Universal Application 4

Air Dispersion Modeling Report

Refer to and complete Section 16 of the Universal Application form (UA3) to assist your determination as to whether modeling is required. If, after filling out Section 16, you are still unsure if modeling is required, e-mail the completed Section 16 to the AQB Modeling Manager for assistance in making this determination. If modeling is required, a modeling protocol would be submitted and approved prior to an application submittal. The protocol should be emailed to the modeling manager. A protocol is recommended but optional for minor sources and is required for new PSD sources or PSD major modifications. Fill out and submit this portion of the Universal Application form (UA4), the "Air Dispersion Modeling Report", only if air dispersion modeling is required for this application submittal. This serves as your modeling report submittal and should contain all the information needed to describe the modeling. No other modeling report or modeling protocol should be submitted with this permit application.

16-A: Identification

1	Name of facility:	MV 400 TPH Astec HMA Plant
2	Name of company:	Mesa Verde Enterprises, Inc.
3	Current Permit number:	New Permit
4	Name of applicant's modeler:	Paul Wade
5	Phone number of modeler:	(505) 830-9680 x6
6	E-mail of modeler:	pwade@montrose-env.com

16-B: Brief

1	Was a modeling protocol submitted and approved? Submitted 11/30/2023, but not approved	Yes☒	No☐
2	Why is the modeling being done?	New Facility	
3	Describe the permit changes relevant to the modeling.		
	New NSR Permit. Presently operates under GCP-3-9079. Allow night time operations.		
4	What geodetic datum was used in the modeling?	NAD83	
5	How long will the facility be at this location?	No more than a year	
6	Is the facility a major source with respect to Prevention of Significant Deterioration (PSD)?	Yes☐	No☒

7	Identify the Air Quality Control Region (AQCR) in which the facility is located	153	
8	List the PSD baseline dates for this region (minor or major, as appropriate).		
	NO2	08/02/1995	
	SO2	N/A	
	PM10	06/16/2000	
	PM2.5	N/A	
9	Provide the name and distance to Class I areas within 50 km of the facility (300 km for PSD permits).		
	No Class I area within 50 km.		
10	Is the facility located in a non-attainment area? If so describe below	Yes☐	No☒
11	Describe any special modeling requirements, such as streamline permit requirements.		

16-C: Modeling History of Facility

1 Describe the modeling history of the facility, including the air permit numbers, the pollutants modeled, the National Ambient Air Quality Standards (NAAQS), New Mexico AAQS (NMAAQS), and PSD increments modeled. (Do not include modeling waivers).

Pollutant	Latest permit and modification number that modeled the pollutant facility-wide.	Date of Permit	Comments
CO	N/A	N/A	New Permitted Facility
NO_2	N/A	N/A	New Permitted Facility
SO_2	N/A	N/A	New Permitted Facility
H_2S	N/A	N/A	New Permitted Facility
PM2.5	N/A	N/A	New Permitted Facility
PM10	N/A	N/A	New Permitted Facility
Lead	N/A	N/A	Not a significant facility pollutant
Ozone (PSD only)	N/A	N/A	Not a PSD Source
NM Toxic Air Pollutants (20.2.72.402 NMAC)	N/A	N/A	New Permitted Facility

16-D: Modeling performed for this application

1 For each pollutant, indicate the modeling performed and submitted with this application.
Choose the most complicated modeling applicable for that pollutant, i.e., culpability analysis assumes ROI and cumulative analysis were also performed.

Pollutant	ROI	Cumulative analysis	Culpability analysis	Waiver approved	Pollutant not emitted or not changed.

	CO	☒	☐	☐	☐	☐
	NO_2	☒	☒	☐	☐	☐
	SO_2	☒	☒	☐	☐	☐
	H_2S	☒	☐	☐	☐	☐
	PM2.5	☒	☒	☐	☐	☐
	PM10	☒	☒	☐	☐	☐
	Lead	☐	☐	☐	☐	☒
	Ozone	☐	☐	☐	☐	☒
	State air toxic(s) (20.2.72.402 NMAC)	☒	☐	☐	☐	☐

16-E: New Mexico toxic air pollutants modeling

1 List any New Mexico toxic air pollutants (NMTAPs) from Tables A and B in 20.2.72.502 NMAC that are modeled for this application.

2 List any NMTAPs that are emitted but not modeled because stack height correction factor. Add additional rows to the table below, if required.

Pollutant	Emission Rate (pounds/hour)	Emission Rate Screening Level (pounds/hour)	Stack Height (meters)	Correction Factor	Emission Rate/ Correction Factor
Asphalt Fumes	5.01	0.333	9.14	1	5.01
Calcium Hydroxide	0.18	0.333	18.3	5	0.036

16-F: Modeling options

1	Was the latest version of AERMOD used with regulatory default options? If not explain below.	Yes☒	No☐
	AERMOD Version 23132		

16-G: Surrounding source modeling

1	Date of surrounding source retrieval	11/13/2023

2 If the surrounding source inventory provided by the Air Quality Bureau was believed to be inaccurate, describe how the sources modeled differ from the inventory provided. If changes to the surrounding source inventory were made, use the table below to describe them. Add rows as needed.

PM10 and PM2.5 GCP emission sources were set to 71.25 tpy and 17.875 tpy, respectively.
GCP2 and GCP3 hours of operation were limited to daylight hours only.

AQB Source ID	Description of Corrections

16-H: Building and structure downwash

1	How many buildings are present at the facility?	4		
2	How many above ground storage tanks are present at the facility?	2		
3	Was building downwash modeled for all buildings and tanks? If not explain why below.		Yes☒	No☐
4	Building comments			

16-I: Receptors and modeled property boundary

1	"Restricted Area" is an area to which public entry is effectively precluded. Effective barriers include continuous fencing, continuous walls, or other continuous barriers approved by the Department, such as rugged physical terrain with a steep grade that would require special equipment to traverse. If a large property is completely enclosed by fencing, a restricted area within the property may be identified with signage only. Public roads cannot be part of a Restricted Area. A Restricted Area is required in order to exclude receptors from the facility property. If the facility does not have a Restricted Area, then receptors shall be placed within the property boundaries of the facility. Describe the fence or other physical barrier at the facility that defines the restricted area.						
	Facility will be located within White Sand Missile Range. The White Sands Missile Range is fenced. Co-located at the site is Toro Rock Products, LLC's Organ Quarry aggregate plant operating under GCP-2-3269 that will be providing the aggregate for the Facility. At the gate to the site is no trespassing signs for Toro Rock. No White Sands Missile Range personnel are located or allowed in the area. A modeling property boundary was created following south and west fencing around the White Sands Missile Range and an east and north modeling boundary created within the White Sands Missile Range.						
2	Receptors must be placed along publicly accessible roads in the restricted area. Are there public roads passing through the restricted area?					Yes☐	No☒
3	Are restricted area boundary coordinates included in the modeling files?					Yes☒	No☐
4	Describe the receptor grids and their spacing. The table below may be used, adding rows as needed.						
	Grid Type	Shape	Spacing	Start distance from restricted area or center of facility	End distance from restricted area or center of facility	Comments	
	Very Fine	Cartesian	50 meters	Border	500 Meters		
	Very Fine	Cartesian	100 meters	500 Meters	1 Kilometers		
	Fine	Cartesian	250 meters	1 Kilometers	3 Kilometers		
	Course	Cartesian	500 meters	3 Kilometers	7 Kilometers		
	Course	Cartesian	1000 meters	7 Kilometers	50 Kilometers		
5	Describe receptor spacing along the fence line.						
	25 meters						
6	Describe the PSD Class I area receptors.						
	N/A						

16-J: Sensitive areas

1	Are there schools or hospitals or other sensitive areas near the facility? If so describe below. This information is optional (and purposely undefined) but may help determine issues related to public notice.	Yes☐	No☒
3	The modeling review process may need to be accelerated if there is a public hearing. Are there likely to be public comments opposing the permit application?	Yes☐	No☒

16-K: Modeling Scenarios

1	Identify, define, and describe all modeling scenarios. Examples of modeling scenarios include using different production rates, times of day, times of year, simultaneous or alternate operation of old and new equipment during transition periods, etc. Alternative operating scenarios should correspond to all parts of the Universal Application and should be fully described in Section 15 of the Universal Application (UA3).		
	For HMA Plant, they will limit model hours to the equivalent of 10 hours per day if operating at maximum to account for the requested permit daily production rate. For particulate modeling, 12 scenarios were run beginning with February - November months operating daily limits starting at 12:00 AM. Scenario 2 modeling hours for February - November months two hours from 2 AM. This trend continues for all 12 scenarios. For December and January months, the facility will not operate. NO2 modeling was run for all hours of operation in February – November months.		
2	Which scenario produces the highest concentrations? Why?		
	PM10 24 hour – Scenario 1, operating nighttime hours with low winds and low boundary layer PM10 24 hour Inc – Scenario 2, Year 2018, operating nighttime hours with low winds and low boundary layer PM10 Annual Inc – Scenario 1, Year 2015, operating nighttime hours with low winds and low boundary layer PM2.5 24 hour – Scenario 2, operating nighttime hours with low winds and low boundary layer PM2.5 annual – Scenario 12, operating nighttime hours with low winds and low boundary layer		
3	Were emission factor sets used to limit emission rates or hours of operation? (This question pertains to the "SEASON", "MONTH", "HROFDY" and related factor sets, not to the factors used for calculating the maximum emission rate.)	Yes☒	No☐
4	If so, describe factors for each group of sources. List the sources in each group before the factor table for that group. (Modify or duplicate table as necessary. It's ok to put the table below section 16-K if it makes formatting easier.) Sources:		
5	For the MV 400 TPH Astec HMA plant, the following hours lists the maximum hours of operation.		

HMA Production Hours of Operation (MST)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
12:00 AM	0	1	1	1	1	1	1	1	1	1	1	0
1:00 AM	0	1	1	1	1	1	1	1	1	1	1	0
2:00 AM	0	1	1	1	1	1	1	1	1	1	1	0
3:00 AM	0	1	1	1	1	1	1	1	1	1	1	0
4:00 AM	0	1	1	1	1	1	1	1	1	1	1	0
5:00 AM	0	1	1	1	1	1	1	1	1	1	1	0

6:00 AM	0	1	1	1	1	1	1	1	1	1	1	0
7:00 AM	0	1	1	1	1	1	1	1	1	1	1	0
8:00 AM	0	1	1	1	1	1	1	1	1	1	1	0
9:00 AM	0	1	1	1	1	1	1	1	1	1	1	0
10:00 AM	0	1	1	1	1	1	1	1	1	1	1	0
11:00 AM	0	1	1	1	1	1	1	1	1	1	1	0
12:00 PM	0	1	1	1	1	1	1	1	1	1	1	0
1:00 PM	0	1	1	1	1	1	1	1	1	1	1	0
2:00 PM	0	1	1	1	1	1	1	1	1	1	1	0
3:00 PM	0	1	1	1	1	1	1	1	1	1	1	0
4:00 PM	0	1	1	1	1	1	1	1	1	1	1	0
5:00 PM	0	1	1	1	1	1	1	1	1	1	1	0
6:00 PM	0	1	1	1	1	1	1	1	1	1	1	0
7:00 PM	0	1	1	1	1	1	1	1	1	1	1	0
8:00 PM	0	1	1	1	1	1	1	1	1	1	1	0
9:00 PM	0	1	1	1	1	1	1	1	1	1	1	0
10:00 PM	0	1	1	1	1	1	1	1	1	1	1	0
11:00 PM	0	1	1	1	1	1	1	1	1	1	1	0
Total	0	24	24	24	24	24	24	24	24	24	24	0

Since the HMA plant daily hours of operation running at maximum hourly production rate is less than the total hours of operation, twelve (12) PM modeling scenarios will be performed for each averaging period. For each scenario the hours of operation are shifted by two hours.

HMA Model Scenario Time Segments

Model Scenario	Time Segments 5-Hour Blocks February, March, November	Time Segments 8-Hour Blocks April, September, and October	Time Segments 10-Hour Blocks May - August
1	12 AM to 5 AM	12 AM to 8 AM	12 AM to 10 AM
2	2 AM to 7 AM	2 AM to 10 AM	2 AM to 12 PM
3	4 AM to 9 AM	4 AM to 12 PM	4 AM to 2 PM
4	6 AM to 11 AM	6 AM to 2 PM	6 AM to 4 PM
5	8 AM to 1 PM	8 AM to 4 PM	8 AM to 6 PM
6	10 AM to 3 PM	10 AM to 6 PM	10 AM to 8 PM
7	12 PM to 5 AM	12 PM to 8 PM	12 PM to 10 PM
8	2 PM to 7 PM	2 PM to 10 PM	2 PM to 12 AM
9	4 PM to 9 PM	4 PM to 12 AM	4 PM to 2 AM
10	6 PM to 11 PM	6 PM to 2 AM	6 PM to 4 AM
11	8 PM to 1 AM	8 PM to 4 AM	8 PM to 6 AM
12	10 PM to 3 AM	10 PM to 6 AM	10 PM to 8 AM

6	Were different emission rates used for short-term and annual modeling? If so describe below.	Yes☒	No☐
	For setback modeling, the annual particulate matter modeling included hourly factors based on limitations on annual production.		

16-L: NO_2 Modeling

1	Which types of NO_2 modeling were used? Check all that apply.	
	☒	ARM2
	☐	100% NO_X to NO_2 conversion
	☐	PVMRM
	☐	OLM
	☐	Other:
2	Describe the NO_2 modeling.	
	NO2 modeling included neighboring sources and no background concentrations.	

3	Were default NO_2/NO_X ratios (0.5 minimum, 0.9 maximum or equilibrium) used? If not describe and justify the ratios used below.	Yes☒	No☐
4	Describe the design value used for each averaging period modeled.		
	1-hour: 98th percentile as calculated by AERMOD Annual: One Year Annual Average		

16-M: Particulate Matter Modeling

1	Select the pollutants for which plume depletion modeling was used.	
	☐	PM2.5
	☒	PM10
	☐	None
2	Describe the particle size distributions used. Include the source of information.	
	PM_{10} emissions may be modeled using plume deposition. Plume deposition simulates the effect of gravity as particles "fall-out" from the plume to the ground as the plume travels downwind. Therefore, the farther the plume travels from the emission point to the receptor, the greater the effect of plume deposition and the greater the decrease in modeled impacts or concentrations. Particle size distribution, particle mass fraction, and particle density are required inputs to the model to perform this function. Particle size distribution for fugitive dust during material handling, fugitive road dust on unpaved roads; lime silo baghouse exhaust; HMA asphalt particulate emissions; and combustion will use the particle size distribution found in the NMED Modeling Section approved values.	

The mass-mean particle diameters were calculated using the formula:

$$d = ((d^3_1 + d^2_1 d_2 + d_1 d^2_2 + d^3_2) / 4)^{1/3}$$

Where: d = mass-mean particle diameter
d_1 = low end of particle size category range
d_2 = high end of particle size category range

Representative average particle densities were obtained from NMED accepted values.

Material	Density (g/cm^3)	Reference
Road Dust	2.5	NMED Value
Lime	3.3	NMED Value
HMA Asphalt	1.5	NMED Value
Combustion	1.5	NMED Value
Fugitive Dust	2.5	NMED Value

The size distribution for PM_{10} emission sources are presented in Tables below.

Road Vehicle Fugitive Dust Deposition Parameters

Particle Size Category (μm)	Mass Mean Particle Diameter (μm)	Mass Weighted Size Distribution (%)	Density (g/cm^3)
PM10			
0 – 2.5	1.57	25.0	2.5
2.5 – 10	6.91	75.0	2.5

Based on NMED Particle Size Distribution Spreadsheet – April 25, 2007 (Vehicle Fugitive)

Lime Baghouse Source Deposition Parameters

Particle Size Category (μm)	Mass Mean Particle Diameter (μm)	Mass Weighted Size Distribution (%)	Density (g/cm^3)
PM10			
0-2.5	1.57	25	3.3
2.5-10	6.91	75	3.3

Parameters based on baghouse exhaust capture percentages. (Lime Silo)

Combustion Source Deposition Parameters

Particle Size Category (μm)	Mass Mean Particle Diameter (μm)	Mass Weighted Size Distribution (%)	Density (g/cm³)
PM10			
0 - 2.5	1.57	100	1.5

Based on NMED Particle Size Distribution Spreadsheet – April 25, 2007 (Combustion)

Asphalt Baghouse and Stack Source Deposition Parameters

Particle Size Category (μm)	Mass Mean Particle Diameter (μm)	Mass Weighted Size Distribution (%)	Density (g/cm³)
PM10			
0-1.0	0.63	50.0	1.5
1.0-2.5	1.85	19.0	1.5
2.5-10	6.92	31.0	1.5

Based on NMED Particle Size Distribution Spreadsheet – April 25, 2007 (Asphalt Baghouse Stack)

Fugitive Dust Source Deposition Parameters

Particle Size Category (μm)	Mass Mean Particle Diameter (μm)	Mass Weighted Size Distribution (%)	Density (g/cm³)
PM10			
0 - 2.5	1.57	7.8	2.5
2.5 – 5	3.88	27.0	2.5
5 – 10	7.77	65.2	2.5

Based on NMED Particle Size Distribution Spreadsheet – April 25, 2007 (Coal Handling).

3	Does the facility emit at least 40 tons per year of NO_X or at least 40 tons per year of SO_2? Sources that emit at least 40 tons per year of NO_X or at least 40 tons per year of SO_2 are considered to emit significant amounts of precursors and must account for secondary formation of PM2.5.	Yes☒	No☐
4	Was secondary PM modeled for PM2.5?	Yes☒	No☐

5 If MERPs were used to account for secondary PM2.5 fill out the information below. If another method was used describe below.

NO_X (ton/yr)	SO_2 (ton/yr)	$[PM2.5]_{annual}$	$[PM2.5]_{24\text{-}hour}$
50.3	29.4	0.0002	0.005

The $PM_{2.5}$ secondary emission concentration analysis will follow EPA and NMED AQB guidelines. Following recent EPA guidelines for conversion of NO_X and SO_2 emission rates to secondary $PM_{2.5}$ emissions, Mesa Verde emissions are compared to appropriate western MERPs values (NO_X 24-Hr – 42498 tpy; NO_X Annual – 130260 tpy; SO_2 24-Hr – 9753 tpy; SO_2 Annual – 53898 tpy). The following equation, found in NMED AQB modeling guidance document on MERPs, will be added to determine if secondary emission would cause violation with $PM_{2.5}$ NAAQS.

	$PM_{2.5}$ annual = ((NO_X emission rate (tpy)/130260 + (SO_2 emission rate (tpy)/53898)) x 0.2 µg/m^3 $PM_{2.5}$ annual = ((50.3/130260) + (29.4/53898)) x 0.2 µg/m^3 = **0.0002 µg/m^3** $PM_{2.5}$ 24 hour = ((NO_X emission rate (tpy)/42498 + (SO_2 emission rate (tpy)/9753)) x 1.2 µg/m^3 $PM_{2.5}$ 24 hour = ((50.3/42498) + (29.4/9753)) x 1.2 µg/m^3 = **0.005 µg/m^3**

16-N: Setback Distances

1	Portable sources or sources that need flexibility in their site configuration requires that setback distances be determined between the emission sources and the restricted area boundary (e.g. fence line) for both the initial location and future locations. Describe the setback distances for the initial location.
	At the initial location they will be operating no more than one year. Any relocations back will be to the same location.

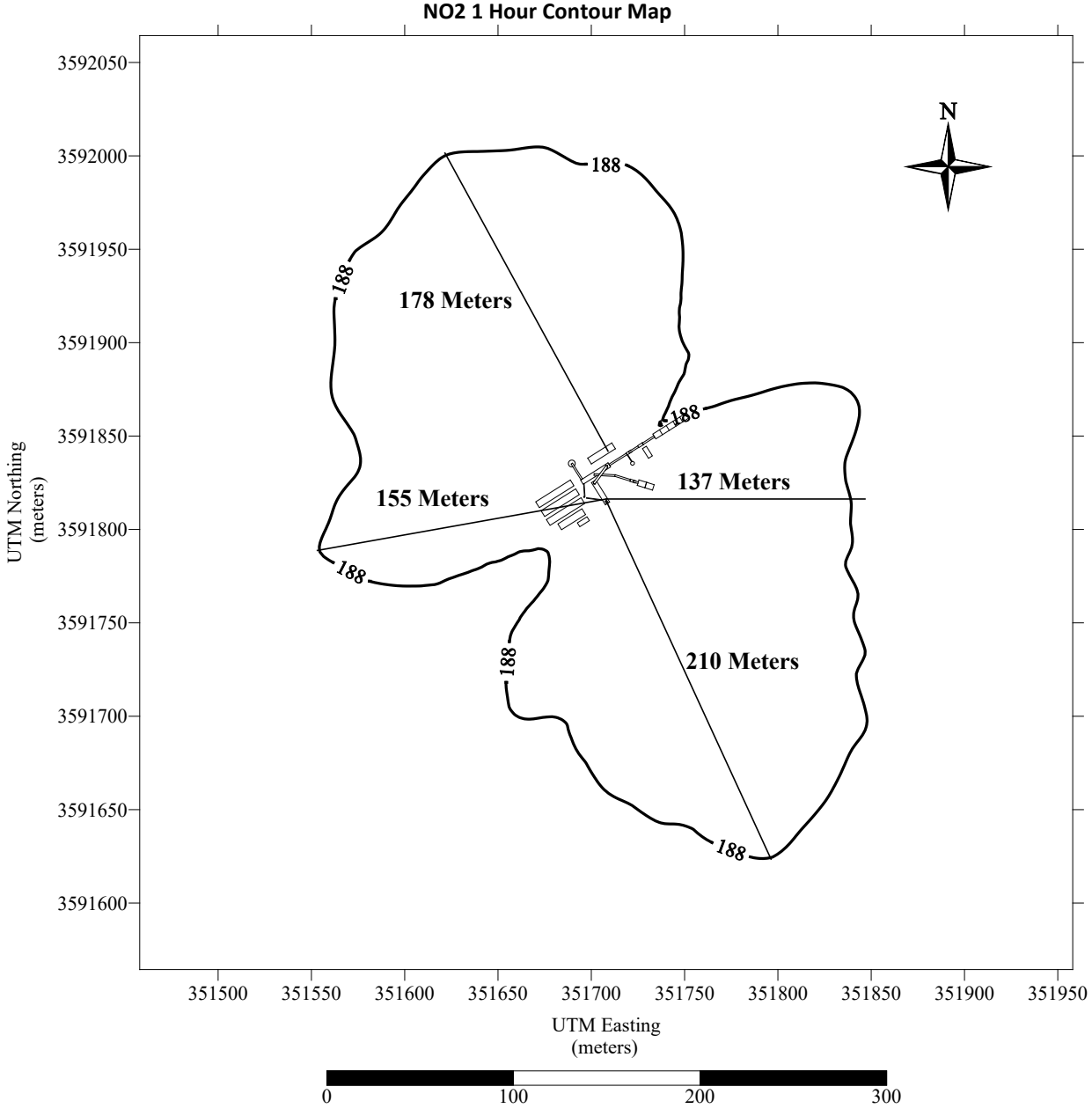
2	Describe the requested, modeled, setback distances for future locations, if this permit is for a portable stationary source. Include a haul road in the relocation modeling.

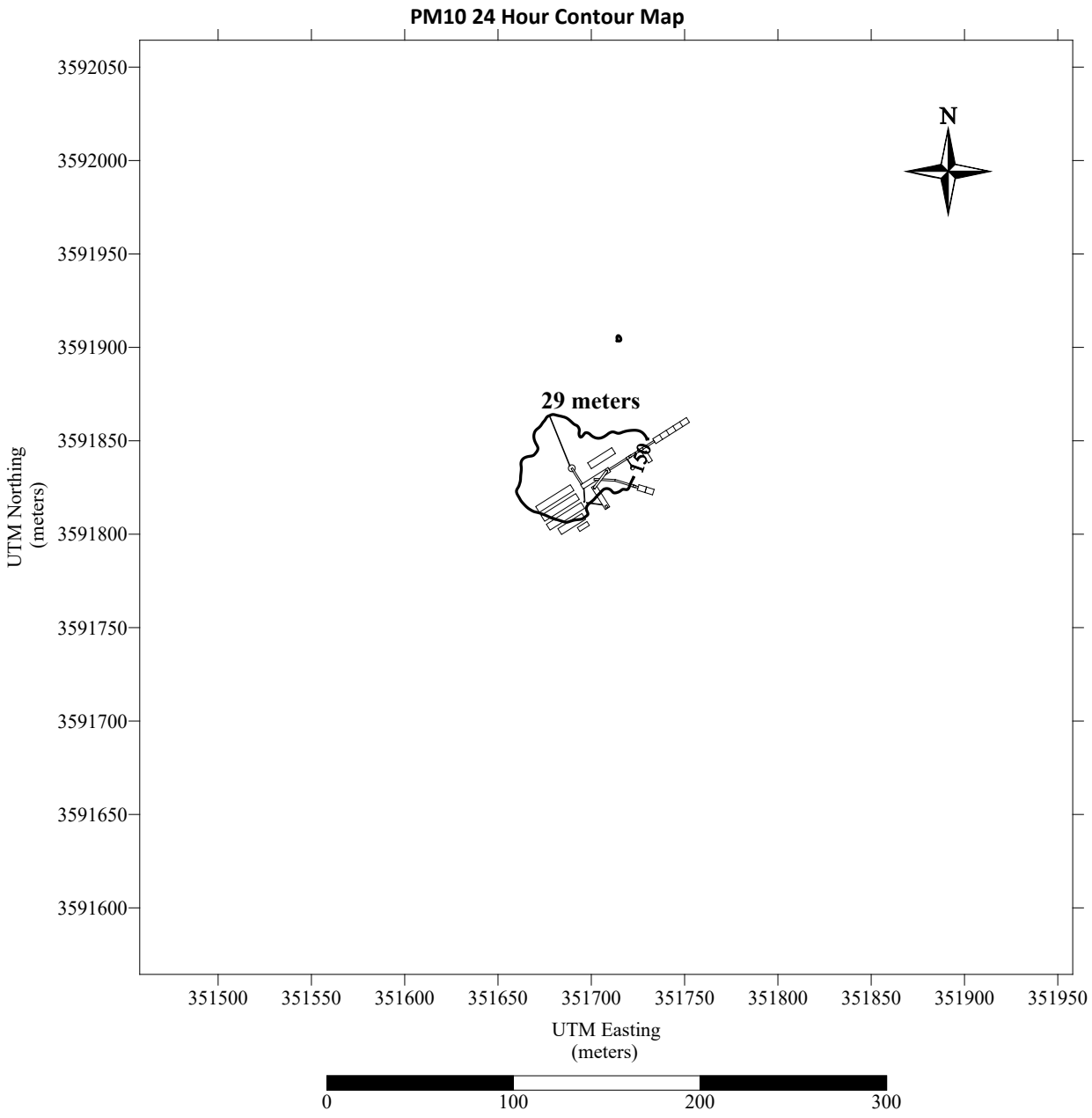
The most likely future location will be near Alamogordo. Meteorological data from Holloman Air Force Base was used in the relocation modeling. For the relocation modeling all truck traffic was run from the plant to the exit on a single haul road. All modeling was run with no elevations. For PM10, Scenario 11 produced the largest setback. For PM2.5, Scenario 10 produced the largest setback. For the setback modeling, NO2 1 hour produced the furthest setback distance of 210 meters.

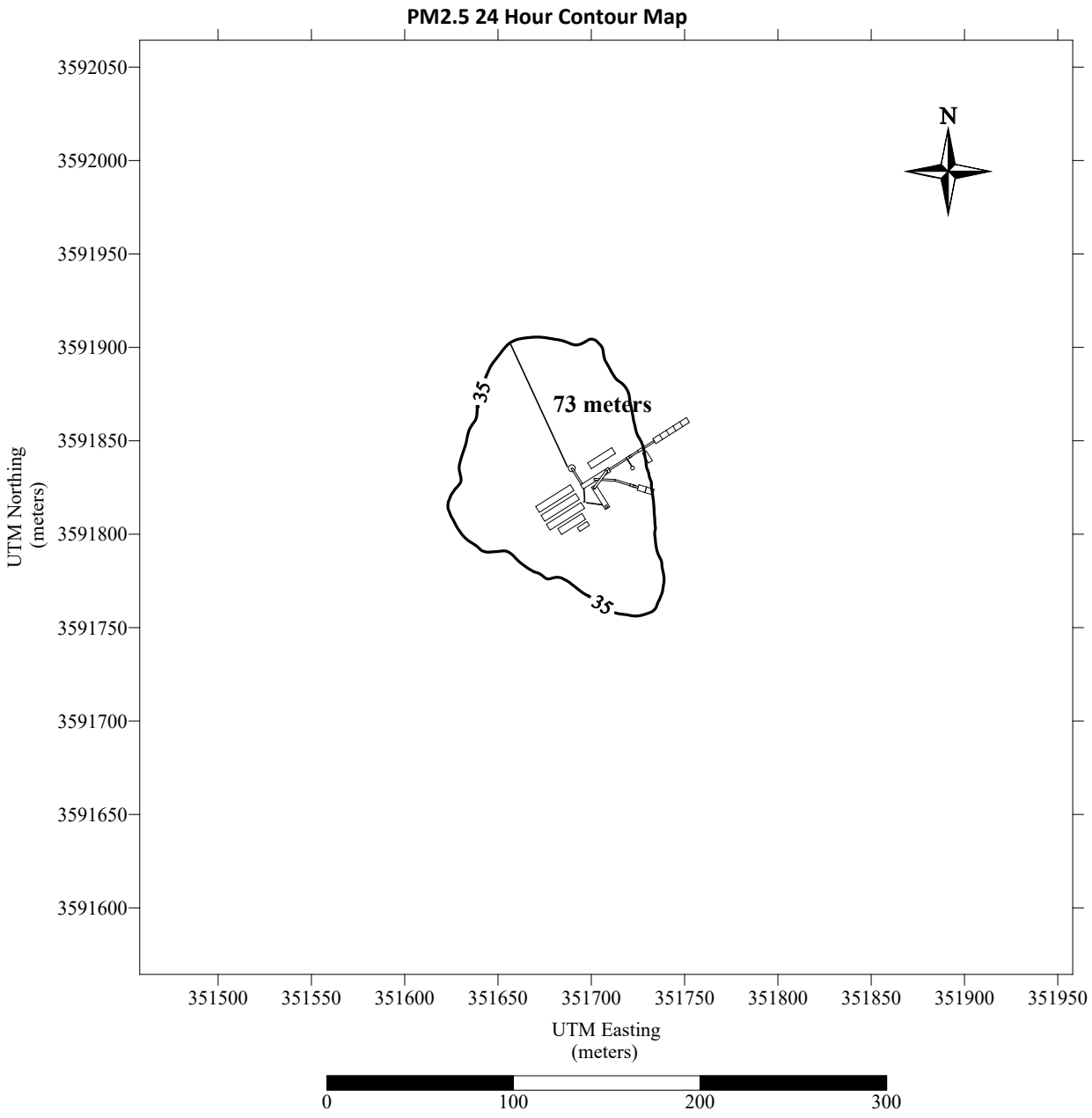
Setback Distance in Meters

North	East	South	West
178	137	210	155

NO2 1 Hour Contour Map




PM10 24 Hour Contour Map
N
29 meters
150
UTM Northing
(meters)
3592050
3592000
3591950
3591900
3591850
3591800
3591750
3591700
3591650
3591600
351500
351550
351600
351650
351700
351750
351800
351850
351900
351950
UTM Easting
(meters)
0
100
200
300


PM2.5 24 Hour Contour Map
N
35
73 meters
35
UTM Northing
(meters)
3592050
3592000
3591950
3591900
3591850
3591800
3591750
3591700
3591650
3591600
351500
351550
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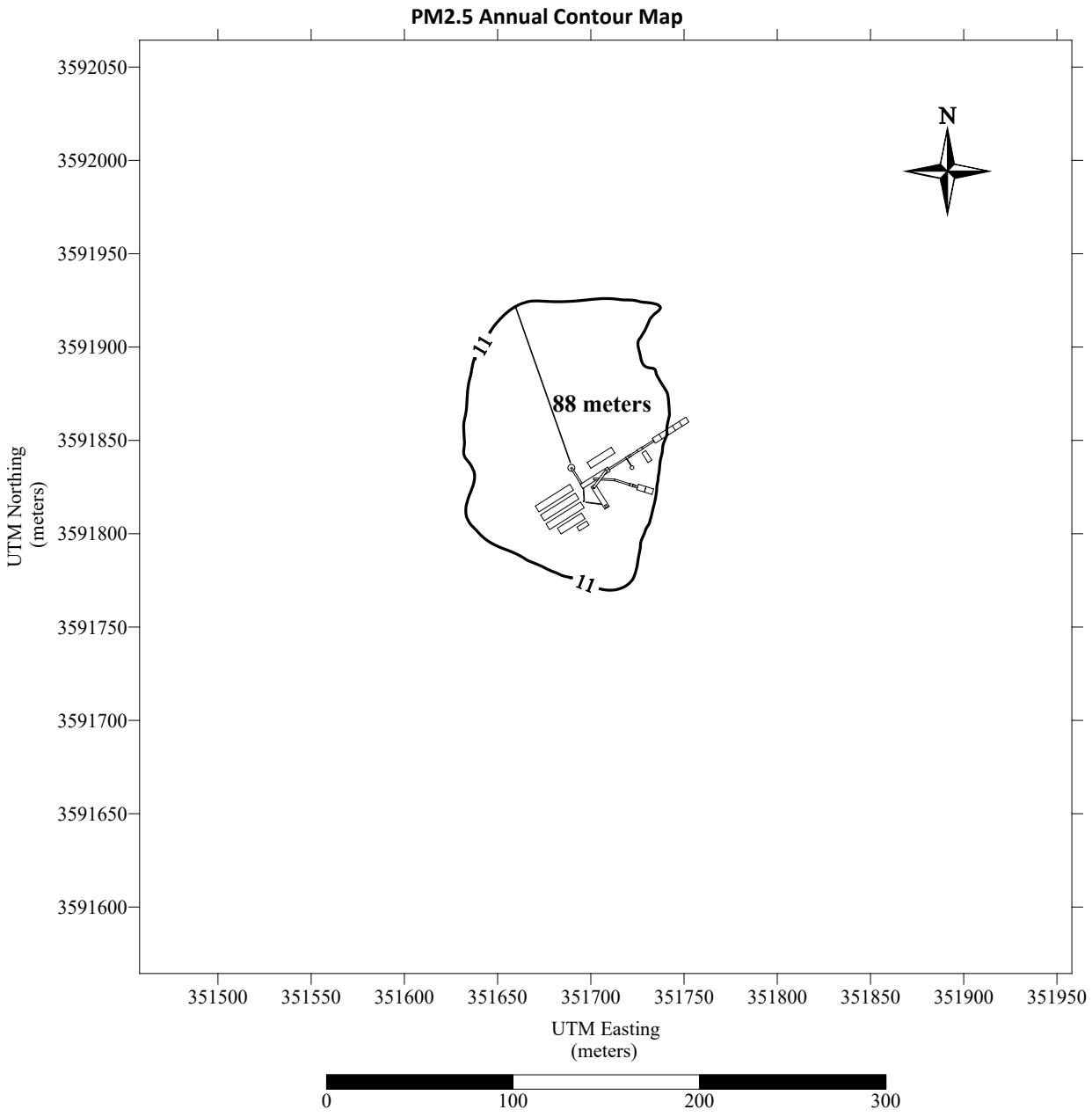
351950
UTM Easting
(meters)
0
100
200
300



16-O: PSD Increment and Source IDs

1	The unit numbers in the Tables 2-A, 2-B, 2-C, 2-E, 2-F, and 2-I should match the ones in the modeling files. Do these match? If not, provide a cross-reference table between unit numbers if they do not match below.	Yes☐	No☒

Unit Number in UA-2	Unit Number in Modeling Files
TRCK	UHR_1-158

		AGG_1-20
	YARD	UHR_76-158

	The emission rates in the Tables 2-E and 2-F should match the ones in the modeling files. Do these match? If not, explain why below.	Yes☐	No☒

2 Hourly model emission rates for material handling sources (Emissions calculated using AP-42 Section 13.2.4) are calculated using annual average windspeed for Moriarty.

Permit ID	Model ID	Source Description	Permit Emission Rate PM10 Lb/Hr	Permit Emission Rate PM2.5 Lb/Hr	Modeled Emission Rate PM10 Lb/Hr	Modeled Emission Rate PM2.5 Lb/Hr
AGGPILE	AGGPILE1 - 4	Cold Aggregate Storage Pile (combined)	0.59309	0.08981	0.34804	0.05270
AGGPILE	AGGPILE5 – 6	RAP Storage Pile (combined)	0.05057	0.00766	0.02968	0.00449
1	HMABIN	Cold Aggregate Feed Bin Loading	0.59309	0.08981	0.34804	0.05270
8	RAPFEED	RAP Feeder/Hopper	0.05057	0.00766	0.02968	0.00449

3	Have the minor NSR exempt sources or Title V Insignificant Activities" (Table 2-B) sources been modeled?	Yes☐	No☒

4 Which units consume increment for which pollutants?

Model ID	Source Description	NOx	PM10
AGGPILE	Cold Aggregate/RAP Storage Pile		X
1	Feed Bin Loading		X
2	Feed Bin Unloading		X
3	Scalping Screen		X
4	Scalping Screen Unloading		X
5	Pug Mill Load		X
6	Pug Mill Unload		X
7	Conveyor Transfer to Slinger Conveyor		X
8	RAP Bin Loading		X
9	RAP Bin Unloading		X
10	RAP Screen		X
11	RAP Screen Unloading		X
12	RAP Transfer Conveyor		X
12a	RAP Transfer Conveyor to Drum		X
13	Mineral Filler Silo Baghouse		X
14	Drum Dryer Baghouse	X	X
15	Drum Mixer Unloading		X
16	Asphalt Silo Unloading		X
17	Main Plant Generator	X	X
18	Standby Generator	X	X
19	Asphalt Heater	X	X
20	Asphalt Cement Storage Tanks (2)		X
TRCK	Haul Road Traffic		X
YARD	HMA Yard		X

5	PSD increment description for sources. (for unusual cases, i.e., baseline unit expanded emissions after baseline date).	Baseline Consumers	
6	Are all the actual installation dates included in Table 2A of the application form, as required? This is necessary to verify the accuracy of PSD increment modeling. If not please explain how increment consumption status is determined for the missing installation dates below.	Yes☒	No☐

16-P: Flare Modeling

1	For each flare or flaring scenario, complete the following			
	Flare ID (and scenario)	Average Molecular Weight	Gross Heat Release (cal/s)	Effective Flare Diameter (m)
	NA			

16-Q: Volume and Related Sources

1	Were the dimensions of volume sources different from standard dimensions in the Air Quality Bureau (AQB) Modeling Guidelines? If not please explain how increment consumption status is determined for the missing installation dates below.	Yes☒	No☐
2	Describe the determination of sigma-Y and sigma-Z for fugitive sources.		
	For storage piles the model inputs were based on the size of the pile (100 feet)/4.3 (sigma-Y) and a release height of 8 feet or a sigma-Z of 8ft*2/2.15. All others followed standard dimensions from Air Quality Bureau (AQB) Modeling Guidelines.		
3	Describe how the volume sources are related to unit numbers. Or say they are the same.		
	Yes		
4	Describe any open pits.		
	NA		
5	Describe emission units included in each open pit.		
	NA		

16-R: Background Concentrations

1	Were NMED provided background concentrations used? Identify the background station used below. If non-NMED provided background concentrations were used describe the data that was used.	Yes☒	No☐

	CO: Del Norte High School (350010023)			
	NO_2: N/A			
	PM2.5: Las Cruces Distric Office (350130025)			
	PM10: Las Cruces City Well #46 (350130024)			
	SO_2: N/A			
	Other:			
	Comments:	NO2 and SO2 were modeled with neighboring sources only. No H2S neighboring sources were identified.		
2	Were background concentrations refined to monthly or hourly values? If so describe below.		Yes☐	No☒

16-S: Meteorological Data

1	Was NMED provided meteorological data used? If so select the station used.Las Cruces	Yes☒	No☐
2	If NMED provided meteorological data was not used describe the data set(s) used below. Discuss how missing data were handled, how stability class was determined, and how the data were processed.		
	For site modeling: Holloman Rd 2015-2019; For relocation: Alamogordo 2017 - 2021		

16-T: Terrain

1	Was complex terrain used in the modeling? If not, describe why below.	Yes☒	No☐
	Yes, for point sources only. For volume sources, model was run in source selected flat terrain mode. For setback modeling all sources are run in flat terrain mode.		
2	What was the source of the terrain data?		
	USGS National Elevation Data (NED)		

16-U: Modeling Files

Describe the modeling files: For PM10 and PM2.5 modeling, the ROI modeling included all discussed operating scenario. For the results of the ROI particulate matter modeling, the highest six model results were used in the CIA modeling

File name (or folder and file name)	Pollutant(s)	Purpose (ROI/SIA, cumulative, culpability analysis, other)
MVWSRCombustROI	NO2, CO, SO2	ROI/SIA
MVWSRPMROIS1-12	PM10, PM2.5	ROI/SIA
MVAstecNO2YrCIA	NO2 Annual NAAQS and Increment	Cumulative, Increment
MVAstecNO21HrCIA	NO2 1 hour	Cumulative
MVAstecSO21HrCIA	SO2 1 hour NAAQS and Increment	Cumulative, Increment
MVAstecPM10CIAS1, 2, 3, 9, 10, 1, 12	PM10	Cumulative

	MVAstecPM25CIAS1, 2, 3, 9, 10, 1, 12	PM2.5	Cumulative
	MVAstecPM10INCS1, 2, 3, 9, 10, 1, 12	PM10 Increment	Increment
	MVAstecAF	Asphalt Fumes	TAPs Model
	MVAstecH2S	H2S	ROI/SIA
	MVAstecNO2Relocation	NO2 1 hour	Relocation Setback
	MVAstecPM10RelocationS1, 9, 10, 11, 12	PM10 24 Hour	Relocation Setback
	MVAstecPM24RelocationS1, 9, 10, 11, 12	PM2.5 24 Hour and Annual	Relocation Setback

16-V: PSD New or Major Modification Applications

1	A new PSD major source or a major modification to an existing PSD major source requires additional analysis. Was preconstruction monitoring done (see 20.2.74.306 NMAC and PSD Preapplication Guidance on the AQB website)?	Yes☐	No☒
2	If not, did AQB approve an exemption from preconstruction monitoring?	Yes☐	No☒
3	Describe how preconstruction monitoring has been addressed or attach the approved preconstruction monitoring or monitoring exemption.		
	Not a PSD Source		
4	Describe the additional impacts analysis required at 20.2.74.304 NMAC.		
	Not a PSD Source		
5	If required, have ozone and secondary PM2.5 ambient impacts analyses been completed? If so describe below.	Yes☒	No☐
	Secondary PM2.5 were calculated using Modeling Guideline MERPs		

16-W: Modeling Results

1	If ambient standards are exceeded because of surrounding sources, a culpability analysis is required for the source to show that the contribution from this source is less than the significance levels for the specific pollutant. Was culpability analysis performed? If so describe below.	Yes☐	No☒
2	Identify the maximum concentrations from the modeling analysis. Rows may be modified, added and removed from the table below as necessary. For PM10 24 hour, the maximum scenario was Scenario10. For PM2.5 24 hour, the maximum scenario was Scenario11. For PM2.5 Annual, the maximum scenario was Scenario10. For particulate modeling, the highest receptors were located at the traffic exit to the site. All highest applicable concentrations were on the Mesa Verde/Toro Rock Model boundary.		

Pollutant, Time Period and Standard	Modeled Facility Concentration (µg/m3)	Modeled Concentration with Surrounding Sources (µg/m3)	Secondary PM (µg/m3)	Background Concentration (µg/m3)	Cumulative Concentration (µg/m3)	Value of Standard (µg/m3)	Percent of Standard	Location		
								UTM E (m)	UTM N (m)	Elevation (ft)
Asphalt Fumes – 8 Hr	16.2	NA	NA	NA	NA	50	32.4	351751.1	3591355.2	1705.25
H2S – 1 hr	0.25	NA	NA	NA	NA	SIL – 1.0	25.0	351751.1	3591355.0	1705.25
NOx - Annual	1.65	2.46	NA	NA	2.46	94.0	2.6	351701.5	3591356.3	1686.50
NOx – Annual Inc	1.65	2.07	NA	NA	2.07	25	8.3	351701.5	3591356.3	1686.50
NOx – 1 Hr	95.6	99.0	NA	NA	99.0	188.0	52.7	351726.3	3591355.8	1694.51
CO – 1 hr	627.9	NA	NA	NA	NA	SIL – 2000	31.4	351751.1	3591355.2	1705.25
CO – 8 Hr	176.2	NA	NA	NA	NA	SIL – 500	35.2	351751.1	3591355.2	1705.25
SO_2 – 1 Hr	136.1	136.1	NA	NA	136.1	196.4	69.3	351726.3	3591355.8	1694.51
$PM_{2.5}$ - Annual	0.74	0.74	0.0002	5.2	5.9	12	49.2	351726.3	3591355.8	1694.51
$PM_{2.5}$ – 24 Hr	3.6	3.6	0.005	11.0	14.6	35	41.7	351726.3	3591355.8	1694.51
PM_{10} – 24 Hr	25.6	25.6	NA	121.7	147.3	150	98.2	350882.4	3591373.3	1596.59
PM_{10} – 24 Hr Inc	29.1	29.1	NA	NA	29.1	30	97.0	350882.4	3591373.3	1596.59
PM_{10} – Annual Inc	6.8	6.8	NA	NA	6.8	17	40.0	350907.3	3591372.8	1597.37

16-X: Summary/conclusions

	A statement that modeling requirements have been satisfied and that the permit can be issued.
1	Dispersion modeling was performed for the new HMA permit application. All facility pollutants with ambient air quality standards and PSD increments were modeled to show compliance with those standards. All results of this modeling showed the facility in compliance with applicable ambient air quality standards and PSD increments.