R	352431.1	3884069.3	1562.12	13.411
BLD_5_7R	352437.5	3884025	1563.4	13.411
UNM1_1	352437.66	3883855.9	1574.19	10
UNM1_2	352598.8	3883787	1570.67	10
UNM1_3	352617.4	3883772	1571.04	10
UNM1_4	352650.4	3883747	1571.17	10

UNM1_5	352546.1	3883719	1574.27	10
UNM1_6	352618.27	3883759	1571.54	10
UNM1_7	352597.66	3883743.9	1573.12	10
UNM1_8	352584.45	3883738.8	1573.73	10
UNM1_9	352568.79	3883763.9	1572.64	10
UNM1_10	352684.1	3883692	1572.18	10
UNM1_11	352710.2	3883735	1570.42	10
UNM1_12	352738.7	3883669	1572.43	10
UNM1_13	352753	3883648	1573.46	10
UNM1_14	352743.5	3883631.2	1574.2	10
UNM1_15	352704.57	3883630.7	1574.01	10
UNM1_16	352666.52	3883683.8	1572.68	10
UNM1_17	352339.9	3883842.8	1572.91	10
UNM1_18	352331.2	3883821	1573.57	10
UNM1_19	352291.7	3883842	1572.63	10
UNM1_20	352237.8	3883830	1572.38	10
STEAM	352647.7	3883867	1568.78	10.3632

ii. Discussion of Included Buildings

All buildings were included in the air dispersion modeling as shown in Section 2(d). All UNM buildings were included as well as the required buildings from surrounding areas that were requested to be included by the EHD.

5. MODELING FILES DESCRIPTION

a) List of Files

Table 7. Modeling Files and Description

Name	Description
UNM_CO_SIL_2023_0721	CO Significance Analysis
UNM_NO2_SIL_2023_0721	NO ₂ Significance Analysis
UNM_NO2_CIA_1HR_2023_0721	NO ₂ Cumulative Impact Analysis for 1-hr Standard
UNM_NO2_CIA_ANNUAL_2023_0721	NO ₂ Cumulative Impact Analysis for Annual Standard
UNM_PM2.5_SIL_2023_0721	PM _{2.5} Significance Analysis
UNM_PM25_CIA_24HR_2023_0721	PM _{2.5} Cumulative Impact Analysis for 24-hr Standard
UNM_PM25_CIA_ANNUAL_2023_0721	PM _{2.5} Cumulative Impact Analysis for Annual Standard
UNM_PM10_SIL_2023_0721	PM ₁₀ Significance Analysis
UNM_PM10_CIA_24HR_2023_0721	PM ₁₀ Cumulative Impact Analysis for 24-hr Standard
UNM_SO2_SIL_2023_0721	SO ₂ Significance Analysis

b) Description of Scenarios

All files labeled "SIL" represent the Significance Impact Level (SIL) analysis or Significance Analysis. Modeled concentrations were above the SIL for NO₂, PM_{2.5} and PM₁₀ while modeled concentrations were below the SIL for CO and SO₂. As such, cumulative modeling was completed. Files labeled "CIA" represent the Cumulative Impact Analysis.

Both background concentrations (Del Norte background) and (10) surrounding sources were added into the cumulative modeling for NO₂ as required by the AQP.

PM_{2.5} and PM₁₀ CIA models include the addition of the emission sources from UNMH 0953-M5 and South Valley particulate background values as required by the AQP.

6. MODELING RESULTS

a) Summary of Modeling Results

Table 8. Model Results; Maximum Concentrations; SIL Comparison

Pollutant	Averaging Period	Significance Level	Modeled	Percent of Significance	Location of Maximum Concentration		Elevation (m)
		µg/m ³	µg/m ³		X	Y	
CO	8-hr	500	101.71	20.3%	352625.10	3883877.10	1568.55
CO	1-hr	2000	152.37	7.6%	352650.20	3883902.30	1569.26
NO ₂	Annual	1	3.99	Significant	352625.10	3883877.10	1568.55
NO ₂	24-hr	5	16.84	Significant	352675.20	3883877.20	1569.38
NO ₂	1-hr	7.52	44.72	Significant	352650.20	3883902.30	1569.26
PM _{2.5}	Annual	0.2	1.38	Significant	352625.10	3883877.10	1568.55
PM _{2.5}	24-hr	1.2	5.88	Significant	352675.20	3883877.20	1569.38
PM ₁₀	Annual	1	2.61	Significant	352675.20	3883877.20	1569.38
PM ₁₀	24-hr	5	37.89	Significant	352669.90	3883868.60	1569.08
SO ₂	Annual	1	0.11	10.9%	352625.10	3883877.10	1568.55
SO ₂	24-hr	5	0.46	9.2%	352675.20	3883877.20	1569.38
SO ₂	3-hr	25	1.06	4.2%	352625.10	3883877.10	1568.55
SO ₂	1-hr	7.8	1.23	15.7%	352650.20	3883902.30	1569.26

b) Table of Cumulative Concentrations

Table 9. Cumulative vs. Ambient Air Quality Standards

Pollutant	Averaging Period	Standard, µg/m ³		Modeled, µg/m ³		Background	Calculated	Percent of the Standard	
		NAAQS	NMAAQS	Facility	Facility & Neighbors*	µg/m ³	µg/m ³	NAAQS	NMAAQS
NO ₂	Annual	99.66	94.0	3.99	7.65	19	26.65	27%	28%
	1-hr	188.03	-	40.79	178.56	Varies*	178.56	95%	-
PM _{2.5}	Annual	12	-	1.38	1.47	9.10	10.57	88%	-
	24-hr	35	-	3.77	3.79	23.00	26.79	77%	-
PM ₁₀	24-hr	150	-	29.45	29.90	45.00	74.90	50%	-

* Facility & Neighbors Concentrations includes the temporally varying background data for 1-HR NO₂. All other standards only include facility and surrounding sources and background is added in separately.

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 modification.

Modeling Protocol v2021-0920 University of New Mexico (UNM)

Executive Summary: The attached protocol describes the modeling that is proposed to satisfy the requirements of a modification to ATC Permit #1601-M1-RV for the University of New Mexico Steam Plant located at Building 176, 2601 Campus Blvd. NE. A pre-application meeting with the City of Albuquerque (CABQ) Environmental Health Department (EHD) Air Quality Program (AQP) was held on June 8th, 2021. This protocol is being submitted to outline the air dispersion modeling setup and inputs as well as provide the necessary details for the department to approve the proposed modeling.

1. General information
 - a. University of New Mexico (UNM)
 - b. Facility Name: University of New Mexico Steam Plant
2. Facility Information
 - a. Purpose of permit and description/plan: Modification to ATC Permit #1601-M1-RV
 - i. UNM is seeking a modification to their existing permit (#1601-M1-RV) associated with the steam plant. Updates include the increase in stack heights for the boilers to reduce emission re-entrainment in other air handling units surrounding the plant. This modification will raise stack heights to 60 feet. There will be cooling towers for the steam plant that will be associated with this expansion. The preexisting sources include three (3) natural gas-fired boilers rated at 12.4 MMBtu/hr. UNM proposes to provide air dispersion modeling to demonstrate that ambient concentrations do not exceed the applicable state or federal standards. Where applicable, UNM may request a waiver for certain sources, pollutants, or standards.
 - ii. See Attachment A for a full description of all of the proposed modifications.
 - b. Physical facility address: Building 176, 2601 Campus Blvd. NE, Albuquerque, NM 87106
 - c. Facility maps: Various maps and aerial images of the steam plant are included in Appendix B of this application. These include:
 - i. A layout of buildings and sources of criteria pollutants;
 - ii. Most recent Google Earth® imagery of the site;
 - iii. The City of Albuquerque's Advanced Map Viewer (see Attachment B) shows land use surrounding the facility that is predominately educational, community, multi-family or low-density residential. The areas to the north and south are predominately educational and community while the area to the east is primarily low-density residential. To the west, there is a combination of educational, commercial retail and multi-family. Google Maps presents a similar land use in the vicinity of the hospital as does the Advanced Map Viewer. There is no fencing precluding public access to any of the buildings – as such, the building outlines will be treated as the fence line.
 - iv. The buildings supplied with steam from the facility, these include UNM's buildings as well as UNMH's buildings which are only supplied steam when the UNMH steam facility is down.
 - d. Anticipated operating days and hours: The anticipated operating times are 24 hours per day, 7 days per week, and 52 weeks per year.
 - e. Hours to be modeled: All hours will be modeled.

3. Standards to be modeled:

- a. Particulate Matter (PM₁₀)
 - i. 24-hr
 - 1. PM₁₀ emissions will be increasing based on the proposed modifications. UNM proposes to model this pollutant and averaging period.
- b. Particulate Matter (PM_{2.5})
 - i. 24-hr & Annual
 - 1. PM_{2.5} emissions will be increasing based on the proposed modifications. UNM proposes to model this pollutant and both averaging periods.
- c. Carbon Monoxide (CO)
 - i. 1-hr & 8-hr
 - 1. CO emissions are increasing based on new manufacturing data. UNM proposes to model this pollutant and both averaging periods.
- d. Nitrogen Dioxide (NO₂)
 - i. 1-hr
 - 1. NO₂ emissions are increasing based on new manufacturing data. UNM proposes to model this pollutant and averaging period. The 1-hr standard will be a surrogate that demonstrates compliance for the 24-hr standard.
 - ii. Annual
 - 1. NO₂ emissions are increasing based on new manufacturing data. UNM proposes to model this pollutant and averaging period.
- e. Sulfur Dioxide (SO₂)
 - i. 1-hr
 - 1. SO₂ emissions are increasing based on new manufacturing data. UNM proposes to model this pollutant and averaging period. The 1-hr standard will be a surrogate that demonstrates compliance for the 3-hr, 24-hr and annual standards.
- f. Lead (Pb)
 - i. The facility is not a source of lead emissions. No lead modeling is proposed with this modification.
- g. Hydrogen Sulfide (H₂S)
 - i. The facility is not a source of hydrogen sulfide emissions. No H₂S modeling is proposed with this modification.
- h. Toxic Air Pollutants (TAP)
 - i. Toxic air pollutants are not regulated under the Albuquerque-Bernalillo County Air Quality Control Board. Therefore, no toxics will be modeled.

4. **Anticipated** criteria pollutant increases from the proposed permit revision (subject to change):

Pollutant	NO _x		CO		SO ₂		VOC		PM ₁₀		PM _{2.5}	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
New Source Total	0.90	3.96	2.75	12.04	0.20	0.88	0.022	0.10	0.75	3.30	0.28	1.23
Current Permitted Emissions	0.75	3.30	2.25	9.87	0.040	0.21	0.21	0.87	0.27	1.20	0.27	1.20
Project % Increase	21%	20%	22%	22%	402%	319%	-89%	-89%	179%	175%	4%	3%

5. Modeling Details

- a. Model utilized: AERMOD will be utilized to perform all dispersion modeling described herein.
- b. Version of model to be used: The latest version of AERMOD (v19191) will be used.
- c. Any parameters/emissions used in previous modeling demonstrations will be updated based on recent modifications and actual emission rates as permitted.
- d. Modeling with appropriate source types:
 - i. External combustion sources will be modeled as point sources with stack parameters (height, velocity, temperature, and diameter) obtained from manufacturer specifications, field observation or measurement of a representative source. These stacks will be raised by 10 feet to a total height of 60 feet. Previous permits represented these stacks as 40 feet and 50 feet, this is to be disregarded. There is a discrepancy for the exit velocity from the manufacturer specifications, the true exit velocity is calculated using the exhaust volume and the site-specific stack diameter. There are no point sources with rain caps or horizontal stacks at this facility. Stack parameters are included in Attachment E.
 - ii. Cooling towers will also be modeled as point sources with stack parameters (height, velocity, temperature and diameter) obtained from manufacturer specifications, field observation or measurement of a representative source.
- e. There are no fugitive or volume sources to be modeled at this facility.
- f. Horizontal stacks and rain caps: There are no horizontal stacks or point sources with rain caps.
- g. All models will be run initially in regulatory default mode. Conservative Tier II methods (ARM2) will be used for the NO₂ modeling. Should Tier III methods be required, UNM proposes to use Ozone data taken from the Del Norte Monitor and In-Stack Ratios as defined below:

Sources	In-stack ratio value accepted by the AQP
Diesel-fired RICE engines	0.15
Natural-gas fired boilers	0.2
Other sources at facility seeking permit	0.5
Other sources 1-3 km from fence of facility seeking permit	0.2
Other sources < 1 km from fence of facility seeking permit	0.3

- h. There is no vehicle traffic or haul roads at this facility, and as such, no haul road modeling is proposed.
 - i. There are no portable sources at this facility, and as such, there are none proposed to be included in the modeling.
 - j. Rural or urban dispersion coefficients: Per Attachment A of the EHD's "Air Dispersion Modeling Guidelines for Air Quality Permitting", a land use analysis was completed for this facility. Based on the city's Advanced Map Viewer, it appears that 50% or more of the circumscribed area enclosed in a 3 km radius about the source falls into one of the following categories: (I1) Heavy Industrial; (I2) Light-moderate Industrial; (C1) Commercial; (R2) Single-Family Compact Residential; or (R3) Multi-Family Compact Residential. However, as a conservative measure, UNM proposes to use rural dispersion coefficients. As such, no further justification is required. Should UNM decide to use urban dispersion coefficients, a complete parcel-by-parcel analysis can be completed per the EHD's request.
 - k. UNM is not seeking operational flexibility at this facility. 8760 hours of operation are proposed for all boilers at the facility and the most conservative combustion emissions will be permitted and modeled.
 - l. Building downwash: All facility buildings with potential downwash are included in the model. If smoothly declining impacts are not observed from the fence line, additional buildings may be investigated for building downwash. Building details are included in Attachment E.
6. Meteorological data:
- a. Source of met data: UNM proposes to use the 5-year SFC and PFL met data provided by the city.
 - b. Location and year(s): The data is derived from the Albuquerque International Sunport for the period of 2014 through 2018.
 - c. Appropriate for this facility: This met data is believed to be adequately representative for the steam plant.
7. Nearby permits:
- a. Other permits at the same facility: Although there are other permits associated with the University of New Mexico, none of those permits apply to the same physical address; rather, they are associated with separate operations.
 - b. Hours of operation for nearby facilities will be initially included in the model as 24/7/365. These hours may be reduced upon further investigation of facility operations, permit conditions, operational scenarios or additional information provided by the department.
 - c. Based on the discussions with the EHD at the pre-application meeting, the department will provide any sources worthy of inclusion in the models to UNM.
 - d. Receptors inside nearby source facility property: Receptors will be placed inside nearby facilities. In addition to nearby sources that are worthy of inclusion, UNM will include the most recent background concentrations as applicable. Additionally, as requested by the department during the pre-application meeting, UNM will include flagpole receptors at any outdoor locations where the public may have access to. This includes open walkways, rooftops and parking garages.
 - e. Receptors will be included outside of the facility inside the property of nearby facilities.
8. Hourly emission factors: No hourly emission factors will be applied.

9. Background concentrations: Background concentrations were provided by the EHD in December of 2019 (see Attachment F) and will be used as applicable. Proposed backgrounds are highlighted.
10. Receptors and elevation data:
 - a. Spacing will follow EHD and NMED modeling guidelines.
 - i. Fence line/building spacing: 25 meters;
 - ii. Very fine grid spacing: 25 meters within UNM property;
 - iii. Fine grid spacing: 100 meters from UNM property boundary out to 1500 meters;
 - iv. Coarse grid spacing: 250 meters out to 2500 meters from the UNM property boundary, then 500 meters out to 5000 meters from the UNM property boundary, and finally 1000 meters out to the edge of the modeling domain.
 - v. Note: UNM proposes to include flagpole receptors on any elevated areas that the public may have access to. These include elevated pedestrian walkways, and each level of nearby parking garages. All flagpole receptors will be spaced 25 meters apart per discussion during pre-application meeting.
 - b. Elevation data: UNM proposes to use The USGS NED files in GeoTIFF format as accessed via the National Map's website. NED data will be used in AERMAP to determine all applicable source, building, and receptor elevations.
11. Impact/Results:
 - a.
 - i. Hourly high value: UNM proposes to use the prescribed design value of each modeled standard. For the 1-hr average NO₂ modeling, the five-year average of the 98th percentile (high 8th high) of the annual distribution of the daily maximum 1-hour concentrations plus the background concentration and surrounding sources will be compared to the standard. For the 1-hr average SO₂ modeling, the five-year average of the 99th percentile (high 4th high) of the annual distribution of the daily maximum 1-hour concentrations plus the background concentration and surrounding sources will be compared to the standard. For the 24-hr average PM_{2.5} modeling, the five-year average of the 24-hr 98th percentile (high 8th high) of the annual distribution of the daily maximum 24-hr concentrations will be used plus the background concentration and surrounding sources. For the 24-hr average PM₁₀ modeling, the five-year average 24-hr high second high value will be used plus the background concentration and surrounding sources. For 1-hr and 8-hr CO modeling, the five-year average of the high 1st high plus background and surrounding sources will be compared to the standard. The high 1st high value will always be compared to the SIL for the significance analysis.
 - ii. Maximum or average annual impact: The average of the three highest annual impacts from the five year met data set will be compared against the standard.
 - b. Secondary particulate formation: Secondary particulate formation is proposed to not be considered in this modeling based on the limited NO₂ and SO₂ tpy emissions. UNM's emissions will remain well below the thresholds for analyzing secondary particulate formation set forth in EPA's MERP guidance document (EPA-454/R-19-003).
12. NO₂ standards: UNM proposes to use the more conservative Tier II methods, including ARM2, for estimating impacts. Should Tier III be required, details of proposed ozone and ISR data are included in Section 5.g of this protocol.

- 13. Haul Roads: There are no haul roads proposed to be included in the modeling since there is no vehicle traffic or hauling associated with facility operations.
- 14. Setback conditions are not anticipated to be required for this facility.
- 15. Summary of Proposed Modeling
 - a. Note that some standards are surrogates that demonstrate compliance for other averaging periods (e.g. SO₂ 1-hr NAAQS is a surrogate that demonstrates compliance for SO₂ 3-hr, 24-hr and annual)

Pollutant	Standard	Waiver Granted	Request Waiver	Not Emitted	Model
CO	8-hr				<input checked="" type="checkbox"/>
	1-hr				<input checked="" type="checkbox"/>
H ₂ S	N/A			<input checked="" type="checkbox"/>	
Pb	N/A			<input checked="" type="checkbox"/>	
NO ₂	Annual				<input checked="" type="checkbox"/>
	24-hr				<input checked="" type="checkbox"/>
	1-hr				<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"/>	

ATTACHMENT A

Summary of Proposed Revisions

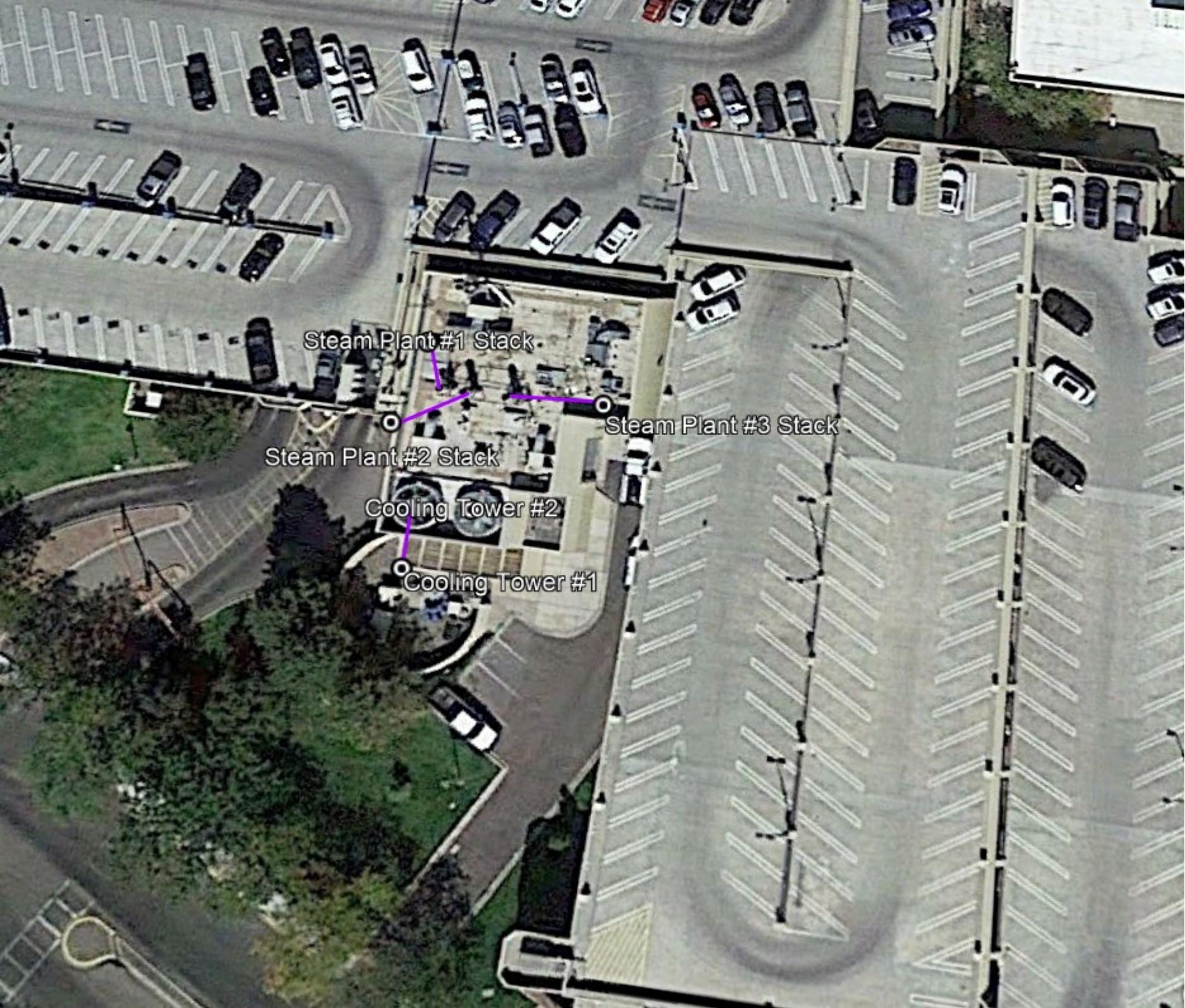
Revisions which have potential modeling implications:

- Increased stack height for boiler exhaust stacks UNM-BLR-1 through UNM-BLR-3.
 - Stack heights will be raised to 60 feet.
 - Stack exit velocity is calculated using the rated exhaust volume provided by manufacturer specifications with the diameter of the boiler stacks.
- Addition of cooling towers CT-1 and CT-2.



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ATTACHMENT B
Maps and Facility Images



Steam Plant #1 Stack

Steam Plant #3 Stack

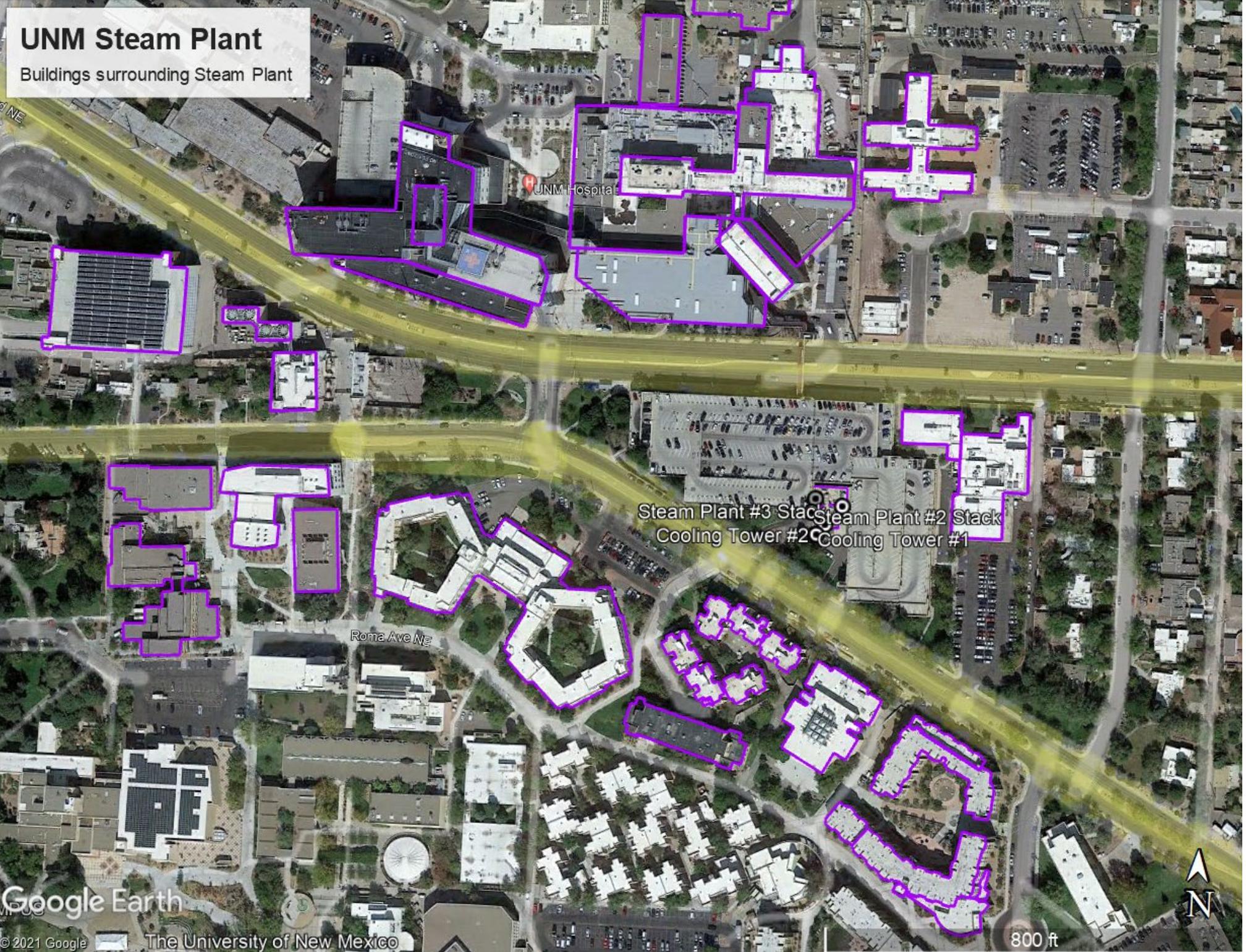
Steam Plant #2 Stack

Cooling Tower #2

Cooling Tower #1

UNM Steam Plant

Buildings surrounding Steam Plant

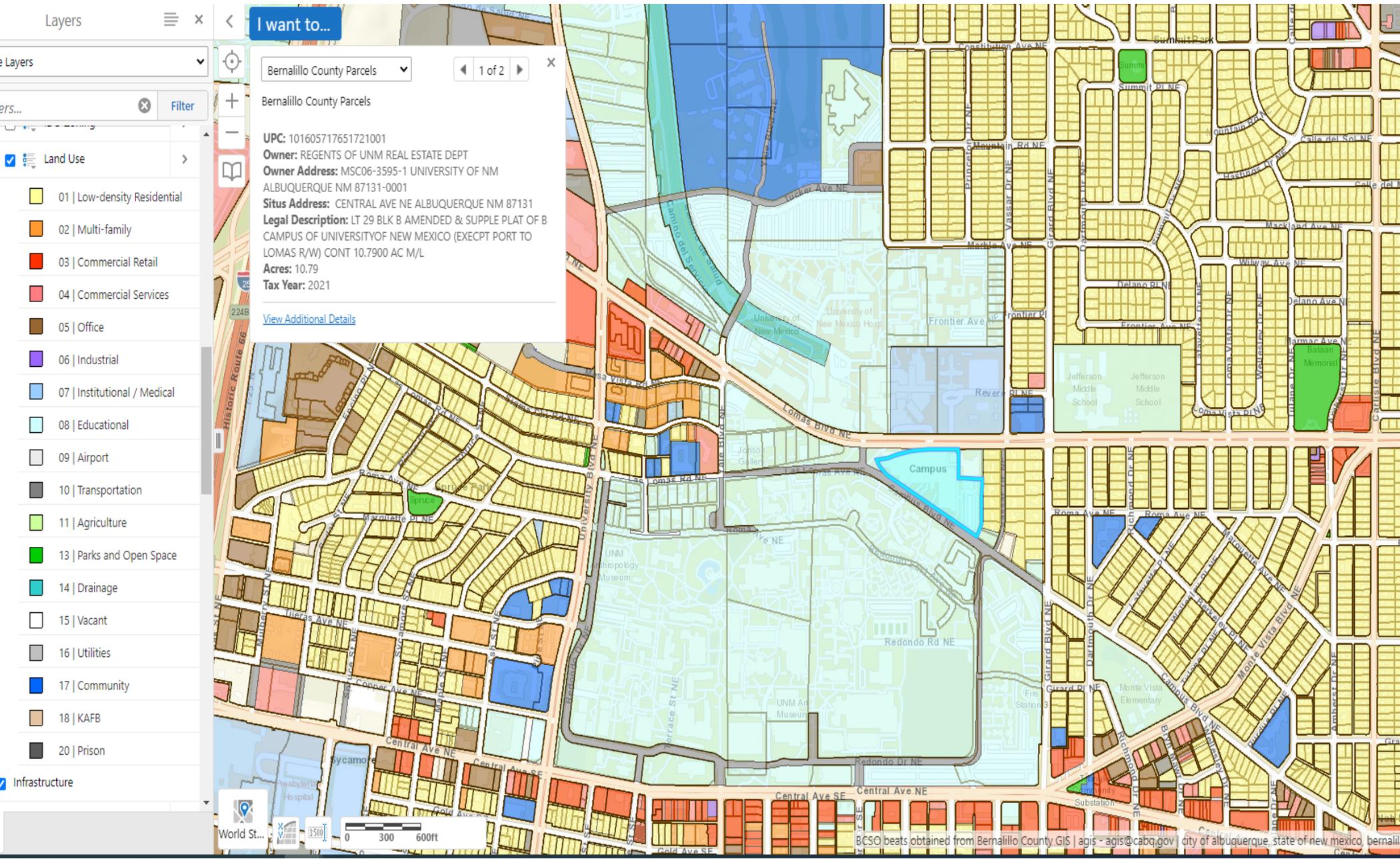


UNM Hospital

Steam Plant #3 Stack
Steam Plant #2 Stack
Cooling Tower #2
Cooling Tower #1

Roma Ave NE





I want to...

Bernalillo County Parcels 1 of 2

Bernalillo County Parcels

UPC: 101605717651721001
Owner: REGENTS OF UNM REAL ESTATE DEPT
Owner Address: MSC06-3595-1 UNIVERSITY OF NM ALBUQUERQUE NM 87131-0001
Situs Address: CENTRAL AVE NE ALBUQUERQUE NM 87131
Legal Description: LT 29 BLK B AMENDED & SUPPLE PLAT OF B CAMPUS OF UNIVERSITY OF NEW MEXICO (EXCEPT PORT TO LOMAS R/W) CONT 10.7900 AC M/L
Acres: 10.79
Tax Year: 2021

[View Additional Details](#)

- Land Use
 - 01 | Low-density Residential
 - 02 | Multi-family
 - 03 | Commercial Retail
 - 04 | Commercial Services
 - 05 | Office
 - 06 | Industrial
 - 07 | Institutional / Medical
 - 08 | Educational
 - 09 | Airport
 - 10 | Transportation
 - 11 | Agriculture
 - 13 | Parks and Open Space
 - 14 | Drainage
 - 15 | Vacant
 - 16 | Utilities
 - 17 | Community
 - 18 | KAFB
 - 20 | Prison
- Infrastructure

World St... 1500ft
0 300 600ft



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ATTACHMENT C
Supporting Documentation

#	BUILDING NAME	GRID
200	DOMENICI CENTER FOR HEALTH SCIENCES EDUCATION (DOMCTR)	N-10
201	SCHOOL OF MEDICINE BUILDING NO.2 (SOM2)	O-11
202	UNMH PARKING STRUCTURE	M-12
203	TECHNOLOGY SERVICES	K-12
204	SERVICE BUILDING (PPD, OCP) (SERV)	K-11
205	RESEARCH INCUBATOR BUILDING (RIB)	P-11
206	NORTH GOLF COURSE CLUB HOUSE (NGOLF)	M-9
207	PHYSICS AND ASTRONOMY (PANDA)	M-12
208	OBSERVATORY (OBSV)	L-10
211	REGINALD HEBER FITZ HALL (RHFH)	N-11
213	LANDSCAPE STORAGE BUILDING	J-10
215	MULTIDISCIPLINARY RESEARCH FACILITY (MRF)	N-12
216	AUTOMOTIVE (AUTOMO)	K-10
217	KNME TV STUDIO (KNME)	J-8
218	BRATTON HALL (BRATTN)	N-9
220	LOCK SHOP	K-12
221	COLLEGE OF PHARMACY: STANFORD HOUSE (HSCPA)	O-10
222	CHILDREN'S PSYCHIATRIC CENTER OFFICE AND STORAGE	L-8
225	INSTITUTE FOR ETHICS (ETHIC)	P-11
226	SURGE BUILDING (SURGE)	O-11
227	CLINICAL & TRANSLATIONAL SCIENCE CENTER (CTSC)	N-12
228	NURSING & PHARMACY (NRPH)	O-11
229	CANCER RESEARCH FACILITY (CRF)	M-11
230	NEW MEXICO LAW CENTER (NMLAW)	N-9
231	PSYCHIATRY (EEG)	P-10
232	NEUROSURGICAL SERVICES (HSCUC)	P-12
233	SAFETY AND RISK SERVICES (SRS) (SHEA)	J-9
234	HEALTH SCIENCES LIBRARY & INFORMATICS CENTER (HSLIC)	N-11
235	UNIVERSITY OF NEW MEXICO HOSPITAL (UNMH)	O-12
236-245	CHILDREN'S PSYCHIATRIC CENTER (CPH)	L-9
246	UNM MENTAL HEALTH CENTER PROGRAMS (MHCP)	P-11
247	PHARMACY PROGRAMS (PHARM)	P-11
248	FAMILY PRACTICE CENTER (FPTC)	N-11
249	NOVITSKI HALL (NOVH)	M-11
252	WELDING SHOP	J-10
253	BIOMEDICAL RESEARCH FACILITY (BRF)	N-11
254	CHILDREN'S PSYCHIATRIC CENTER DAY TREATMENT CENTER (CPHDTC)	L-9
255	INFORMATION TECHNOLOGIES NORTH (ITN)	L-12
258	CONTINUING EDUCATION SOUTH (CESOU)	INSET 1
259	CONTINUING EDUCATION (CENOR)	INSET 1
260	PETE AND NANCY DOMENICI HALL (DOMIN)	L-7
262	UNIVERSITY SERVICES(RECORDS MANAGEMENT AND POSTAL SERVICES/INVENTORY)	J-8
263	INTERNATIONAL MOUNTAIN MEDICINE CENTER (TELEME)	O-10
264	DIABETES CONTROL AND COMPLICATIONS TRIAL (DIABET)	O-11
265	KNME STORE & DEVELOPMENT	J-7
266	HEALTH SCIENCES AND SERVICES BUILDING (HSSB)	O-11
268	PSYCHIATRY	P-11
269	UNM HOSPITAL AMBULATORY CARE CENTER (ACC)	O-13
270	CARRIE TINGLEY HOSPITAL (CTHOSP)	I-8
271	FAMILY HEALTH: UNIVERSITY CLINIC (FAMILY)	I-8
273	CONTRACT ARCHEOLOGY (CONTAR)	J-11
274	P.P.D. STORAGE	J-11
276	P.P.D. RECYCLING	J-10
276C	P.P.D. LANDSCAPE AND GROUNDS	J-10
277	CHILD CARE CENTER	I-7
278	UNMH PATIENT FINANCIAL SERVICES / SATELLITE COFFEE	I-8
279	UNMH PARKING SERVICES	H-8
281	CHILD CARE CENTER	I-8
283	OUTPATIENT SURGERY & IMAGING SERVICES (OSIS)	I-7
284	UNM CANCER CENTER	H-7
285	STATE TRI SERVICES LAB	F-6

#	BUILDING NAME	GRID
286	BARBARA AND BILL RICHARDSON PAVILION (BBRP)	N-12
288	UNM DENTAL CLINIC	J-7
289	INNOVATION, DISCOVERY AND TRAINING COMPLEX(IDTC)	M-11
291	HSC BUSINESS AND COMMUNICATIONS CENTER	INSET 1
299A-D	MENTAL HEALTH CENTER	P-11

POINTS OF INTEREST

MEDICAL/LEGAL BOOKSTORE (DOMENICI CENTER - BLDG #200)	N-10
HAPPY HEART BISTRO (DOMENICI CENTER - BLDG #200)	N-10
HEALTH SCIENCES LIBRARY (HSLIC - BLDG #234)	N-11
HOSPITAL CAFETERIA (UNIVERSITY OF NEW MEXICO HOSPITAL - BLDG #235)	O-12
HOSPITAL GIFT SHOP (UNIVERSITY OF NEW MEXICO HOSPITAL - BLDG #235)	O-12
JERSEY JACK'S (BARBARA AND BILL RICHARDSON PAVILION - BLDG #286)	N-12
SUBWAY® (AMBULATORY CARE CENTER - BLDG #269)	O-13
CARRIE TINGLEY CAFETERIA (CARRIE TINGLEY HOSPITAL - BLDG #270)	I-8
SATELLITE COFFEE (UNMH PATIENT FINANCIAL SERVICES -BLDG #278)	I-8

HOSPITAL
 LIBRARY
 PARKING
 INFORMATION
 FOOD/DINING

Bldg #	BUILDING NAME	GRID	Bldg #	BUILDING NAME	GRID
2	ENGINEERING AND SCIENCE COMPUTER POD (ESCP)	J-16	104	SARA RAYNOLDS HALL (SARAR)	K-17
4	ELIZABETH WATERS CENTER FOR DANCE AT CARLISLE GYMNASIUM (CARL)	K-16	105	ART ANNEX (ARTX)	J-17
8	BANDELIER HALL EAST (BANDE)	J-15	112	CENTENNIAL ENGINEERING CENTER (CENT)	J-16
9	MARRON HALL (MARN)	K-17	114	PHYSICS & ASTRONOMY INTERDISCIPLINARY SCIENCES (PAIS)	L-17
10	SCHOLES HALL (SCHL)	K-14	115	COMMUNICATION AND JOURNALISM (COMMJ)	K-17
11	ANTHROPOLOGY (ANTHO)	J-14	116	FORD UTILITIES CENTER	J-15
12	ANTHROPOLOGY ANNEX (ANTHX)	J-16	119	FARRIS ENGINEERING CENTER (FEC)	J-17
14	SCIENCE & MATHEMATICS LEARNING CENTER (SMLC)	J-15	122	MECHANICAL ENGINEERING (MECH)	L-17
15	HIBBEN CENTER FOR ARCHAEOLOGY RESEARCH (HIBB)	J-15	123	MATTOX SCULPTURE CENTER (MATTOX)	H-17
16	BANDELIER HALL WEST (BANDW)	J-15	125	STUDENT VETERANS OF UNM	L-17
19	BIOLOGY ANNEX (BIOANX)	K-16	126	HIGH PERFORMANCE COMPUTING / ART, RESEARCH, TECH & SCI LAB	H-17
20	INTERNAL AUDIT	K-14	140	HUBER HOUSE	P-14
20A	608 BUENA VISTA DR. N.E.	K-14	144	YALE PARKING STRUCTURE	L-13
21	CASTETTER HALL (CAST)	K-17	149	UNM INFORMATION ASSURANCE PROGRAMS	M-13
22	CLARK HALL (CLARK)	K-15	150	INSTITUTE FOR SOCIAL RESEARCH (ISR)	L-13
23	MITCHELL HALL (MITCH)	K-15	151	NAVAL SCIENCE (NAVAL)	L-13
24	NORTHROP HALL (NTHP)	K-16	152	JONSON GALLERY/RWJF (JONGAL)	L-13
25	ALUMNI MEMORIAL CHAPEL (ALUMNI)	J-15	153	INFORMATION TECHNOLOGIES BUILDING (ITB)	P-13
26	UNM PRESS & OFFICE OF RESEARCH	J-14	155	CORONADO HALL (DORMITORY)	P-16
29	DISPUTE RESOLUTION (DISP)	K-14	156	ONATE HALL (ONATE)	Q-15
34	LOGAN HALL (LOGAN)	J-17	157	ALVARADO HALL (DORMITORY) (ALVRDO)	P-15
35	REGENER HALL (REGH)	J-16	158	ROBERT HARTUNG BUILDING (HART)	N-18
42	EQUAL OPPORTUNITY PROGRAMS (EOP)	J-14	159	AEROSPACE STUDIES BUILDING (AERO)	L-12
44	THE WHITE HOUSE	J-13	160	UNIVERSITY CLUB (UCLUB)	M-13
46	ELECTRICAL AND COMPUTER ENGINEERING/CENTENNIAL LIBRARY (EECE)	J-16	162	TAMARIND INSTITUTE	N-18
48	DANE SMITH HALL (DSH)	K-14	165	LATIN AMERICAN/IBERIAN INSTITUTE (LAI)	L-13
51	UNIVERSITY HOUSE (UNIVH)	L-14	168	BUREAU OF BUSINESS AND ECONOMIC RESEARCH DATA BANK (DATA)	M-13
53	ZIMMERMAN LIBRARY (ZIMM)	L-15	171	SOUTHWEST HISPANIC RESEARCH INSTITUTE AND CHICANO STUDIES (SHRI)	K-12
54	MCKINNON CENTER FOR MANAGEMENT (MCM)	M-13	172	LOMAS PARKING STRUCTURE	O-13
55	COLLABORATIVE TEACHING AND LEARNING BUILDING (CTLB)	M-14	175, 175A	ARMY ROTC (ARMY)	K-12
56	MESA VISTA HALL (MVH)	N-16	178	UNM RESIDENT THEATRE GROUP (TRICKLOCK)	J-12
57	ECONOMICS (ECON)	M-14	182A, B, C	LATIN AMERICAN DATA BASE AND LATIN AMERICAN OUTREACH	L-12
58	HOKONA HALL (ZUNI-OFFICES, ZIA-DORMITORY) (HOKW)	N-14	183	JOHN AND JUNE PEROVICH BUSINESS CENTER	J-11
59	JOHNSON CENTER (JOHNS)	N-17	184	COUNSELING, ASSISTANCE AND REFERRAL SERVICE (CARS)	K-12
60	STUDENT UNION BUILDING (SUB) (NMU)	M-16	185	CENTER FOR SCIENCE, TECHNOLOGY, AND POLICY	K-12
61	SANTA CLARA HALL DORMITORY	O-14	187	EXTENDED UNIVERSITY	K-13
62	CENTER FOR THE ARTS (POPEJOY, KELLER HALL, FINE ARTS MUSEUM) (CTRART)	M-17	190	UNM PUBLIC EVENTS / POPEJOY	K-13
64	TECHNOLOGY & EDUCATION CENTER (TECH)	N-14	191	HOUSE OF PREVENTION EPIDEMIOLOGY (HOPE)	K-13
65	TRAVELSTEAD HALL (TRAV)	M-14	192	PSYCHOLOGY CLINIC / AGORA CRISIS CENTER (PSYC)	K-13
66	SIMPSON HALL (SIMP)	N-14	193A-E	REDONDO VILLAGE STUDENT RESIDENCES	P-16
67	EDUCATION CLASSROOMS (EDUC)	M-15	195	GEORGE PEARL HALL (PEARL)	N-17
68	MASLEY HALL (MASLEY)	N-15	198	PARKING STRUCTURE / PARKING & TRANSPORTATION SERVICES	M-17
69	KIVA (KIVA)	N-15			
70	MANZANITA CENTER (MANZ)	N-15			
71	SANTA ANA HALL (DORMITORY)	P-15			
73	STUDENT HEALTH CENTER AND UNDERGRADUATE STUDIES (SHC)	N-16			
74	LAGUNA HALL (DORMITORY) (LAGUNA)	O-14			
75	DEVARGAS HALL (DORMITORY) (DEVARG)	O-14			
76	R.O. ANDERSON SCHOOL OF MANAGEMENT (ASM)	M-14			
77	LA POSADA DINING HALL	O-14			
78	SOCIAL SCIENCES (SSCO)	M-14			
79	ORTEGA HALL (ORTG)	L-15			
81	HUMANITIES (HUM)	L-15			
82	WOODWARD LECTURE HALL (WOOD)	L-16			
83	CONSORTIUM FOR ENVIRO. RESEARCH, INFORMATICS & ART (CERIA)	L-16			
84	ART (ART)	L-16			
85	UNIVERSITY ADVISEMENT & ENRICHMENT CENTER (UAEC)	N-15			
87	ANDERSON GRADUATE SCHOOL OF MANAGEMENT / PARISH LIBRARY (GSM)	M-13			
88, 89, 90	STUDENT RESIDENCE CENTER (SRC)	O-15			
91 - 94	CASAS DEL RIO	O-15			
102	BOOKSTORE	M-17			
103	HODGIN HALL (HODGIN)	J-17			

POINTS OF INTEREST

ADVISEMENT & ENRICHMENT (BLDG #85)	N-15
EXPERIMENTAL THEATRE (CENTER FOR THE ARTS - BLDG #62)	M-17
FINE ARTS LIBRARY (GEORGE PEARL HALL - BLDG #195)	N-17
GEOLOGY MUSEUM (NORTHROP HALL - BLDG #24)	K-16
GREENHOUSE CONSERVATORY (CASTETTER HALL - BLDG #21)	K-17
HUMAN RESOURCES (JOHN AND JUNE PEROVICH BUSINESS CENTER - BLDG #183)	J-11
JONSON GALLERY (CENTER FOR THE ARTS - BLDG #62)	M-17
KELLER HALL (CENTER FOR THE ARTS - BLDG #62)	M-17
MASLEY HALL ART GALLERY (BLDG #68)	N-15
MAXWELL MUSEUM (ANTHROPOLOGY - BLDG #11)	J-14
METEORIC MUSEUM (NORTHROP HALL - BLDG #24)	K-16
POPEJOY HALL (CENTER FOR THE ARTS - BLDG #62)	M-17
RODEY THEATRE (CENTER FOR THE ARTS - BLDG #62)	M-17
SOMMERS GALLERY (ART - BLDG #84)	L-16
TAMARIND INSTITUTE GALLERY (TAMARIND INSTITUTE - BLDG #162)	N-18
UNM ART MUSEUM (CENTER FOR THE ARTS - BLDG #62)	M-17
WELCOME CENTER (BLDG #198)	M-17



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ATTACHMENT D

Stack Parameters and Model Inputs

ID	Description	New or Existing?	X Coordinate	Y Coordinate	Elevation	Stack Height	Temperature	Velocity	Diameter	Orientation	Capped?
-	-	-	(m)	(m)	(ft)	(ft)	(F)	(ft/s)	(ft)	-	-
UNM-BLR-1	Boiler-Nat Gas	Existing	352651.12	3883855.73	5159	60	190	9.95	2.17	Vertical	No
UNM-BLR-2	Boiler-Nat Gas	Existing	352653.54	3883855.36	5159	60	190	9.95	2.17	Vertical	No
UNM-BLR-3	Boiler-Nat Gas	Existing	352657.25	3883855.48	5159	60	190	9.95	2.17	Vertical	No
CT-1	Cooling Tower	Existing	352650.07	3883844.04	5158	35.83	Ambient	42.0	10	Vertical	No
CT-2	Cooling Tower	Existing	352655.42	3883843.84	5158	35.83	Ambient	42.0	10	Vertical	No



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ATTACHMENT E
Background Concentrations

Air Dispersion Modeling Background Concentrations*

CO					
Del Norte			South Valley		
1-hr:	1908	µg/m ³	1-hr:	2366	µg/m ³
8hr:	1221	µg/m ³	8hr:	1450	µg/m ³

NO₂		
1-hr:	84.6	µg/m ³
Annual:	30	µg/m ³

SO₂		
1-hr:	13.1	µg/m ³
24-hr:	0	µg/m ³
Annual:	0	µg/m ³

PM_{2.5}					
Del Norte			South Valley		
24-hr:	16	µg/m ³	24-hr:	20	µg/m ³
Annual:	5.4	µg/m ³	Annual:	7.8	µg/m ³

PM₁₀ (Annual = 24-hr)		
South Valley:	42	µg/m ³
Del Norte:	20	µg/m ³
North Valley:	31	µg/m ³
Jefferson:	31	µg/m ³

*Provided by CABQ EHD Modeling Division on 9/10/2021

Mike Celente

From: Tumpane, Kyle <ktumpane@cabq.gov>
Sent: Wednesday, September 15, 2021 2:55 PM
To: Mike Celente
Cc: Stonesifer, Jeff W.; Munoz-Dyer, Carina G.; Hans Barsun; Casey Hall; Adam Erenstein; Xavier Chavez
Subject: RE: Concerns Regarding UNM Steam Plant Facility Modeling Protocol

Mike and Mr. Barsun,

Thank you for the responses. We look forward to the updated protocol.

For #4, can you clarify whether any of those ~80 facilities are part of UNM Hospital or are they all part of the university? The layout is not clear for those of us who are not there all the time. Also, please provide a list of the supported facilities as part of the resubmittal.

For #5, we are waiting on official approval of the 2021 Annual Network Review from EPA before we update backgrounds for other pollutants. That is expected by mid-October. PM2.5 backgrounds for the South Valley should go up ~2 $\mu\text{g}/\text{m}^3$ and there is expected to be only minor changes to the CO backgrounds and no changes to the NO2 and SO2 backgrounds. PM10 is the biggest change and not based on the 2021 Annual Network Review so we wanted to provide that information first. Based on our preliminary and full review times, anything that was recently submitted or will be submitted in the future will have to be compared to and pass with the updated backgrounds when we do our review.

For #7, all we are really asking for is a change in Trinity's standard language for this section of modeling protocols going forward. The MET data is being proposed as part of the protocol and generally hasn't been approved by EHD ahead of time. Remove the text that says 'EHD has determined that this MET data is appropriate...' and replace it with something like 'this MET data is believed to be adequately representative for...'

The ABQ Sunport MET data is representative and appropriate for the UNM Steam Plant and for many sites in Albuquerque, but there are some places like the North Valley or the west side where MET data from the Bernalillo site or Rio Rancho site from NMED are more appropriate. In those cases we will respond with that as part of the protocol review and can typically provide the MET data or guidance on where to obtain the data.

Please let us know if you have any questions.

Thank you,
Kyle

**ONE
ALBUQUE
RQUE**



KYLE TUMPANE

environmental health scientist | environmental health department

o 505.768.2872

m 505.366.9985

cabq.gov/airquality

From: Mike Celente <MCelente@trinityconsultants.com>
Sent: Wednesday, September 15, 2021 12:42 PM
To: Tumpane, Kyle <ktumpane@cabq.gov>

Cc: Stonesifer, Jeff W. <JStonesifer@cabq.gov>; Munoz-Dyer, Carina G. <cmunoz-dyer@cabq.gov>; Hans Barsun <hbarsun@unm.edu>; Casey Hall <cbhall4@unm.edu>; Adam Erenstein <AErenstein@trinityconsultants.com>; Xavier Chavez <Xavier.Chavez@trinityconsultants.com>

Subject: RE: Concerns Regarding UNM Steam Plant Facility Modeling Protocol

External

Kyle,

Please see our responses below in **red** as well as supporting documentation. Please do not hesitate to reach out with any questions or concerns you may have.

Best,
Mike

Michael Celente, M.S.
Senior Consultant

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Email: mcelente@trinityconsultants.com



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From: Tumpane, Kyle <ktumpane@cabq.gov>
Sent: Friday, September 10, 2021 12:36 PM
To: Mike Celente <MCelente@trinityconsultants.com>
Cc: Stonesifer, Jeff W. <JStonesifer@cabq.gov>; Munoz-Dyer, Carina G. <cmunoz-dyer@cabq.gov>; Hans Barsun <hbarsun@unm.edu>; Casey Hall <cbhall4@unm.edu>; Adam Erenstein <AErenstein@trinityconsultants.com>; Xavier Chavez <Xavier.Chavez@trinityconsultants.com>
Subject: Concerns Regarding UNM Steam Plant Facility Modeling Protocol

Mike,

The City of Albuquerque Air Quality Program (AQP) has finished reviewing the modeling protocol submitted on August 20, 2021 on behalf of the UNM Steam Plant. The protocol is denied. The AQP has some questions and concerns that need to be addressed.

1. The boilers were modeled and permitted for 40 foot stacks in 1601-M1 because they were installed 10 ft shorter than the requested 50 ft height in 1601. This protocol lists 60 ft as the stack heights but the description says the stacks will be raised by 10 ft. Are the stacks being raised 10 ft or 20 ft? Is 60 ft the correct final height? The application for 1601-M1-RV1 listed 50 ft as the stack heights but this may have been an oversight and the same height was left from the previous application. **The permit 1601-M1-RV1 has each of the boiler stacks set as 50 ft, in this application these stacks will be raised to 60ft. Any previous reference to 40 ft for the stack heights is incorrect and should be disregarded as the final modeling protocol will have these stacks set at 60 ft.**
2. The provided manufacturer spec sheet appears to be for a 11.5 MMBtu/hr heat input boiler but the boilers are listed as 12.4 MMBtu/hr. This lower rating does not match the 10.122 MMBtu/hr rating in the 1601-M1 application (these are the specs provided for the 7 boilers) but the 1601-M1-RV1 application states that the nameplate capacity is 12.4 MMBtu/hr and they were de-rated to 9.82 MMBtu/hr based on altitude so it is unclear where the 10.122 MMBtu/hr value came from. De-rating is not allowed by the program so the

nameplate capacity/heat output must be used to calculate emissions and must be listed in the permit. Please provide a spec sheet that matches the boiler nameplate capacity or provide an explanation of why this spec sheet is appropriate to use. **The boilers' name plates state that the unit has a maximum capacity of 12.4 MMBTU/hr, this is not representative of operating conditions due to the gas heating value that is supplied to the boiler. As a result, the true operating capacity of these boilers is 11.5 MMBTU/hr, which is based on a heating value of 1000 btu/scf. This is done to prevent an exceedance of the rated heat duty for the boiler. This is not a deration but an accurate representation of the heat duty for these units. Please refer to the attached letter from Muira and the associated spec sheet where the issue of the heat duty is explained by Muira. Note that the nameplate value of 12.4 MMBTU/hr will conservatively be used in the emission calculations.**

3. Confirm that the use of a different boiler spec sheet does not affect the stack temperature or exit velocity since both of these values are lower than previously listed. The stack velocity (9.95 ft/s) listed on the stack parameters table does not match the flue gas velocity listed on the provided boiler specification sheet (25.1 ft/s). Should these match? 9.95 ft/s also does not match what was previously modeled for these boilers for 1601-M1 (16.7 ft/s) or the previous applications (2588.3 ft³/min, which converts to ~11.7 ft/s). Please confirm the correct stack velocity and exit temperature. **The stack velocity and exit temperature for these units are 9.95 ft/s and 190 F, respectively. The flue gas volume seen on the spec sheet provided for this application is set at 132,170 SCF/hr. The 25.1 ft/s exit velocity is from the manufacturer, where they use a smaller stack diameter. The 132,170 SCF/hr was used to calculate the stack exit velocity with the site's 2.17 ft diameter stack, which produces a 9.95 ft/s exit velocity.**
4. Please provide details on which buildings or facilities the UNM Steam Plant supports. **The UNM Steam Plant provides a portion of the steam and chilled water used by all buildings on UNM's Main and North Campus. This is a total of approximately 80 facilities.**
5. Regarding the conservative plan to use South Valley backgrounds for CO and particulates, this could be done and surrounding particulate sources would not need to be included in a cumulative model. But be aware that the South Valley particulate backgrounds are going to go up quite a bit when we update our backgrounds in the near future and the model will have to pass with those higher backgrounds. This may not be an issue but we wanted to let you know. The other option would be to use the Del Norte backgrounds for those pollutants and include surrounding particulate sources. **This has been noted. We have received the updated PM10 background concentrations in a separate email. When will these updates go into effect for the other pollutants?**
6. Parking structures that are completely open on all sides at each level probably should not be modeled as buildings for downwash analysis because the wind is likely to pass right through the different levels and the downwash algorithm probably will not give representative results. There should be flagpole receptors at each parking garage level but the garage itself should not be a structure in the model for downwash.
 - a. This looks like it might be the case for the Lomas parking structure surrounding the steam plant building. The steam plant building appears solid from what I can tell and should be modeled as a structure. This may also be the case for the existing UNMH parking structure attached to the main hospital. The parking garages should just have the flagpole receptors on each level and no building for the garages themselves. **The parking garages were incorporated into the mapping for means of describing the surrounding area. Parking garages which are open on all sides will not be modeled as buildings for downwash purposes. However, flagpole receptors will be included at each parking garage level.**
 - b. The parking garage south of Lomas and south of the current Physics and Astronomy building looks like a different situation. That parking garage has a solid wall on the east side and so it should be modeled as a solid structure with flagpole receptors at each level around the outside. **The structure will be maintained in our modeling as a building and flagpole receptors will be incorporated at each level as well.**
7. EHD has not determined that the KABQ MET data is appropriate for the steam plant. It is being proposed for use in the protocol and we are considering it at this point. Can you potentially change that standard language in your

protocols? It is, however, adequately representative as described in the Appendix W modeling guidelines. We have traditionally utilized the MET data from the ABQ Airport for all sources in Albuquerque as it was the only data available on the EHD's website. While the NMED's website includes MET data for other geographic areas, we do not believe these to be as representative as the data from the Sunport. Please provide guidance as to what is expected moving forward if the ABQ Airport MET data is not considered representative for sources in the city.

Please submit an updated modeling protocol that addresses the questions and concerns.

Let us know if you have any questions.

Thank you,



KYLE TUMPANE

environmental health scientist | environmental health department

o 505.768.2872

m 505.366.9985

cabq.gov/airquality

August 17, 2022

RE: *Memorandum of 1st Administrative Incomplete Determination for Air Quality Construction Permit Application to Modify #1601-M1-RV1 Response*

Dear Kyle Tumpene and City of Albuquerque EHD,

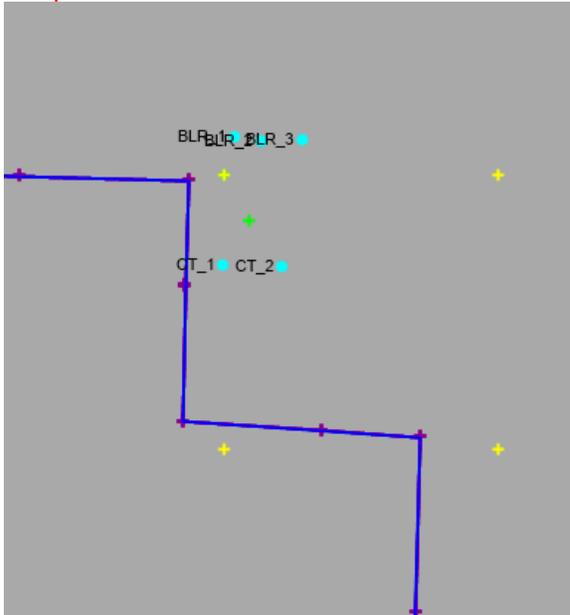
In response to the memorandum sent by Kyle Tumpene on August 8th, 2022 which was ruled administratively incomplete per the following cited deficiencies in the document in Appendix A. Our response per the issues raised with the modeling and application that was submitted are as follows.

Modeling Deficiencies:

- An incorrect NOx emission rate of 2.81 lb/hr was modeled for nearby UNMH boiler 3B. The correct emission rate, as stated in the provided surrounding source data, is 4.1 lb/hr. **Although UNMH's boilers are dual-fuel capable, UNMH has determined that the emissions from diesel combustion in these dual-fuel boilers (both existing and new) are extremely rare, UNMH has designated their diesel-fired operation as intermittent in nature and therefore has based the compliance demonstration on the combustion of natural gas. Although the 4.1 lb/hr emission rate is more conservative it is not representative of the current operations conducted at UNMH. Therefore 2.81 lb/hr is justified in its use as the background emission rate for UNMH Boiler 3B.**
- The shape of the virtual Steam Plant building needs to be adjusted to match the actual building on aerial imagery: **The building dimensions will be updated as requested.**



- Receptors need to be added along the edge of the Steam Plant building to study downwash. Here is a screenshot of the current receptors along the steam plant building currently. The boundary receptors along the building are spaced at 25 meters. Please indicate new locations of receptors to be added. All receptors within this area are spaced in fine grid pattern. Also, when the revised building is added these receptors will remain in their current locations unless otherwise specified.



- Receptors for the parking garages adjacent to the Steam Plant need to be flagpoles with a height of the roof of the structure. There are currently four flag pole receptors that have been included for these receptors. In Appendix C are the current flag pole receptors that are used in the modeling and their associated elevations.
- Close to the Steam Plant building, the flagpole receptors around the parking garage will have to be adjusted to reflect the actual shape of the parking garages. Additional flag pole receptors will be added directly next to the steam plant building that is to be included.
- Are there parking garage openings on the north and west side of the Steam Plant building? If so, a flagpole receptor should be added in front of the openings. This can be determined by UNM, if there are openings then the additional flagpoles that are being added will represent this request.
- The existing UNMH sources should be added to the cumulative particulate models because of the proximity to the UNM Steam Plant. Please refer to Appendix B which provides reference from Kyle Tumpane stating that surrounding sources do not need to be included and that the south valley background concentrations are very conservative and can be used in lieu of the surrounding sources.
- For surrounding sources in the cumulative particulate models, all exhaust temperatures are different than values provided in the surrounding source data. Specifically, the exhaust temperatures for sources with model IDs of BACK2 through BACK7, BACK10 through BACK20, and BACK23 were generous, rather than conservative. Please refer to Appendix B which provides reference from Kyle Tumpane stating that surrounding sources do not need to be included and that the south valley background concentrations are very conservative and can be used in lieu of the surrounding sources.
- In the cumulative PM models, default vertical releases were used to characterize sources BACK10 and BACK11 as well as BACK17 through BACK22, when RAINCAP should have been used as the release type. Please refer to Appendix B which provides reference from Kyle Tumpane stating that surrounding sources do not need to be included and that the south valley background concentrations are very conservative and can be used in lieu of the surrounding sources.

Application Deficiencies:

- The application long form was not dated. This was an administrative error, and a date will be included in the next submission of this application.
- Please provide more information for the operational and maintenance strategy. What specific steps will UNM take to minimize emissions during routine startup or shutdown? How would excess emissions be reported in accordance with UNM's Title V permit? Based on discussions with UNM, SSM will not occur. Since the last Title V renewal submitted in 2017, UNM has not modified their startup, shutdown, and maintenance emissions for any sources associated with the UNM Main campus or the ATCs permitted for UNM facilities. No SSM activities are not expected to create any emission limit deviations as specified in the current Title V Operating Permit #0536-RN1. Although excess emissions are not expected, if they were to occur then they would be reported in accordance with Part 5.3 of the Title V operating permit.

UNM can propose a potential operating schedule that has specified times of maintenance to provide a better estimation of potential emissions for the facility. UNM would insure that the equipment is operated properly to prevent any excess emissions from being released from the facility, however SSM and Malfunction emissions are not permitted and are not requested under this permit application.

- The weather-proof sign appears to be missing the date the application will be submitted to the Department. This was an administrative error, and a date will be included in the next submission of this application.

APPENDIX A. APPLICATION FORMS

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

Permit Application Checklist

Permit Application Review Fee Checklist



**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: 06/22/2023

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

Company Name: University of New Mexico			
Mailing Address: Scholes Hall 160, Bldg. 10, 1800 Roma Ave.	City: Albuquerque	State: NM	Zip: 87121-0001
Company Phone: (505) 277-2753	Company Contact: Hans Barsun		
Company Contact Title: Facilities Management Utilities Division	Phone: (505) 277-8996	E-mail: hbarsun@unm.edu	

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: Steam Plant Building 176			
Facility Physical Address: 2601 Campus Blvd. NE	City: Albuquerque	State: NM	Zip: 87121-0001
Facility Mailing Address (if different):	City:	State:	Zip:
Facility Contact: Hans Barsun	Title: Facilities Management Utilities Division		
Phone: (505) 277-8996	E-mail: hbarsun@unm.edu		
Authorized Representative Name ¹ : Hans Barsun	Authorized Representative Title: Facilities Management Utilities Division		

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

Billing Company Name:			
Mailing Address:	City:	State:	Zip:
Billing Contact:	Title:		
Phone:	E-mail:		

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

Name: Adam Erenstein	Title: Manager of Consulting Services		
Mailing Address: 9400 Holly Ave. NE, Bldg 3, Suite B	City: Albuquerque	State: NM	Zip: 87122
Phone: (505) 266-6611	Email: aerenstein@trinityconsultants.com		

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 type="checkbox"/> New Permit	<input checked="" type="checkbox"/> Permit Modification Current Permit #: ATC #1601-M1-RV1	<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): UTM 352,700 m E, 3,883,700 m N				
Facility type (<i>i.e.</i> , a description of your facility operations): Three steam boilers and two cooling towers.				
Standard Industrial Classification (SIC Code #): 8221		North American Industry Classification System (NAICS Code #): 611310		
Is this facility currently operating in Bernalillo County? Yes		If YES , list date of original construction: 03/2011 If NO , list date of planned startup: N/A		
Is the facility permanent? Yes		If NO , list dates for requested temporary operation: From N/A Through N/A		
Is the facility a portable stationary source? No		If YES , is the facility address listed above the main permitted location for this source? N/A		
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? Yes				
Provide a description of the requested changes: Raising stacks of three steam boilers and two cooling by ten feet to reduce vapor entrainment within surrounding facilities. Update boiler emissions with manufacturer specifications.				
What is the facility's operation? <input checked="" type="checkbox"/> Continuous <input 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:	24 hours/day	7 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
1 Boiler Natural Gas Fired	Miura	LX-300SG	48S492816	03/2011	Unknown	Unknown	12.4 MMBtu/hr	Natural Gas
2 Boiler Natural Gas Fired	Miura	LX-300SG	48S402892	03/2011	Unknown	Unknown	12.4 MMBtu/hr	Natural Gas
3 Boiler Natural Gas Fired	Miura	LX-300SG	48S402893	03/2011	Unknown	Unknown	12.4 MMBtu/hr	Natural Gas
4 Cooling Tower	Unknown	TBD	TBD	TBD	TBD	TBD	3500 gal/min	N/A
5 Cooling Tower	Unknown	TBD	TBD	TBD	TBD	TBD	3500 gal/min	N/A

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.) **Manufacturer's Data**
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
N/A – No emissions control equipment at this facility.								

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.). **N/A**
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
N/A – No exempted sources or exempted activities at this facility.								

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. 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.
2. Basis for Equipment Process Rate or Capacity (e.g., Manufacturer’s Data, Field Observation/Test, etc.) **N/A**
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	
1	0.30	1.32	0.92	4.01	0.067	0.29	0.0074	0.033	0.093	0.41	0.093	0.41	0.023	0.10	Manufacture data/AP-42
2	0.30	1.32	0.92	4.01	0.067	0.29	0.0074	0.033	0.093	0.41	0.093	0.41	0.023	0.10	Manufacture data/AP-42
3	0.30	1.32	0.92	4.01	0.067	0.29	0.0074	0.033	0.093	0.41	0.093	0.41	0.023	0.10	Manufacture data/AP-42
4	-	-	-	-	-	-	-	-	0.24	1.04	0.0014	0.0061	-	-	Manufacture data/AP-42
5	-	-	-	-	-	-	-	-	0.24	1.04	0.0014	0.0061	-	-	Manufacture data/AP-42
Totals of Uncontrolled Emissions	0.90	3.96	2.75	12.04	0.20	0.88	0.022	0.098	0.75	3.30	0.28	1.23	0.070	0.31	

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		
1	0.30	1.32	0.92	4.01	0.067	0.29	0.0074	0.033	0.093	0.41	0.093	0.41	0.023	0.10	N/A	N/A
2	0.30	1.32	0.92	4.01	0.067	0.29	0.0074	0.033	0.093	0.41	0.093	0.41	0.023	0.10	N/A	N/A
3	0.30	1.32	0.92	4.01	0.067	0.29	0.0074	0.033	0.093	0.41	0.093	0.41	0.023	0.10	N/A	N/A
4	-	-	-	-	-	-	-	-	0.24	1.04	0.0014	0.0061	-	-	N/A	N/A
5	-	-	-	-	-	-	-	-	0.24	1.04	0.0014	0.0061	-	-	N/A	N/A
Totals of Controlled Emissions	0.90	3.96	2.75	12.04	0.20	0.88	0.022	0.098	0.75	3.30	0.28	1.23	0.070	0.31		

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.). **N/A**
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
1	0.023	0.10														
2	0.023	0.10														
3	0.023	0.10														
4	-	-														
5	-	-														
Totals of HAPs for all units:	0.070	0.31														

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
N/A – No purchased hazardous air pollutants at facility.									

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
N/A – No material or fuel stored at facility.											

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.). **N/A**
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.). **N/A**
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, NO _x , 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
1	Boiler-Nat Gas	CO, NO _x , PM ₁₀ , PM _{2.5} , SO ₂ , VOCs, HAPs	352651.12	3883855.73	60	190	9.95	2,203	2.17	Vertical
2	Boiler-Nat Gas	CO, NO _x , PM ₁₀ , PM _{2.5} , SO ₂ , VOCs, HAPs	352653.54	3883855.36	60	190	9.95	2,203	2.17	Vertical
3	Boiler-Nat Gas	CO, NO _x , PM ₁₀ , PM _{2.5} , SO ₂ , VOCs, HAPs	352657.25	3883855.48	60	190	9.95	2,203	2.17	Vertical
4	Cooling Tower	PM ₁₀ , PM _{2.5}	352650.07	3883844.04	35.83	Ambient	42.0	198,000	10	Vertical
5	Cooling Tower	PM ₁₀ , PM _{2.5}	352655.42	3883843.84	35.83	Ambient	42.0	198,000	10	Vertical

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 28th day of March, 20 23

Teresa Costantini

Print Name

Executive Vice President for Finance + Administration

Print Title

Teresa Costantini

Signature

Role: Owner Operator

Other Authorized Representative



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: 06/08/2021	<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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Air dispersion modeling approved protocol date: September 15, 2021	<input checked="" type="checkbox"/>	<input 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 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, 2022 – December 31, 2022

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	University of New Mexico		
Company Address	1 University of New Mexico		
Facility Name	UNM Steam Plant Bldg 176 (AKA CUP)		
Facility Address	2601 Campus Blvd. NE, Albuquerque, NM 87106		
Contact Person	Hans Bursun		
Contact Person Phone Number	(315) 885-8683		
Are these application review fees for an existing permitted source located within the City of Albuquerque or Bernalillo County?	<u>Yes</u>	No	
If yes, what is the permit number associated with this modification?	Permit # 1601-M1-RV1		
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	No	

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			
	AQN New Application	\$599.00	2801
	AQN Technical Amendment	\$327.00	2802
	AQN Transfer of a Prior Authorization	\$327.00	2803
X	<i>Not Applicable</i>	<i>See Sections Below</i>	
Stationary Source Review Fees (Not Based on Proposed Allowable Emission Rate)			
	Source Registration required by 20.11.40 NMAC	\$ 610.00	2401
	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	\$ 1,220.00	2301
X	<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)			
	Proposed Allowable Emission Rate Equal to or greater than 1 tpy and less than 5 tpy	\$915	2302
	Proposed Allowable Emission Rate Equal to or greater than 5 tpy and less than 25 tpy	\$1,830	2303
	Proposed Allowable Emission Rate Equal to or greater than 25 tpy and less than 50 tpy	\$3,661	2304
	Proposed Allowable Emission Rate Equal to or greater than 50 tpy and less than 75 tpy	\$5,491	2305
	Proposed Allowable Emission Rate Equal to or greater than 75 tpy and less than 100 tpy	\$7,321	2306
	Proposed Allowable Emission Rate Equal to or greater than 100 tpy	\$9,152	2307
X	<i>Not Applicable</i>	<i>See Section Above</i>	

Federal Program Review Fees (In addition to the Stationary Source Application Review Fees above)			
	40 CFR 60 - "New Source Performance Standards" (NSPS)	\$1,220	2308
	40 CFR 61 - "Emission Standards for Hazardous Air Pollutants (NESHAPs)	\$1,220	2309
	40 CFR 63 - (NESHAPs) Promulgated Standards	\$1,220	2310
	40 CFR 63 - (NESHAPs) Case-by-Case MACT Review	\$12,202	2311
	20.11.61 NMAC, Prevention of Significant Deterioration (PSD) Permit	\$6,101	2312
	20.11.60 NMAC, Non-Attainment Area Permit	\$6,101	2313
X	<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)			
	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	\$ 1,220	2321
X	<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)			
	Proposed Allowable Emission Rate Equal to or greater than 1 tpy and less than 5 tpy	\$915	2322
X	Proposed Allowable Emission Rate Equal to or greater than 5 tpy and less than 25 tpy	\$1,830	2323
	Proposed Allowable Emission Rate Equal to or greater than 25 tpy and less than 50 tpy	\$3,661	2324
	Proposed Allowable Emission Rate Equal to or greater than 50 tpy and less than 75 tpy	\$5,491	2325
	Proposed Allowable Emission Rate Equal to or greater than 75 tpy and less than 100 tpy	\$7,321	2326
	Proposed Allowable Emission Rate Equal to or greater than 100 tpy	\$9,152	2327
	<i>Not Applicable</i>	<i>See Section Above</i>	
Major Modifications Review Fees (In addition to the Modification Application Review Fees above)			
	20.11.60 NMAC, Permitting in Non-Attainment Areas	\$6,101	2333
	20.11.61 NMAC, Prevention of Significant Deterioration	\$6,101	2334
X	<i>Not Applicable</i>	<i>Not Applicable</i>	
Federal Program Review Fees (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)			
	40 CFR 60 - "New Source Performance Standards" (NSPS)	\$1,220	2328
	40 CFR 61 - "Emission Standards for Hazardous Air Pollutants (NESHAPs)	\$1,220	2329
	40 CFR 63 - (NESHAPs) Promulgated Standards	\$1,220	2330
	40 CFR 63 - (NESHAPs) Case-by-Case MACT Review	\$12,202	2331
	20.11.61 NMAC, Prevention of Significant Deterioration (PSD) Permit	\$6,101	2332
	20.11.60 NMAC, Non-Attainment Area Permit	\$6,101	2333
X	<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
	Administrative Revisions	\$ 250.00	2340
	Technical Revisions	\$ 500.00	2341
X	<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
	No New Air Dispersion Modeling Required	\$ 500.00	2501
	New Air Dispersion Modeling Required	\$ 750.00	2502
X	<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	\$0.00
Section III Total	\$1,830.00
Section IV Total	\$0.00
Section V Total	\$0.00
Total Application Review Fee	\$1,830.00

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 9th day of March 2022

Teresa Costantinidis

Senior Vice President for Finance & Administration

Print Name

Print Title

Teresa A. Costantinidis

Signature

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.

APPENDIX B. PRE-PERMIT APPLICATION MEETING

Pre-Permit Application Meeting Request Form

Pre-Permit Application Meeting Checklist



Pre-Permit Application Meeting Request Form

Air Quality Program- Environmental Health Department

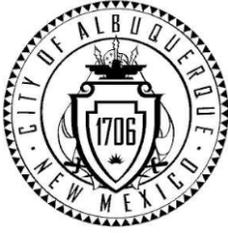
Please complete appropriate boxes and email to aqd@cabq.gov or mail to:

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

Name:	Steam Plant Building 176
Company/Organization:	University of New Mexico (UNM)
Point of Contact: (phone number and email): Preferred form of contact (circle one): Phone E-mail <input checked="" type="checkbox"/>	Casey Hall, Director Environmental Health and Safety Phone: (315) 885-8683 Email: cbhall4@unm.edu Hans Barsun, P.E., FM Utilities Division Phone: (505) 331-4140 Email: hbarsun@unm.edu Adam Erenstein, Principal Consultant Phone: 480-760-3860 Email: AErenstein@trinityconsultants.com
Preferred meeting date/times:	As soon as practicable for the Environmental Health Department (EHD) Air Quality Program (AQP).

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

Description of Project:	<p>The facility is currently permitted for 3 existing 12.4 MMBtu/hr natural gas fired boilers under permit number 1601-MI-RV1. The scope of this project would be to raise the existing stacks by an estimated 10 feet to alleviate issues with the air intake units adjacent to the existing stacks. The location and emissions associated with these units are expected to remain as currently permitted. Also, potential emissions from cooling towers will be evaluated as part of the application process. Based on initial discussions between UNM and EHD AQP a Permit Modification application is required.</p>
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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: UNM Steam Plant

Contact: Hans Bursun – (315) 885-8683

Company/Business: University of New Mexico

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
Notes:

Ver. 11/13

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

- 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: _____
 - Campus Neighborhood Association
 - Nob Hill Neighborhood Association
 - North Campus Neighborhood Association
 - Silver Hill Neighborhood Association
 - Spruce Park Neighborhood Association
 - Summit Park Neighborhood Association
 - University Heights Neighborhood Association
 - Coalition: _____
 - District 6 of Coalitions

Notes: N/A – Technical Revision

- Posting and maintaining a weather-proof sign
Notes: N/A – Technical Revision

- 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:

APPENDIX C. PUBLIC NOTICE REQUIREMENTS

Notice of Intent to Construct

Email Documentation of NOI Sent to Neighborhood Associations and Coalitions

Public Notice Sign Guidelines

Pictures of Posted Public Notice Sign

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:*

University of New Mexico - Scholes Hall 160, Bldg. 10, 1800 Roma Ave., Albuquerque, NM

**Owner / operator's
name and address:**

*Nombre y domicilio del
propietario u operador:*

University of New Mexico - Scholes Hall 160, Bldg. 10, 1800 Roma Ave., Albuquerque, NM

Contact for comments and inquires:

Datos actuales para comentarios y preguntas:

Name (*Nombre*): Hans Barsun, P.E

Address (*Domicilio*): MSC01 1060, 1 University of New Mexico, Albuquerque, NM 87131

Phone Number (*Número Telefónico*): (505) 277-8996 / (505) 331-4140

E-mail Address (*Correo Electrónico*): hbarsun@unm.edu

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 2, 2023

Description of the source:

Descripción de la fuente: UNM Steam Plant

**Exact location of the source
or proposed source:**

*Ubicación exacta de la fuente o
fuente propuesta:*

Building 176, 2601 Campus Blvd. NE, Albuquerque, NM 87131-0001

Nature of business:

Tipo de negocio: Steam generation for UNM facilities.

**Process or change for which the
permit is requested:**

*Proceso o cambio para el cuál de solicita el
permiso:*

Increase in stack heights for the boilers and cooling towers. Updating
of emissions for boilers with manufacturer specifications.

Maximum operating schedule:

Horario máximo de operaciones: 8760 hours/year

Normal operating schedule:

Horario normal de operaciones: 8760 hours/year

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 (for permit modification or technical revision) <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	0.90	3.96	+0.15	+0.66
CO	2.75	12.04	+0.50	+2.17
VOC	0.20	0.88	-0.0091	+0.010
SO₂	0.022	0.10	-0.018	-0.11
PM₁₀	0.75	3.30	+0.48	+2.10
PM_{2.5}	0.28	1.23	+0.012	+0.034
HAP	0.070	0.31	+0.070	+0.31

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

Jaimy Karacaoglu

From: Jaimy Karacaoglu
Sent: Wednesday, May 31, 2023 3:18 PM
To: kenny.stansbury@gmail.com; calmartin93@gmail.com; campus.neighborhood.assoc@gmail.com; info@willsonstudio.com; mandy@theremedyspa.com; jeffreyahoehn@gmail.com; lucylongcares@gmail.com; theboard@nobhill-nm.com; tdavisnm@gmail.com; sarakoplik@hotmail.com; northcampusna@gmail.com; dbodinem@gmail.com; ja.montalbano@gmail.com; silverhillabq@gmail.com; pnsswift@comcast.net; jrcochr@gmail.com; franchini.kathryn@gmail.com; joebrooks@homesinabq.com; summitparkNA@gmail.com; mandy@theremedyspa.com; sricdon@earthlink.net; info@uhanm.org
Cc: Adam Erenstein; Lopez, Angela; EHD, AQD; hbarsun@unm.edu
Subject: Public Notice of Proposed Air Quality Construction Permit Application - UNM
Attachments: UNM Steam Plant NOI_v1.0_2023 0531.pdf

Dear Neighborhood Association/Coalition Representative(s),

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	University of New Mexico
Site or Facility Name	University of New Mexico – Steam Plant
Site or Facility Address	Building 176, 2601 Campus Blvd. NE, Albuquerque, NM 87131-0001
New or Existing Source	EXISTING
Anticipated Date of Application Submittal	June 2, 2023
Summary of Proposed Source to Be Permitted	Increase in stack heights for the boilers and cooling towers. Updating of emissions for boilers with manufacturer specifications.

What emission limits and operating schedule are being requested?

See attached Notice of Intent to Construct form for this information.

How do I get additional information regarding this proposed application?

For inquiries regarding the proposed source, contact:

- Hans Barsun, P.E.
- hbarsun@unm.edu
- (505) 277-8996

For inquiries regarding the air quality permitting process, contact:

- City of Albuquerque Environmental Health Department Air Quality Program

- aqd@cabq.gov
- (505) 768-1972

Jaimy Karacaoglu
Consultant

P 505.266.6611 M 410.903.0750
9400 Holly Avenue NE, Building 3, Suite B, Albuquerque, NM 87122
Email: jaimy.karacaoglu@trinityconsultants.com



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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: UNM Steam Plant
Contact: Hans Barsun - (215)885-8683
Company/Business: University of New Mexico

- 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: N/A – Posting of sign is required for this application.



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

- Applicant's Name: UNIVERSITY OF NEW MEXICO - Steam Plant
 Nombre del solicitante: UNIVERSITY OF NEW MEXICO
 Owner or Operator's Name: UNIVERSITY OF NEW MEXICO
 Nombre del Proprietario o Operador: UNIVERSITY OF NEW MEXICO
- Actual or Estimated Date the Application will be Submitted to the Department:
 Fecha Actual o Estimada en que se Entregará la Solicitud al Departamento:
- Exact Location of the Source or Proposed Source:
 Ubicación Exacta de la Fuente o Fuente Propuesta: 2601 Campus Blvd NE, Albuquerque, NM 87131-0001
- Description of the Source: UNM Steam Plant
 Nature of Business: Steam generation for UNM facilities
 Tipo de Negocio: Steam generation for UNM facilities
 Process or change for which a permit is requested: Increase in stack heights for boilers and cooling towers
 Proceso o cambio para el cual se solicita el permiso: Increase in stack heights for boilers and cooling towers
 Update boiler emission using manufacturer specifications
 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 Propuesto		Net Change Emissions (or 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	0.90	3.96	+ 0.15	+ 0.66
CO	2.35	12.04	+ 0.50	+ 2.12
VOC	0.20	0.88	- 0.091	- 0.010
SO ₂	0.02	0.10	- 0.018	- 0.11
PM ₁₀	0.25	3.30	+ 0.48	+ 1.98
PM _{2.5}	0.28	1.73	+ 0.012	+ 0.014
HAP	0.030	0.31	- 0.070	+ 0.31

- Maximum Operating Schedule: 8760 Hours/Year
 Horario Máximo de Operaciones: 8760 Hours/Year
 Normal Operation Schedule: 8760 Hours/Year
 Horario Normal de Operaciones: 8760 Hours/Year

- Current Contact Information for Comments and Inquiries
 Datos actuales para Comentarios e Inquiries
 Name (Nombre): Hans Bao Sun
 Address (Dirección): Scholar Hill 160, Bldg 10, 1800 Roma Ave., Albuquerque, NM 87131-0001
 Phone Number (Número Telefónico): (505) 227-2253
 Email Address (Correo Electrónico): hbosun@unm.edu

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 lấy 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
 (505) 768-1972, aq@cabq.gov

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

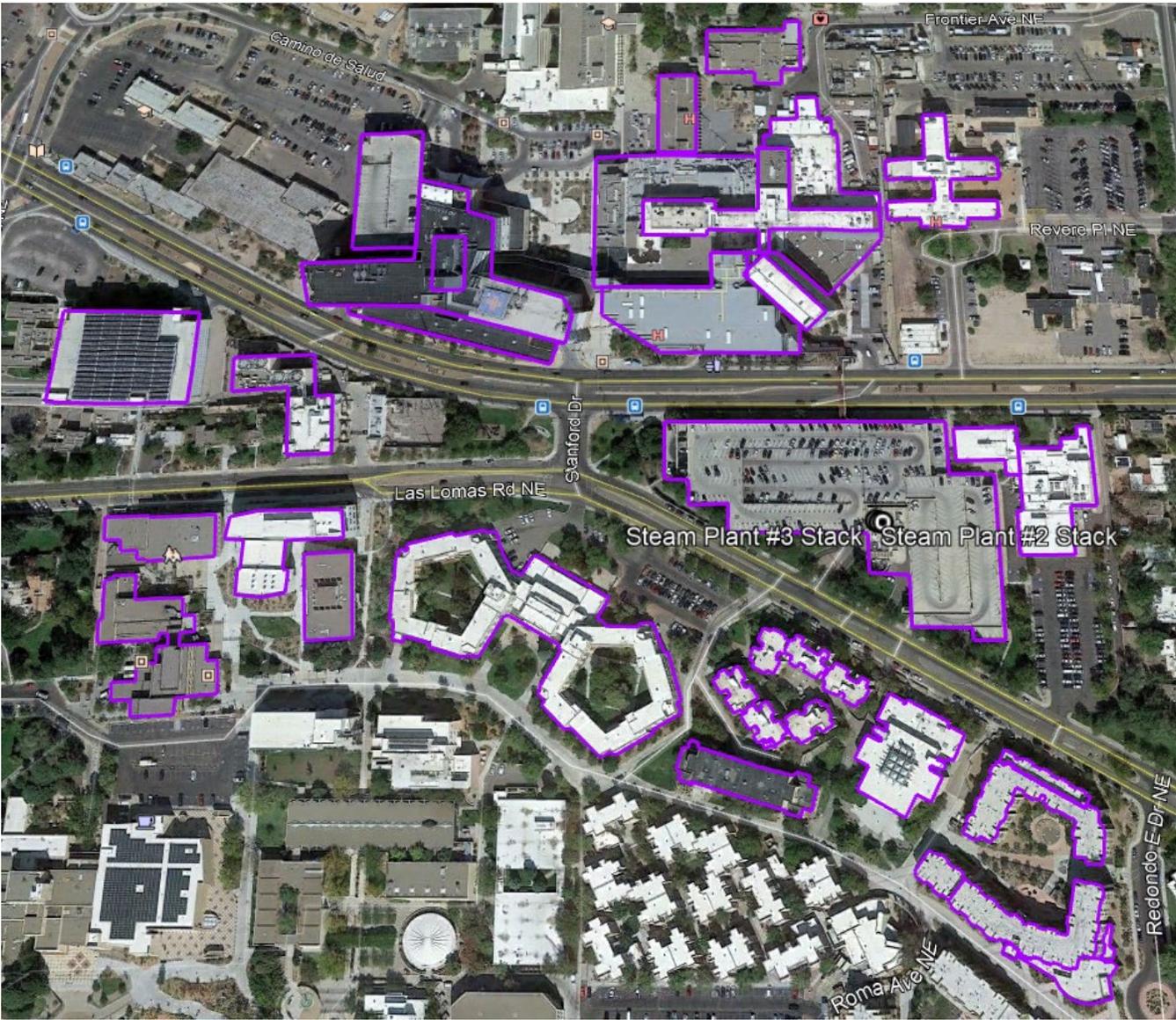


APPENDIX D. FACILITY LOCATION AND AERIAL PHOTOGRAPH

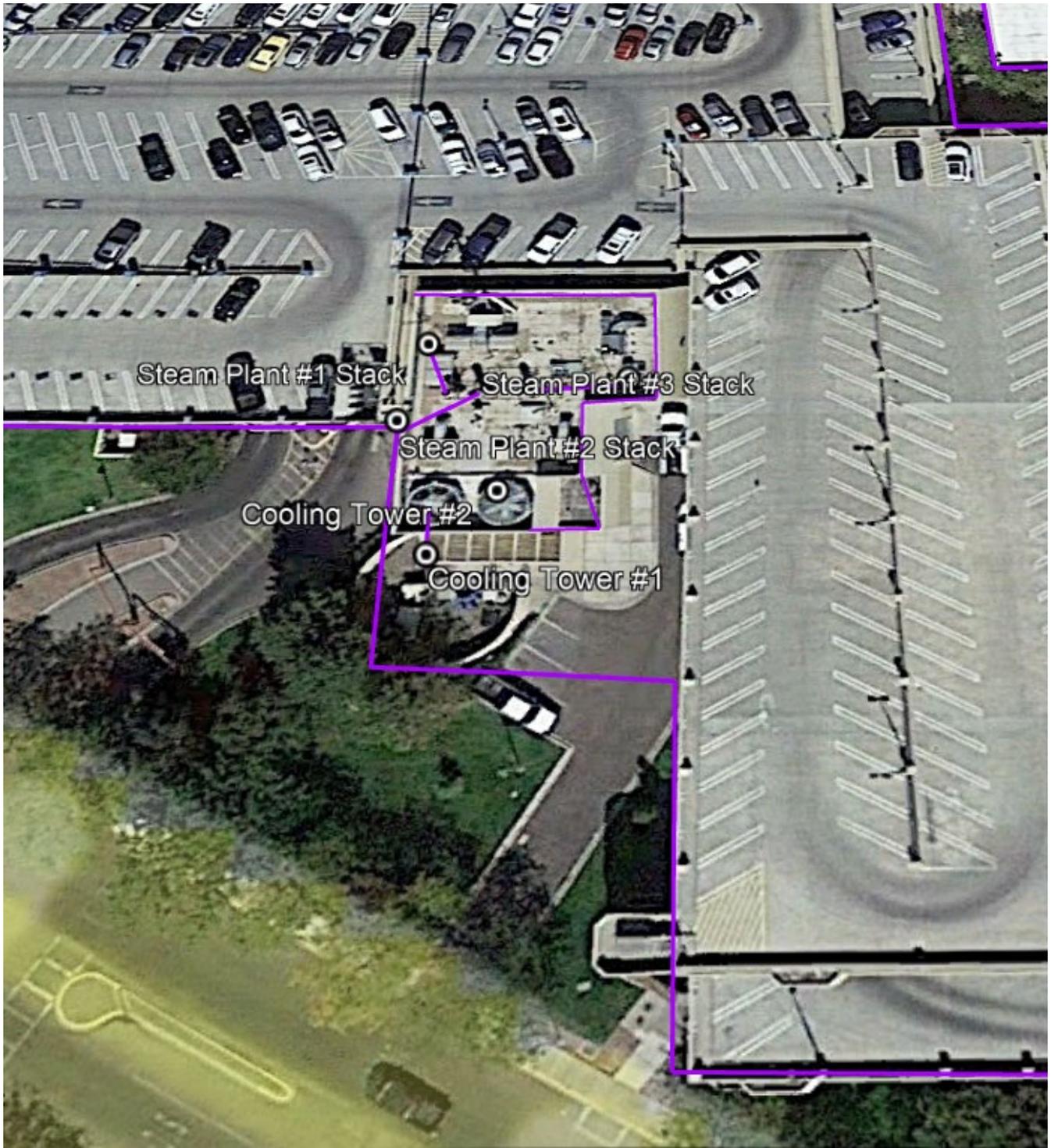
Appendix Figure D-1: Facility Location

Appendix Figure D-2: Aerial Photograph of Process Locations

Appendix Figure D-1. Facility Location



Appendix Figure D-2. Aerial Photograph of Process Locations



APPENDIX E. ZONING CERTIFICATIONS

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 10, 2022

VIA Email, hbarsun@unm.edu

UNM
Scholes Hall 160, Bldg. 10 1800 Roma Ave.
Albuquerque, NM 87131

RE: 2601 Campus Blvd. NE the "property".
UPC: 101605717651721001

To Whom It May Concern:

This letter will certify that according to the map on file in this office on May 10, 2022, the referenced property, legally described as: LT 29 BLK B AMENDED & SUPPLE PLAT OF B CAMPUS OF UNIVERSITY OF NEW MEXICO (EXECPT PORT TO LOMAS R/W) CONT 10.7900 AC M/L Albuquerque, Bernalillo County, New Mexico, is Zoned: RESIDENTIAL – MULTI-FAMILY HIGH DENSITY ZONE DISTRICT (R-MH)

PO Box 1293

The current use of the property is Major Utility, other, and Parking Structure. Which is an allowed use with a permissive accessory in the R-MH Zone.

Albuquerque

This property has been inspected and it was found to be in compliance with the applicable provisions of the Integrated Development Ordinance. This site is not controlled by an approved site development plan. There are no special exceptions or overlays associated with this site.

NM 87103

If you have any questions regarding this matter please contact me at (505) 924-3301 or by email at ametzgar@cabq.gov.

www.cabq.gov

Sincerely:

Angelo Metzgar,
Code Compliance Manager, Code Enforcement, Planning Department

RESIDENTIAL – MULTI-FAMILY HIGH DENSITY ZONE DISTRICT (R-MH)

Purpose: The purpose of the R-MH zone district is to promote and encourage the development of high-density attached and multi-family housing, with taller, multi-story buildings encouraged in Centers and Corridors in areas close to major streets and public transit facilities. The primary land use is multi-family dwellings, with limited civic and institutional uses to serve the surrounding residential area.



This document provides a summary about development in the R-MH zone district. It includes links to Frequently Asked Questions (FAQs) about allowable uses, use-standards, development standards, and the approval process.

The document also includes a summary of the development standards and a summary of the allowable uses in this zone. To see the full Integrated Development Ordinance (IDO), click the link below.

<https://ido.abc-zone.com/>

Notes:

1. Check the project website for links to the Integrated Development Ordinance, the Allowable Uses Table, and excerpts from the Allowable Uses Table for each zone district.
<https://abc-zone.com/node/919>
2. Check the IDO to see if there are any Use-specific Standards or an Airport Protection Overlay zone that may change the allowable uses on your property. (See IDO Part 4 and Section 3-3, respectively). For more information, see these FAQs:
<https://abc-zone.com/node/915>
<https://abc-zone.com/node/931>
3. Check the IDO to find development standards for your zone district and any context-specific standards that apply to your property. (See IDO Parts 2 and 5.) For more information, see this FAQ:
<https://abc-zone.com/node/930>
4. Check the IDO to find review and approval processes that may apply to a zone district, your project, or your property. (See IDO Part 6.) For more information, see this FAQ:
<https://abc-zone.com/node/933>

If you have other questions, contact the Planning Department at 924-3860 and request to schedule a Pre-application Review Team Meeting (PRT).

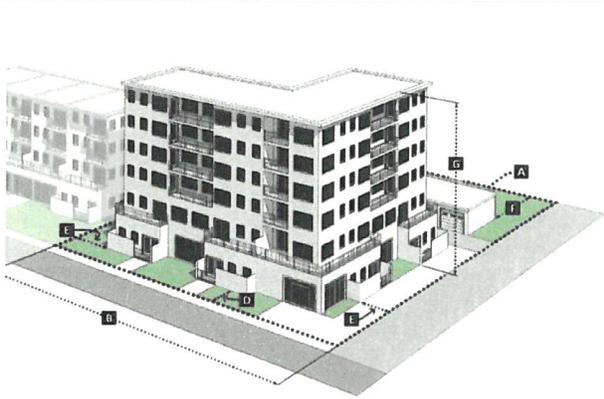
Development Standards Summary

Table 2-3-11: R-MH Zone District Dimensional Standards

UC-MS-PT = Urban Centers, Main Street areas, and Premium Transit areas BR = bedroom DU = dwelling units

Note: Any different dimensional standards in Part 14-16-3 (Overlay Zones) and Section 14-16-5-9 (Neighborhood Edges) applicable to the property shall prevail over the standards in this table.

Development Location		General	UC-MS-PT
Site Standards*			
Lot size, minimum See Subsection 14-16-5-1(C)(2)	A	10,000 sq. ft.	
Lot width, minimum See Subsection 14-16-5-1(C)(2)	B	150 ft.	100 ft.
Usable open space, minimum	C	≤1 BR: 225 sq. ft. / unit 2 BR:285 sq. ft. / unit ≥3 BR: 350 sq. ft. / unit	50 % reduction
Setback Standards			
Front, minimum	D	15 ft. / N/A	0 ft. / 10 ft.
Side, minimum	E	Interior: 5 ft.; Street side: 10 ft. / N/A	0 ft. / Street side: 15 ft
Rear, minimum	F	15 ft.	
Building Height			
Building height, maximum	G	48 ft.	65 ft.
		>100 ft. from all lot lines: N/A	



[1] Residential development that qualifies for funding through Article 14-17 of ROA 1994 (Family Housing Developments) may be eligible for development incentives specified in that Article.

*See IDO Subsection 14-16-5-1(C)(2) Contextual Residential Development in Areas of Consistency, if applicable, for additional standards that modify these general dimensional standards.

Table 2-3-12: Other Applicable IDO Sections

Overlay Zones	Part 14-16-3	Landscaping, Buffering, and Screening	14-16-5-6
Allowable Uses	14-16-4-2	Walls and Fences	14-16-5-7
Use-specific Standards	14-16-4-3	Outdoor Lighting	14-16-5-8
Dimensional Standards	14-16-5-1	Neighborhood Edges	14-16-5-9
Site Design and Sensitive Lands	14-16-5-2	Solar Access	14-16-5-10
Access and Connectivity	14-16-5-3	Building Design	14-16-5-11
Subdivision of Land	14-16-5-4	Signs	14-16-5-12
Parking and Loading	14-16-5-5	Operations and Maintenance	14-16-5-13

Use Table Summary

The following excerpt from Table 4-2-1 shows the allowable uses for the **R-MH zone district only** (highlighted). See the Integrated Development Ordinance (IDO) for the complete list of uses allowed in all zone districts and use definitions (Table 4-2-1 and Subsection 14-16-7-1, respectively).

- ⇒ Permissive uses (P) are allowed in this zone by right, without any other approvals
- ⇒ Conditional uses (C) require approval at a public hearing (see Subsection 14-16-6-6(A) for more info)
- ⇒ Accessory uses (A) must be in addition to an allowed primary use (either P or C)

The column on the far right (also highlighted), provides IDO section references for Use-specific Standards that may apply to a use. These Use-specific Standards may change the allowable uses depending on the context of the site or may impose requirements on the development.

Table 4-2-1: Allowable Uses																				
P = Permissive Primary C = Conditional Primary A = Permissive Accessory CA = Conditional Accessory CV = Conditional if Structure Vacant for 5 years or more T = Temporary Blank Cell = Not Allowed																				
Zone District >>	Residential						Mixed-use				Non-residential						Use-specific Standards			
	R-A	R-1	R-MC	R-T	R-ML	R-MH	MX-T	MX-L	MX-M	MX-H	NR-C	NR-BP	LM	GM	NR-SU	NR-PO				
																A		B	C	
PRIMARY USES THAT MAY BE ACCESSORY IN SOME ZONE DISTRICTS																				
RESIDENTIAL USES																				
Household Living																				
Dwelling, townhouse				P	P	P	P	P	P	P										4-3(B)(5)
Dwelling, live-work				C	C	P	P	P	P	P	CA	CA								4-3(B)(6)
Dwelling, multi-family					P	P	P	P	P	P										4-3(B)(7)
Group Living																				
Assisted living facility or nursing home				C	P	P	P	P	P	P										
Community residential facility, small	P	P			P	P	P	P	P	P										4-3(B)(8)
Community residential facility, large					P	P	P	P	P	P										4-3(B)(8)
Dormitory						P	C	P	P	P										
Group home, small					C	P	P	P	P											4-3(B)(9)
Group home, medium					C	C	C	P	P	P										4-3(B)(9)
Group home, large						C			C	C										4-3(B)(9)
CIVIC AND INSTITUTIONAL USES																				
Adult or child day care facility			C	C	C	P	P	P	P	P	P	P	A	A						
Community center or library	C	P		P	P	P	P	P	P	P	C	C	C	C		P		C		4-3(C)(1)
Elementary or middle school	C	C		C	P	P	P	P	P	P	P	P	CV			P		C		4-3(C)(2)
High school	C	C		C	C	P	P	P	P	P	P	P	C			P				4-3(C)(3)
Museum				CV	CV	C	P	P	P	P	P	P	P	P		P	A			4-3(C)(5)
Parks and open space	P	P		P	P	P	P	P	P	P	P	P	C	C	A	P	P	P		4-3(C)(7)
Religious institution	P	P		P	P	P	P	P	P	P	P	P	CV	CV						4-3(C)(8)

Table 4-2-1: Allowable Uses

P = Permissive Primary C = Conditional Primary A = Permissive Accessory CA = Conditional Accessory
 CV = Conditional if Structure Vacant for 5 years or more T = Temporary Blank Cell = Not Allowed

Zone District >>	Residential				Mixed-use				Non-residential							Use-specific Standards									
	R-A	R-1	R-MC	R-T	R-ML	R-MH	MX-T	MX-L	MX-M	MX-H	NR-C	NR-BP	LM	GM	NR-SU		NR-PO								
																	A	B	C						
University or college						CV	CV	C	P	P	P	P	CV	CV											
Vocational school						CV	P	P	P	P	P	P	P	P											
COMMERCIAL USES																									
Agriculture and Animal-related																									
Community garden	P	P	P	P	P	P	P	P	P	P	P	P	C	C			A	A	A						4-3(D)(1)
Food, Beverage, and Indoor Entertainment																									
Auditorium or theater						A	A	A	P	P	P	P	P	P											4-3(D)(7)
Health club or gym			A		A	A	P	P	P	P	P	P	P	A											4-3(D)(9)
Residential community amenity, indoor	P	P	P	P	P	P	P	P	P	P													C		4-3(D)(11)
Lodging																									
Bed and breakfast	A	CA		A	A	P	P																		4-3(D)(13)
Motor Vehicle-related																									
Paid parking lot			A		A	A	C	P	P	A	P	P	P	P	A	A	A								4-3(D)(22)
Parking structure			A		A	A	CA	P	P	P	P	P	P	P	A										4-3(D)(22)
Outdoor Recreation and Entertainment																									
Residential community amenity, outdoor	P	P	P	P	P	P	P	P	P	P													A		
Other outdoor entertainment	CA	CA	CA	CA	CA	CA	A	A	A	A	P	P	P	A		P							P		4-3(D)(32)
Retail Sales																									
Art gallery	CV	CV	C	P	P	P	P	P	P	P	P		P	A											4-3(D)(33)
Farmers' market	T		T	T	T	T	T	P	P	P	P	P	CV	CV		P	A	CA							4-3(D)(36)
General retail, small			A			A	P	P	P	P	P	P	P	P											4-3(D)(37)
Transportation																									
Park-and-ride lot						C	C	C	P	C	C	P	C	C	A	A									4-3(D)(45)
Transit facility						C	C	C	P	P	P	P	P	P											4-3(D)(47)
INDUSTRIAL USES																									
Telecommunications, Towers, and Utilities																									
Drainage facility	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	A	A	C							
Electric utility	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	A	A	A							4-3(E)(8)
Geothermal energy generation	A	A	A	A	A	A	A	A	A	A	A	P	P	P		A	A								4-3(E)(9)
Major utility, other	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	A	A	A							
Solar energy generation	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P							4-3(E)(10)
Wireless Telecommunications Facility (WTF)																									
Architecturally integrated	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A								
Non-commercial or broadcasting antenna	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A								
Collocation	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A								4-3(E)(12)

Table 4-2-1: Allowable Uses

P = Permissive Primary C = Conditional Primary A = Permissive Accessory CA = Conditional Accessory
 CV = Conditional if Structure Vacant for 5 years or more T = Temporary Blank Cell = Not Allowed

Zone District >>	Residential			Mixed-use				Non-residential						Use-specific Standards					
	R-A	R-1	R-MC	R-T	R-ML	R-MH	MX-T	MX-L	MX-M	MX-H	NR-C	NR-BP	LM		GM	NR-SU	NR-PO		
																	A	B	C
Public utility collocation	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A			
Roof-mounted			A		A	A	A	A	A	A	A	A	A	A	A				
Small cell	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
Waste and Recycling																			
Recycling drop-off bin facility						A	A	A	A	A	P	P	P	P					4-3(E)(13)
ACCESSORY AND TEMPORARY USES																			
ACCESSORY USES																		4-3(F)(1)	
Agriculture sales stand	A	A	A	A	A	A	A	A	A	A	A	A	CA	CA			A		4-3(F)(2)
Animal keeping	A	A	A	A	A	A	A	A	A	A	A	A	A	A				CA	4-3(F)(3)
Automated Teller Machine (ATM)			A		A	A	A	A	A	A	A	A	A			T	T		
Dwelling unit, accessory with kitchen		A		A	A	A	A	A		A	A	A	A	A			A		4-3(F)(5)
Dwelling unit, accessory without kitchen	CA	A		A	A	A	A	A		A	A	A	A	A			A		4-3(F)(5)
Family care facility	A	A	A	A	A	A	A	A	A										4-3(F)(6)
Family home day care	CA	CA	CA	CA	A	A													4-3(F)(7)
Garden	A	A	A	A	A	A	A	A	A	A	A	A					A		
Home occupation	A	A	A	A	A	A	A	A	A										4-3(F)(9)
Independent living facility				A	A	A	A	A	A										4-3(F)(10)
Mobile food truck	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A			4-3(F)(11)
Second kitchen in a dwelling	A	A	A	A	A	A													4-3(F)(15)
Other use accessory to residential primary use	A	A	A	A	A	A	A	A	A										4-3(F)(17)
TEMPORARY USES																			
Temporary Uses That Require A Permit																			
Construction staging area, trailer, or office	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	4-3(G)(2)
Dwelling, temporary	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	4-3(G)(3)
Fair, festival, or theatrical performance	T	T	T	T	T	T	T	T	T	T	T			T	T	T			4-3(G)(4)
Park-and-ride facility, temporary						T	T	T	T	T	T	T	T	T			T		4-3(G)(6)
Real estate office or model home	T	T	T	T	T	T	T	T	T	T	T	T	T	T					4-3(G)(7)
Temporary Uses That Do Not Require A Permit																			
Garage or yard sale	T	T	T	T	T	T													4-3(G)(10)
Hot air balloon takeoff/landing	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	4-3(G)(11)

APPENDIX F. INCOMPLETENESS DETERMINATION

August 17, 2022

RE: *Memorandum of 1st Administrative Incomplete Determination for Air Quality Construction Permit Application to Modify #1601-M1-RV1 Response*

Dear Kyle Tumpene and City of Albuquerque EHD,

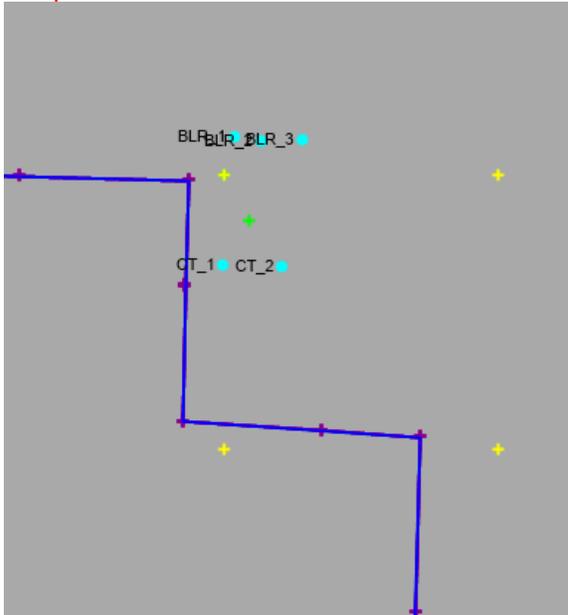
In response to the memorandum sent by Kyle Tumpene on August 8th, 2022 which was ruled administratively incomplete per the following cited deficiencies in the document in Appendix A. Our response per the issues raised with the modeling and application that was submitted are as follows.

Modeling Deficiencies:

- An incorrect NOx emission rate of 2.81 lb/hr was modeled for nearby UNMH boiler 3B. The correct emission rate, as stated in the provided surrounding source data, is 4.1 lb/hr. **Although UNMH's boilers are dual-fuel capable, UNMH has determined that the emissions from diesel combustion in these dual-fuel boilers (both existing and new) are extremely rare, UNMH has designated their diesel-fired operation as intermittent in nature and therefore has based the compliance demonstration on the combustion of natural gas. Although the 4.1 lb/hr emission rate is more conservative it is not representative of the current operations conducted at UNMH. Therefore 2.81 lb/hr is justified in its use as the background emission rate for UNMH Boiler 3B.**
- The shape of the virtual Steam Plant building needs to be adjusted to match the actual building on aerial imagery: **The building dimensions will be updated as requested.**



- Receptors need to be added along the edge of the Steam Plant building to study downwash. Here is a screenshot of the current receptors along the steam plant building currently. The boundary receptors along the building are spaced at 25 meters. Please indicate new locations of receptors to be added. All receptors within this area are spaced in fine grid pattern. Also, when the revised building is added these receptors will remain in their current locations unless otherwise specified.



- Receptors for the parking garages adjacent to the Steam Plant need to be flagpoles with a height of the roof of the structure. There are currently four flag pole receptors that have been included for these receptors. In Appendix C are the current flag pole receptors that are used in the modeling and their associated elevations.
- Close to the Steam Plant building, the flagpole receptors around the parking garage will have to be adjusted to reflect the actual shape of the parking garages. Additional flag pole receptors will be added directly next to the steam plant building that is to be included.
- Are there parking garage openings on the north and west side of the Steam Plant building? If so, a flagpole receptor should be added in front of the openings. This can be determined by UNM, if there are openings then the additional flagpoles that are being added will represent this request.
- The existing UNMH sources should be added to the cumulative particulate models because of the proximity to the UNM Steam Plant. Please refer to Appendix B which provides reference from Kyle Tumpane stating that surrounding sources do not need to be included and that the south valley background concentrations are very conservative and can be used in lieu of the surrounding sources.
- For surrounding sources in the cumulative particulate models, all exhaust temperatures are different than values provided in the surrounding source data. Specifically, the exhaust temperatures for sources with model IDs of BACK2 through BACK7, BACK10 through BACK20, and BACK23 were generous, rather than conservative. Please refer to Appendix B which provides reference from Kyle Tumpane stating that surrounding sources do not need to be included and that the south valley background concentrations are very conservative and can be used in lieu of the surrounding sources.
- In the cumulative PM models, default vertical releases were used to characterize sources BACK10 and BACK11 as well as BACK17 through BACK22, when RAINCAP should have been used as the release type. Please refer to Appendix B which provides reference from Kyle Tumpane stating that surrounding sources do not need to be included and that the south valley background concentrations are very conservative and can be used in lieu of the surrounding sources.

Application Deficiencies:

- The application long form was not dated. This was an administrative error, and a date will be included in the next submission of this application.
- Please provide more information for the operational and maintenance strategy. What specific steps will UNM take to minimize emissions during routine startup or shutdown? How would excess emissions be reported in accordance with UNM's Title V permit? Based on discussions with UNM, SSM will not occur. Since the last Title V renewal submitted in 2017, UNM has not modified their startup, shutdown, and maintenance emissions for any sources associated with the UNM Main campus or the ATCs permitted for UNM facilities. No SSM activities are not expected to create any emission limit deviations as specified in the current Title V Operating Permit #0536-RN1. Although excess emissions are not expected, if they were to occur then they would be reported in accordance with Part 5.3 of the Title V operating permit.

UNM can propose a potential operating schedule that has specified times of maintenance to provide a better estimation of potential emissions for the facility. UNM would insure that the equipment is operated properly to prevent any excess emissions from being released from the facility, however SSM and Malfunction emissions are not permitted and are not requested under this permit application.

- The weather-proof sign appears to be missing the date the application will be submitted to the Department. This was an administrative error, and a date will be included in the next submission of this application.

APPENDIX A EHD INCOMPLETE DETERMINATION

CITY OF ALBUQUERQUE

Environmental Health Department

Ángel Martínez Jr., Director



August 8, 2022

Hans Barsun
Facilities Management Utilities Division
University of New Mexico
Scholes Hall 160, Bldg. 10
1800 Roma Ave.
Albuquerque, NM 87131

Email: hbarsun@unm.edu

Cc: Casey Hall, cbhall@unm.edu;
Adam Erenstein, arenstein@trinityconsultants.com

**SUBJECT: Air Quality Construction Permit Application to Modify #1601-M1-RV1
1st Administrative Incomplete Determination**

Dear Mr. Barsun:

The City of Albuquerque, Environmental Health Department (EHD), Air Quality Program (Program) received an air quality construction permit application from the University of New Mexico on June 16, 2022 for their steam plant facility located at Steam Plant Building 176, 2601 Campus Blvd. NE in Albuquerque, New Mexico. An initial review has been completed, and based on the information that was submitted, the Program is not able to complete a thorough evaluation of the application at this time. Therefore, the application has been deemed administratively incomplete on July 18, 2022. The preliminary review revealed the following concerns with the modeling report and application that will need to be addressed before the review of the air dispersion modeling and application can proceed.

Modeling deficiencies:

- 1) An incorrect NO_x emission rate of 2.81 lb/hr was modeled for nearby UNMH boiler 3B. The correct emission rate, as stated in the provided surrounding source data, is 4.1 lb/hr.
- 2) The shape of the virtual Steam Plant building needs to be adjusted to match the actual building on aerial imagery:



PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

- 3) Receptors need to be added along the edge of the Steam Plant building to study downwash.
- 4) Receptors for the parking garages adjacent to the Steam Plant need to be flagpoles with a height of the roof of the structure.
- 5) Close to the Steam Plant building, the flagpole receptors around the parking garage will have to be adjusted to reflect the actual shape of the parking garages.
- 6) Are there parking garage openings on the north and west side of the Steam Plant building? If so, a flagpole receptor should be added in front of the openings.
- 7) The existing UNMH sources should be added to the cumulative particulate models because of the proximity to the UNM Steam Plant.
- 8) For surrounding sources in the cumulative particulate models, all exhaust temperatures are different than values provided in the surrounding source data. Specifically, the exhaust temperatures for sources with model IDs of BACK2 through BACK7, BACK10 through BACK20, and BACK23 were generous, rather than conservative.
- 9) In the cumulative PM models, default vertical releases were used to characterize sources BACK10 and BACK11 as well as BACK17 through BACK22, when RAINCAP should have been used as the release type.

Application deficiencies:

- 1) The application long form was not dated.
- 2) Please provide more information for the operational and maintenance strategy. What specific steps will UNM take to minimize emissions during routine startup or shutdown? How would excess emissions be reported in accordance with UNM's Title V permit?
- 3) The weather-proof sign appears to be missing the date the application will be submitted to the Department.

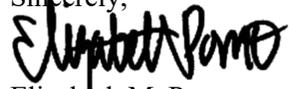
Pursuant to 20.11.41.16.A(2) NMAC, the department may deem the application administratively incomplete, if the department requires additional information to make a thorough review of the application, including technical clarifications, emission calculations, emission factor usage, additional application review fees if any are required by 20.11.2 NMAC and new or additional air dispersion modeling.

Please be aware that this is the first out of three opportunities for the Program to determine if the application is administratively complete and continue the process. If the Program has ruled an application administratively incomplete three times, the Program can deny the permit application. Any fees submitted for processing an application that has been denied will not be refunded pursuant to 20.11.41.16.A(2) NMAC. If the Program denies the application, the applicant may submit a new application and the fee required for a new application. **The deadline to receive a complete application and a copy, that includes all the information as required in 20.11.41.13 NMAC, is October 31, 2022.** Additionally, if the time lapse between the date of the Memorandum with the contact list of all NAs/NCs provided by the Program and the resubmittal of the application is more than three months, you will need to resend the notice of intent (NOI) to construct to the representatives of the Neighborhood Associations and Coalitions (NAs/NCs) located within ½ mile of the boundaries of the site. Please contact the Program to obtain an updated contact list of the NAs/NCs.

The Program will continue the evaluation of the application and air dispersion model, once a complete application has been received.

If you have any further questions, please do not hesitate to contact me by phone at (505) 768-2638 or via e-mail at epomo@cabq.gov.

Sincerely,



Elizabeth M. Pomo
Senior Environmental Health Scientist, Permitting Division
Air Quality Program, Environmental Health Department
City of Albuquerque

UNM Steam Plant

1st Deemed Incomplete Letter
Page 3 of 3

**APPENDIX B PARTICULATE MATTER BACKGROUND EMAIL FROM KYLE
TUMPANE SEPTEMBER 10, 2021**

Best,

Xavier Chavez, M.S
Associate Consultant

M 505.440.3715
9400 Holly Avenue NE, Building 3, Suite 300, Albuquerque, NM 87122
Email: xavier.chavez@trinityconsultants.com



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From: Tumpane, Kyle <ktumpane@cabq.gov>

Sent: Friday, September 10, 2021 12:36 PM

To: Mike Celente <MCelente@trinityconsultants.com>

Cc: Stonesifer, Jeff W. <JStonesifer@cabq.gov>; Munoz-Dyer, Carina G. <cmunoz-dyer@cabq.gov>; Hans Barsun <hbarsun@unm.edu>; Casey Hall <cbhall4@unm.edu>; Adam Erenstein <AErenstein@trinityconsultants.com>; Xavier Chavez <Xavier.Chavez@trinityconsultants.com>

Subject: Concerns Regarding UNM Steam Plant Facility Modeling Protocol

Mike,

The City of Albuquerque Air Quality Program (AQP) has finished reviewing the modeling protocol submitted on August 20, 2021 on behalf of the UNM Steam Plant. The protocol is denied. The AQP has some questions and concerns that need to be addressed.

1. The boilers were modeled and permitted for 40 foot stacks in 1601-M1 because they were installed 10 ft shorter than the requested 50 ft height in 1601. This protocol lists 60 ft as the stack heights but the description says the stacks will be raised by 10 ft. Are the stacks being raised 10 ft or 20 ft? Is 60 ft the correct final height? The application for 1601-M1-RV1 listed 50 ft as the stack heights but this may have been an oversight and the same height was left from the previous application.
2. The provided manufacturer spec sheet appears to be for a 11.5 MMBtu/hr heat input boiler but the boilers are listed as 12.4 MMBtu/hr. This lower rating does not match the 10.122 MMBtu/hr rating in the 1601-M1 application (these are the specs provided for the 7 boilers) but the 1601-M1-RV1 application states that the nameplate capacity is 12.4 MMBtu/hr and they were de-rated to 9.82 MMBtu/hr based on altitude so it is unclear where the 10.122 MMBtu/hr value came from. De-rating is not allowed by the program so the nameplate capacity/heat output must be used to calculate emissions and must be listed in the permit. Please provide a spec sheet that matches the boiler nameplate capacity or provide an explanation of why this spec sheet is appropriate to use.

3. Confirm that the use of a different boiler spec sheet does not affect the stack temperature or exit velocity since both of these values are lower than previously listed. The stack velocity (9.95 ft/s) listed on the stack parameters table does not match the flue gas velocity listed on the provided boiler specification sheet (25.1 ft/s). Should these match? 9.95 ft/s also does not match what was previously modeled for these boilers for 1601-M1 (16.7 ft/s) or the previous applications (2588.3 ft³/min, which converts to ~11.7 ft/s). Please confirm the correct stack velocity and exit temperature.
4. Please provide details on which buildings or facilities the UNM Steam Plant supports.
5. Regarding the conservative plan to use South Valley backgrounds for CO and particulates, this could be done and surrounding particulate sources would not need to be included in a cumulative model. But be aware that the South Valley particulate backgrounds are going to go up quite a bit when we update our backgrounds in the near future and the model will have to pass with those higher backgrounds. This may not be an issue but we wanted to let you know. The other option would be to use the Del Norte backgrounds for those pollutants and include surrounding particulate sources.
6. Parking structures that are completely open on all sides at each level probably should not be modeled as buildings for downwash analysis because the wind is likely to pass right through the different levels and the downwash algorithm probably will not give representative results. There should be flagpole receptors at each parking garage level but the garage itself should not be a structure in the model for downwash.
 - a. This looks like it might be the case for the Lomas parking structure surrounding the steam plant building. The steam plant building appears solid from what I can tell and should be modeled as a structure. This may also be the case for the existing UNMH parking structure attached to the main hospital. The parking garages should just have the flagpole receptors on each level and no building for the garages themselves.
 - b. The parking garage south of Lomas and south of the current Physics and Astronomy building looks like a different situation. That parking garage has a solid wall on the east side and so it should be modeled as a solid structure with flagpole receptors at each level around the outside.
7. EHD has not determined that the KABQ MET data is appropriate for the steam plant. It is being proposed for use in the protocol and we are considering it at this point. Can you potentially change that standard language in your protocols? It is, however, adequately representative as described in the Appendix W modeling guidelines.

Please submit an updated modeling protocol that addresses the questions and concerns.

Let us know if you have any questions.

Thank you,



KYLE TUMPANE

environmental health scientist | environmental health department

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m 505.366.9985

cabq.gov/airquality

**APPENDIX C FLAG POLE RECEPTORS FOR UNM PARKING GARAGE
SURROUNDING STEAM PLANT**

Steam Plant Parking Garage Flagpole receptors

					ft	
352536.9	3883919	1567.32	1567.32	0	Level 1	101.92
352561.9	3883919	1567.54	1567.54	0		
352586.9	3883918	1568.01	1568.01	0		
352611.9	3883918	1568.23	1568.23	0		
352636.9	3883917	1569.36	1569.36	0		
352661.9	3883917	1570.44	1570.44	0		
352686.9	3883916	1570.64	1570.64	0		
352694.3	3883916	1570.73	1570.73	0		
352694.1	3883899	1570.24	1570.24	0		
352694	3883885	1569.92	1569.92	0		
352705.6	3883885	1570.08	1570.08	0		
352719	3883885	1570.33	1570.33	0		
352718.7	3883873	1570.04	1570.04	0		
352718.1	3883848	1569.08	1569.08	0		
352717.4	3883823	1569.02	1569.02	0		
352716.8	3883798	1569.29	1569.29	0		
352716.6	3883792	1569.32	1569.32	0		
352699.5	3883792	1569.54	1569.54	0		
352699.5	3883794	1569.5	1569.5	0		
352699.5	3883799	1569.35	1569.35	0		
352679.7	3883800	1569.35	1569.35	0		
352667.2	3883800	1569.58	1569.58	0		
352667.6	3883812	1569.25	1569.25	0		
352668	3883828	1568.95	1568.95	0		
352659	3883829	1568.93	1568.93	0		
352646.4	3883830	1569.02	1569.02	0		
352646.6	3883842	1568.75	1568.75	0		
352646.6	3883842	1568.75	1568.75	0		
352646.9	3883852	1568.72	1568.72	0		
352631.5	3883852	1568.75	1568.75	0		
352606.6	3883853	1568.64	1568.64	0		
352581.6	3883853	1568.44	1568.44	0		
352570.5	3883854	1568.48	1568.48	0		
352571	3883868	1567.86	1567.86	0		
352571.1	3883870	1567.8	1567.8	0		
352549.4	3883869	1567.94	1567.94	0		
352549.4	3883871	1567.89	1567.89	0		
352549.7	3883884	1567.52	1567.52	0		
352538	3883884	1567.71	1567.71	0		
352536.4	3883884	1567.76	1567.76	0		
352536.7	3883908	1567.53	1567.53	0		

352536.9	3883919	1569.92	1569.92	0.00
352561.9	3883919	1570.14	1570.14	0.00
352586.9	3883918	1570.61	1570.61	0.00
352611.9	3883918	1570.83	1570.83	0.00
352636.9	3883917	1571.96	1571.96	0.00
352661.9	3883917	1573.04	1573.04	0.00
352686.9	3883916	1573.24	1573.24	0.00
352694.3	3883916	1573.33	1573.33	0.00
352694.1	3883899	1572.84	1572.84	0.00
352694	3883885	1572.52	1572.52	0.00
352705.6	3883885	1572.68	1572.68	0.00
352719	3883885	1572.93	1572.93	0.00
352718.7	3883873	1572.64	1572.64	0.00
352718.1	3883848	1571.68	1571.68	0.00
352717.4	3883823	1571.62	1571.62	0.00
352716.8	3883798	1571.89	1571.89	0.00
352716.6	3883792	1571.92	1571.92	0.00
352699.5	3883792	1572.14	1572.14	0.00
352699.5	3883794	1572.1	1572.1	0.00
352699.5	3883799	1571.95	1571.95	0.00
352679.7	3883800	1571.95	1571.95	0.00
352667.2	3883800	1572.18	1572.18	0.00
352667.6	3883812	1571.85	1571.85	0.00
352668	3883828	1571.55	1571.55	0.00
352659	3883829	1571.53	1571.53	0.00
352646.4	3883830	1571.62	1571.62	0.00
352646.6	3883842	1571.35	1571.35	0.00
352646.6	3883842	1571.35	1571.35	0.00
352646.9	3883852	1571.32	1571.32	0.00
352631.5	3883852	1571.35	1571.35	0.00
352606.6	3883853	1571.24	1571.24	0.00
352581.6	3883853	1571.04	1571.04	0.00
352570.5	3883854	1571.08	1571.08	0.00
352571	3883868	1570.46	1570.46	0.00
352571.1	3883870	1570.4	1570.4	0.00
352549.4	3883869	1570.54	1570.54	0.00
352549.4	3883871	1570.49	1570.49	0.00
352549.7	3883884	1570.12	1570.12	0.00
352538	3883884	1570.31	1570.31	0.00
352536.4	3883884	1570.36	1570.36	0.00
352536.7	3883908	1570.13	1570.13	0.00

Level 2

110.92

352536.9	3883919	1572.52	1572.52	0.00
352561.9	3883919	1572.74	1572.74	0.00
352586.9	3883918	1573.21	1573.21	0.00
352611.9	3883918	1573.43	1573.43	0.00
352636.9	3883917	1574.56	1574.56	0.00
352661.9	3883917	1575.64	1575.64	0.00
352686.9	3883916	1575.84	1575.84	0.00
352694.3	3883916	1575.93	1575.93	0.00
352694.1	3883899	1575.44	1575.44	0.00
352694	3883885	1575.12	1575.12	0.00
352705.6	3883885	1575.28	1575.28	0.00
352719	3883885	1575.53	1575.53	0.00
352718.7	3883873	1575.24	1575.24	0.00
352718.1	3883848	1574.28	1574.28	0.00
352717.4	3883823	1574.22	1574.22	0.00
352716.8	3883798	1574.49	1574.49	0.00
352716.6	3883792	1574.52	1574.52	0.00
352699.5	3883792	1574.74	1574.74	0.00
352699.5	3883794	1574.7	1574.7	0.00
352699.5	3883799	1574.55	1574.55	0.00
352679.7	3883800	1574.55	1574.55	0.00
352667.2	3883800	1574.78	1574.78	0.00
352667.6	3883812	1574.45	1574.45	0.00
352668	3883828	1574.15	1574.15	0.00
352659	3883829	1574.13	1574.13	0.00
352646.4	3883830	1574.22	1574.22	0.00
352646.6	3883842	1573.95	1573.95	0.00
352646.6	3883842	1573.95	1573.95	0.00
352646.9	3883852	1573.92	1573.92	0.00
352631.5	3883852	1573.95	1573.95	0.00
352606.6	3883853	1573.84	1573.84	0.00
352581.6	3883853	1573.64	1573.64	0.00
352570.5	3883854	1573.68	1573.68	0.00
352571	3883868	1573.06	1573.06	0.00
352571.1	3883870	1573	1573	0.00
352549.4	3883869	1573.14	1573.14	0.00
352549.4	3883871	1573.09	1573.09	0.00
352549.7	3883884	1572.72	1572.72	0.00
352538	3883884	1572.91	1572.91	0.00
352536.4	3883884	1572.96	1572.96	0.00
352536.7	3883908	1572.73	1572.73	0.00

Level 3

121.92

352536.9	3883919	1575.12	1575.12	0.00
352561.9	3883919	1575.34	1575.34	0.00
352586.9	3883918	1575.81	1575.81	0.00
352611.9	3883918	1576.03	1576.03	0.00
352636.9	3883917	1577.16	1577.16	0.00
352661.9	3883917	1578.24	1578.24	0.00
352686.9	3883916	1578.44	1578.44	0.00
352694.3	3883916	1578.53	1578.53	0.00
352694.1	3883899	1578.04	1578.04	0.00
352694	3883885	1577.72	1577.72	0.00
352705.6	3883885	1577.88	1577.88	0.00
352719	3883885	1578.13	1578.13	0.00
352718.7	3883873	1577.84	1577.84	0.00
352718.1	3883848	1576.88	1576.88	0.00
352717.4	3883823	1576.82	1576.82	0.00
352716.8	3883798	1577.09	1577.09	0.00
352716.6	3883792	1577.12	1577.12	0.00
352699.5	3883792	1577.34	1577.34	0.00
352699.5	3883794	1577.3	1577.3	0.00
352699.5	3883799	1577.15	1577.15	0.00
352679.7	3883800	1577.15	1577.15	0.00
352667.2	3883800	1577.38	1577.38	0.00
352667.6	3883812	1577.05	1577.05	0.00
352668	3883828	1576.75	1576.75	0.00
352659	3883829	1576.73	1576.73	0.00
352646.4	3883830	1576.82	1576.82	0.00
352646.6	3883842	1576.55	1576.55	0.00
352646.6	3883842	1576.55	1576.55	0.00
352646.9	3883852	1576.52	1576.52	0.00
352631.5	3883852	1576.55	1576.55	0.00
352606.6	3883853	1576.44	1576.44	0.00
352581.6	3883853	1576.24	1576.24	0.00
352570.5	3883854	1576.28	1576.28	0.00
352571	3883868	1575.66	1575.66	0.00
352571.1	3883870	1575.6	1575.6	0.00
352549.4	3883869	1575.74	1575.74	0.00
352549.4	3883871	1575.69	1575.69	0.00
352549.7	3883884	1575.32	1575.32	0.00
352538	3883884	1575.51	1575.51	0.00
352536.4	3883884	1575.56	1575.56	0.00
352536.7	3883908	1575.33	1575.33	0.00

Level 4

131.92



September 14, 2022

To: Carina Munoz-Dyer, Environmental Health Manager
From: Jeff Stonesifer, Senior Environmental Health Scientist
Subject: Follow up to videoconference on application for UNM Steam Plant

The Air Quality Program ('AQP') deemed the recent application for modifying the University of New Mexico ('UNM') Steam Plant incomplete on July 18, 2022. A response from Trinity Consultants was received August 17, 2022 on behalf of UNM. A Microsoft Teams videoconference was held the morning of September 14, 2022 to discuss the incompleteness determination and Trinity's response. To ensure both sides understood the discussion clearly, the following points summarize the discussion.

1. UNM Hospital ('UNMH') claims that the use of diesel fuel for boiler 3B is "extremely rare." Due to the rarity of diesel usage, the AQP agrees with the suggestion that UNMH boiler 3B should be modeled assuming natural gas usage.
2. The modeling that was submitted included a virtual building that encompassed both the UNM Steam Plant building and the adjacent parking garage. The virtual building should not include the parking garage which is well-ventilated on three levels and all sides. Please ensure that the modeling report is updated as well.
3. There should be receptors along the edge of the modified virtual Steam Plant building. Flagpole receptors should only be located along the edge of the parking structure, not along the edge of the Steam Plant building.
4. The receptors inside the outline of the Steam Plant/parking garage building are located at ground level. Those receptors should be at rooftop level only. The flagpole receptors around the edge of the parking garage eliminate the need to place receptors inside the parking garage.
5. There is no crawl space between the Steam Plant building and the parking structure along the west side of the Steam Plant building. There is no need for receptors where these two structures connect along the west side of the Steam Plant building. On the north side of the Steam Plant building, the parking garage is very close to the wall of the Steam Plant building and the space between the two structures isn't easily accessible. There is no need for receptors along the north side of the Steam Plant building.
6. UNMH's existing utility plant is closer to the UNM Steam Plant than any industrial sources are to the South Valley monitor. Due to its proximity, the UNMH utility plant is the one source that should be included in the cumulative particulate model that uses a particulate background from South Valley monitor data. Please keep in mind that use of all the surrounding source data that was provided allows for the use of particulate background data from the Del Norte monitor.

7. If UNM continues to use particulate background data from the South Valley monitor, then there is no need to correct the stack parameters in the cumulative PM models. If on the other hand, Trinity switches to use of particulate backgrounds from Del Norte, then stack parameters for surrounding sources will need to be corrected in the cumulative particulate models.

DRAFT